UNIVERSITY *of* WEST FLORIDA

STUDENT SCHOLARS SYMPOSIUM

AND FACULTY RESEARCH SHOWCASE

2022 Event Program

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UNIVERSITY of WEST FLORIDA

STUDENT SCHOLARS SYMPOSIUM

AND FACULTY RESEARCH SHOWCASE

Programs & Abstracts

April 14, 2022

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Office of Undergraduate Research

We gratefully acknowledge the faculty who review proposals and serve on the advisory board for the Office of Undergraduate Research. We also gratefully acknowledge the students, faculty, and staff who have contributed to the organization and have volunteered their time to hosting this symposium.

Special Note on 2022 Symposium:
Due to the Covid-19 pandemic in the Spring 2022 semester, the UWF Student Scholars Symposium and Faculty Research Showcase was held in a hybrid format on April 14, 2022. Many sessions, including the Main Poster Session, took place on a virtual conference platform called Gather Town. Other sessions, including the Visual Art Exhibition, Main Oral Presentation Sessions, Engineering Showcase, and Music Showcase occurred in person on the Pensacola campus. Many students and faculty's research and high impact practice activities have been impacted by the pandemic and therefore the event was smaller than it has been in years past. The fact that so many students and faculty still made it a priority to continue with their research and present their work at this year's event is a testament to the high regard that our campus community places on the role in research to student learning and engagement. OUR recognizes the large number of UWF students and faculty who continue to work on research during these difficult times, including those who are not represented in these pages.

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COLLEGE OF ARTS, HUMAMITIES AND SOCIAL SCIENCES

CASSH - GENERAL

Carrie Fonder **College of Arts, Social Sciences, and Humanities**

MyStory Griot Project

Co-Author(s): Kaijah Bell, Michelle Traurig, Kyle Miller, Madison Beverly, Marci Duncan, C. Scott Satterwhite, Steve Brown

Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #100

Inspired by the tradition of Griots, West African poets, musicians, and storytellers who are the keepers of oral tradition, the MyStory Griot Project was launched in Fall of 2020 by the UWF College of Art Social Sciences and Humanities Dean's Workgroup on Race, Ethnicity, and Belonging. The project invites members of the campus community to talk and write about their lived experiences with race and race relations. It has created a space for individuals to share their stories while others have the opportunity to listen, learn, and expand their understanding of the complexity of race and racism. The recorded stories are read by the author or student volunteers from the Theatre Department and feature themes including powerlessness, empathy, and connection.

ANTHROPOLOGY AND ARCHEOLOGY

Nicholas Barbiere **Anthropology & Archeology**

Anthropology Research Design Course - Poster 1

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 11:00-12:00
Location: Virtual Space - Poster #102

My research topic involves using geomorphological practices to create a reconstruction of the Pensacola coastline and hopefully use it as a tool to help future researchers in searching for potential submerged terrestrial archaeology sites in the Pensacola Bay area. My intention is to supplement current techniques used in survey of underwater archaeology. With an understanding of how a local coastline changed over time, survey strategies can hopefully be more efficient.

Taylor Brown **Anthropology & Archeology**

Anthropology Research Design Course - Poster 2

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 11:00-12:00
Location: Virtual Space - Poster #103

Working primarily with existing collections, my thesis will focus on understanding resistance to national Prohibition in Pensacola, Florida, by studying traces of it in local memory, history, and archaeology through a multidisciplinary approach. This project presents the unique opportunity to study resistance to Prohibition in an urban setting, focusing more on the consumption of illegal alcohol in both social and domestic spheres. The types of patterns that emerge could illuminate how an entire city of "ordinary people" negotiated their interactions with an informal economy during a particularly tumultuous time in American history.

Kevin Cabrera **Anthropology & Archeology**

Anthropology Research Design Course - Poster 3

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 11:00-12:00
Location: Virtual Space - Poster #104

My research will examine how the culturally defined and social performance of gender differed across Mayan age groups in ancient Copan from childhood through post-pubescent adolescence and adulthood. The data for this examination of social identity will be driven from stable isotopes in teeth to determine if and when gendered food behaviors patterns materialized for ancient Copanecous. To determine when diet shifted during an individual's life-course, the sample will be divided into three age groups: post-weaning children (3-<12 years old), post-pubescent adolescents (>12-<18 years old), and young adults (>18-24 years old). The reasoning for choosing these three age cohorts is due to the etic categorizations developed by contemporary analysts. If there is a difference in the diets of skeletal male and female individuals, is it related to gendered food patterns and if so, at what age does this difference appear? Research on gender behavior in bioarchaeology is becoming an increasingly important and more widely-used area of research to investigate the roles that gender, and other aspects of identity have on the life of the individual in past populations. As bioarchaeology continues to expand and become a more interdisciplinary field, it presents more questions on how cultural complexity affects the human body.

Mallory Gibson **Anthropology & Archeology**

Anthropology Research Design Course - Poster 4

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 11:00-12:00
Location: Virtual Space - Poster #105

My research question involves the impact of gaming/gambling casinos on the Poarch Band of Creek Indian tribal members. They overwhelmingly identify as Christians, which can challenge their feelings toward the tribe's primary source of revenue; namely gaming. There is not much research on this topic or the Poarch Band of Creek Indians in general. As a twenty-two-year-old Native American, my generation has only experienced Native American tribes thriving and becoming economic powerhouses. In my grandparent's generation or even my parent's, tribes being financially independent is a new concept. Native American tribes

have experienced an enormous shift from being the poorest ethnic group in America to bringing in $30 billion in revenue. So how do these two worlds co-exist with one other, and how? do tribal members feel about the rising success and expanding into gambling?

Samantha Gonzalez **Anthropology & Archeology**

Anthropology Research Design Course – Poster 5

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 11:00-12:00
Location: Virtual Space - Poster #106

A biological profile is created by forensic anthropologists to assist in the identification of a deceased individual by estimating traits such as age, biological sex, ancestry, and stature. The biological profile of a subadult, a skeletally immature individual, heavily relies on age estimation to aid in identification because a subadult has not fully developed the characteristics that would lead to accurate sex or ancestry estimates. It is not currently known the effect socioeconomic status and population-level differences have on subadult growth and development, which can lead to less accurate estimations for subadults of unknown origin. This thesis proposes to quantify the effect socioeconomic status and population-level differences have on subadult growth and development and create a universal model for subadults of any population or socioeconomic status.

Richard Loza **Anthropology & Archeology**

Anthropology Research Design Course – Poster 6

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Virtual Space - Poster #107

My research will focus on attempting to locate the original anchorage area for the 1559 Tristán de Luna expedition fleet. The Tristán de Luna fleet of eleven to twelve ships suffered heavy losses on 19 September 1559 when a strong hurricane struck the fleet and settlement near modern day Pensacola's Emanuel Point and Scenic Highway area. My research will utilize remote sensing in the form of magnetometer and side scan sonar to perform a survey southeast of todays known wrecks in Pensacola Bay.

Ilaisah Martinez **Anthropology & Archeology**

Anthropology Research Design Course – Poster 7

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Virtual Space - Poster #108

A typical forensic anthropology report details a decedent's biological profile—estimates of their age, sex, stature, and social or biogeographic group membership. Yet, the terms we use when estimating that latter category differ. Race, ethnicity, ancestry, and population affinity have all been frequently used but infrequently defined. Further, it is not just in our reports where definition is key; it is arguably even more important in the research papers that we publish, which are often available to non-specialist readers. Are forensic anthropologists supporting the idea that race is biological within their reports, or are they rejecting this idea and proposing alternatives? This thesis will investigate the language used by forensic anthropologists when reporting on population affinity. The major hypothesis is that, when faced with a population-affinity reporting scenario, forensic anthropologists' language will vary widely—including both biological and social terminologies and approaches—reflecting the lack of standardization within the field and the problematic ways we view and discuss race in the U.S.

Morgan Musgrove **Anthropology & Archeology**

Perspectives on Cannibalism in a Contemporary U.S. College Community

Faculty Mentor(s): Allysha Winburn
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #101

University Support: research funding provided by the Kugelman Honors program and support from the departmental heads of Anthropology and Kugelman Honors. This study assessed perspectives on cannibalism held by a U.S. college community. Often portrayed in Western scholarly traditions as a practice of non-Western peoples, cannibalism has actually been practiced by many human groups through time and space. By surveying 81 University of West Florida students and 10 faculty/staff, this study synthesized the social definition of cannibalism held by members of this Pensacola, FL college community. Utilizing qualitative and quantitative methods, we were able to analyze common themes and trends in the understanding of cannibalism among UWF community members, including their views on what constitutes cannibalism and in which scenarios, if any, it is ever morally and socially acceptable to practice cannibalism. While media representation of cannibalism in the U.S. has shown a clear distaste for the act, with cannibalism frequently portrayed as homicidal behavior, the survey revealed a large portion of respondents open to participation in the act, tolerant to ritual acts of cannibalism, and aware of the rare necessity of survival cannibalism. Our findings indicate that negative Western portrayals of cannibalism do not directly line up with a university population that is more open and understanding of other cultures and values.

Meagan Pennington **Anthropology & Archeology**

Anthropology Research Design Course – Poster 8

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Virtual Space - Poster #109

Childhood growth and development remains a difficult question to address in past populations, yet, it provides a unique window into the experience of childhood in prehistory using bioarchaeological data. To answer the research question if comparing dental development and long bone length can produce an accurate age estimation for fragmentary ancient remains, this research considers the subadult skeletal remains estimated to be between before 1-18 years of age at the time of death from the ancient Maya population in Copan, Honduras. [Copan is an ideal place to conduct this research because there is extensive

previous research conducted on the skeletal record and archaeological site so there are already remains to collect the data from. Skeletal data will compare the estimated age ranges from dental development with those of long bone length developmental growth to see if the resultant age ranges are in concordance. Observed similarity or differences between these methodologically distinct age estimations will highlight (1) how factors like disease, trauma, or inequality are embodied during childhood affecting growth and development of dental and skeletal tissues; (2) if there is bias or observation error in age estimates depending on the method utilized; (3) and increase accuracy and precision of age estimation of subadults in fragmentary remains like those in the study sample. This research fills a gap in research on ancient Maya growth, development, and health as a validation study of dental and long bone length developmental patterns has not yet been applied to a Late Classic (600-820 AD) Maya sample.

Spencer Seymour **Anthropology & Archeology**

Anthropology Research Design Course – Poster 9

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Virtual Space - Poster #110

This research will seek to reveal patterns in Western-funded Christian medical missions work while attaining a mental model of how Christian medical missionaries perceive their own work. To what extent do medical missionaries exert power over the local populations in francophone West Africa by combining their evangelical efforts with their biomedical practice? I will explore the relationship of Christian medical missionaries and traditional ethnomedical practitioners within francophone West Africa, and examine the role that Christian medical missionaries have and the power they wield over populations that can be exhibited through religious conversion efforts that are inexplicably tied to their medical practice both in practice and in theory.

Rachel Shaw **Anthropology & Archeology**

Anthropology Research Design Course – Poster 10

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Virtual Space - Poster #111

Opioid addiction presents a clear and present danger to American society through its countless adverse effects upon the population. Through my research, I hope to establish correlations between habitual opioid use and its impact on the skeletal structure. Examples of these effects include osteoarthritis as indicated by bony lipping and spur formation at joint locations, osteoporosis as indicated by elevated bone porosity, the regeneration of bone after a fracture, and dental wear. By utilizing the New Mexico Decedent Image Database (NMDID) and its cataloged full-body CT scans to establish linkages through statistical analysis to prove or disprove my thesis.

Sienna Williams **Anthropology & Archeology**

Anthropology Research Design Course – Poster 11

Faculty Mentor(s): Gregory Cook
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Virtual Space - Poster #112

The age of discovery (1400-1600) involved long-distance voyaging and great feats of maritime discovery by European powers that ultimately served to create extensive trade routes and colonize lands across the Atlantic Ocean. It is during this time that archaeologists and historians stand to learn and understand a great deal about 16th century Spanish culture and its progression, both maritime and terrestrial. Despite this period of increased ocean voyages and advancement in ship construction, our understanding of life at sea on these vessels and the organization of activities on board is incomplete. As historical documentation and records seem to be lacking in such information, perhaps the answers lie within the archaeological record. Ultimately, by combining the knowledge of the natural and cultural processes the vessel went through and spatially analyzing the artifacts that remain, it might be possible to deduce certain shipboard activity areas on the Emanuel Point II shipwreck, which sank during Tristán de Luna's 1559 expedition. In attempting to achieve this goal, we stand to learn much more about site formation processes of wrecked vessels.

Ben Lavallee **Archeology Institute**

Collections Management of Cultural Material

Faculty Mentor(s): Meghan Mumford
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #114

I have been learning about collections management at the University of West Florida. I have been labeling, cataloging, and organizing cultural materials in the collections of UWF Archaeology Institute. An example of the cultural material I have been inventorying includes Native American pottery sherds. Additionally, I also helped organize reports assoicated with archaeological projects. I have learned to manage chemicals, such as PEGs used for the conservation of artifacts.

ART & DESIGN

Art & Design

Thinking and Making in the Landscape: Possibilities for a Livable Future

Participating Students: Richard Sexton, Sydney McDaniel, Lilly Stark, Kellie Coatney, Bailey TaraBori, Bev Jean Williams, Kyle Miller, Sara Chaimowitz, Justin Rahn, Christine Kearney, Wanda Dorman, Sophia Schriever, Danielle Muir, Aubrey Walton, Sydney DeFelix, Domani Turner-Ward, Aniana Monteverde, Marcus Thomas, Farrah Phillips, Liv West, Caroline Erb, Grace McIntyre-Willis, Mae Flener, Emily Highers, Kaley Clarke, Marcus Thomas, Olivia West

Faculty Mentor(s): Cat Gambel, Thomas Asmuth, Jamin Wells, John Dougherty, Yvonne LeBrun, Barrett White
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

Thinking and Making in the Landscape was a day-long workshop led by two

visiting artists, Hannah Chalew and Pippin Frisbie-Calder. Drawing on the rich history of UWF's nature trails, the workshop explored different ways to document the experience of our landscape. Public historian Dr. Jamin Wells framed our eco-art exploration by narrating the history of the land, from pre-contact indigenous peoples to the establishment of chemical and manufacturing plants just upstream. Our group of students and faculty members silently reflected on what we had learned as we walked the trails and observed what we saw, heard, and felt. After sharing our impressions, we collected natural materials as we walked back to Thompson's Bayou trailhead. Pippin encouraged us to use what we had found (everything from beautiful skeleton leaves to gum wrappers) to create cyanotypes inspired by the the visual forms we had seen on the walk. Hannah then showed us how to make ink from the soil, and we painted or printed this ink on top of the photograms. Finally, we headed back to The Art Gallery (TAG), where an exhibition of Hannah and Pippin's work was on display. We wrote and shared thoughts, stories, and poems inspired by the day. This workshop was made possible through contributions from OUR as well as the Kugelman Honors Program. The event was organized by Thomas Asmuth and Cat Gambel.

Hannah Angel **Art & Design**

Effects of Covid-19 Pandemic on Mental Health

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

I will make a series of ink wash paintings to portray the struggle of navigating mental health as a result of the Covid-19 pandemic. I will make 5 ink wash paintings by using paintbrushes to mark my paper. In an article by Joshua A. Gordon, Director of the National Institute of Mental Health, he states that According to one CDC report, which surveyed adults across the U.S. in late June of 2020, 31% of respondents reported symptoms of anxiety or depression, 13% reported having started or increased substance use, 26% reported stress-related symptoms, and 11% reported having serious thoughts of suicide in the past 30 days. These numbers are double the rates initially expected as a result of the pandemic. Boston Collage found that the rates of depression and anxiety alone were six times higher compared to 2019. With such as steep rise, it shows that this struggle with mental health is not an uncommon one. Other artists, such as Gloria Swain and Alison Saar, have depicted mental health struggles in their work using mediums such as acrylic painting, photography, and sculpture. I hope to create this project as a means to depict mental health struggle during the epidemic using my own experiences in an uncommonly used medium (acrylic ink), while encouraging others to seek help if they find themselves struggling with similar experiences.

Liam DeVaughn **Art & Design**

Convalescence

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

PTSD is a common phenomenon in our population. Through open discussion of its normalcy and effects, we can effectively recognize and treat it on a societal level. Convalescence aimed to reveal the reality of trauma and PTSD in everyday people, by representing the way we cope in wearing masks, the identity that is there beyond the trauma, and the ever present reality of having trauma in the past. Explored through photography and painting, I worked with Pennee Wilson (photographer) to take pictures of each subject in high contrast, low key lighting. These photographs were printed onto cotton twill and painted on top of in acrylics. In doing this, I was able to create a sense of emotion and identity in each piece, and show that each subject had a way they presented themselves to the world. Furthermore, we affirmed that trauma does not make us who we are. We take opportunities to define that for ourselves in spite of trauma. These pieces were about growth and change.

Wanda Dorman **Art & Design**

My Escape Into the Subconscious

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

My work for the OUR Grant includes a series of multimedia artworks. I created drawings that juxtapose natural objects with the world of fantasy to create a symbolic narrative of birth, death, and rebirth. The drawings employ chiaroscuro techniques (contrasting light and shadow) and characters from Greek mythology. These dream-like worlds evoke darkly whimsical imagery and create a hallucinatory atmosphere that my fantastic creatures embrace. To complete each piece in the series, I create ceramic sculptures that point back to the drawings, to reinforce the narrative and take the viewer into more complex visual spaces. My objective for this body of work is to create a visual journey through spellbinding imagery that uniquely narrates the cycles of life.

Alyx Jeffries **Art & Design**

Observation of Bioluminescent Planktons' Circadian Rhythm

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

Pyrocystis fusiformis is a luciferin-producing phytoplankton or dinoflagellates that create their own nutrients by photosynthesizing sunlight. Luciferin is a compound found in select organisms that emits light through a chemical reaction. This reaction is also known as bioluminescence. In plankton, luciferin is believed to be used as a defense mechanism, while in other organisms, it can be used to find a mate or attract prey. By altering the pyrocystis circadian rhythm using cycling LED grow lamps, the production of luciferin can occur strictly during daylight hours or night hours. Observing this fluctuation, I found that plankton grown in artificial light reproduced much less than in the natural night. I constructed sculptural stands for holding the orbs of plankton to observe the patterns of their circadian rhythm while maintaining a pleasing aesthetic. These stands represent a human hand and are made of wire, air dry clay, epoxy resin, and chrome paint. The hands holding the orb of living plankton demonstrate the relationship between humans and marine plants. Over half of the oxygen we

breathe comes from aquatic plants, so it s essential to recognize the significance of these microscopic organisms and our ability to keep them alive.

Sydney McDaniel **Art & Design**

I am he as you are he as you are me

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

A very special thing often takes place between two or more people in a relationship. The individuals become a unit, the I becomes We and the energies of many form into one. In my photographic series I am he as you are he as you are me , I have been able to explore this idea and explore the relationships of some of the people in my life. Using 35mm black and white film, double or multiple exposures, and shooting portraits I am hoping to dilute and rearrange traditional portraiture into something new. Something that shows this abstract unity and dissolving of oneself when engaged with a loved one. I am exploring the relationships of: families, couples, friends, and the self. By working on this project I aim to spark a conversation between friends, couples, and loved ones to consider who they are and who they become when they are in this group state. Many artists, such as Duane Michals and Tiffany Sutton, have worked in multiple exposures as well as taking portraits of loved ones. I want to bring my own experiences, point of view and my own self into this work. Shooting on 35mm film, to me, incorporates the idea of work, patience, and time. I want my own shooting, developing, and printing of these images to reflect the work, patience, and time these loved ones have put into their relationships with one another.

Grace McIntyre-Willis **Art & Design**

Exploring the Art of Composed Aquatic Ecosystems

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

The objective of this research was to experiment with organically composing the structures of several living creatures, plants, and substrates in a freshwater aquarium with the intent of creating a visually appealing array of textures, shapes, and colors that will be video graphically documented. The final visual outcome of my research is to reveal the connection between what mankind considers fine art and biology, with the intent to advocate for public participation in environmental conservation. All forms of life on Earth bear a unique expression ranging from coloration to sound. Since biology is defined as the study of living organisms and art is defined as the study of expression, I propose to cultivate living organisms in order to explore human expression. The aquatic environment is composed using biological aquatic factors, artistic intuition, and several landscaping tools. This research falls into the category of Bio-art, an art practice beginning in the twentieth century, where humans work with live tissues, bacteria, living organisms, and life processes to create art. Subsequently, I have manipulated the environment using artistic methods such as foreground and background to achieve a visually pleasing composition while still maintaining the homeostasis of the ecosystem within the aquarium. Through my investigation, I have further developed my knowledge around the concept of Bio-art by combining artistic and biological processes to create biological visuals that will advocate to grow public interest for environmental conservation.

Grace McIntyre-Willis **Art & Design**

Organically Composing Microbial Art Phase II

Faculty Mentor(s): Carrie Fonder
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

The object of this research is to experiment with organically composing the growth structures of several molds and bacterias in a petri dish with the intent of creating a visually appealing array of living textures, shapes, and colors that will be photographically documented. Through the cultivation of these organisms, the outcome of my research reveals the connection between what mankind considers fine art and biology. All forms of life on Earth bear a unique expression ranging from coloration to sound. Since biology is defined as the study of living organisms and art is defined as the study of expression, it only makes sense that living organisms can be considered art. Through continuous microbial sampling, Petri dish cultivation, and curation at my scientific and artistic discretion, I created a stimulating assemblage of compositional elements. This research falls into the category of Bio-art, an art practice beginning in the twentieth century, where humans work with live tissues, bacteria, living organisms, and life processes to create art. Bio-artists use scientific processes for their artwork, such as genetic engineering, tissue culture, and cloning. Microbial artwork, a subgenre of Bio-art, is the practice of culturing microorganisms in certain patterns. This research envelopes the idea of interdisciplinary connections because the results are indicative that living organisms can be viewed as a tool to create art when the proper knowledge is applied.

Samantha Mumma **Art & Design**

Exploring Environmental Advocacy Through an Iterative Design Campaign

Faculty Mentor(s): Chasidy Hobbs
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #115

Climate change has been a prominent topic of debate within the global community for several decades. As climate change hazards become more eminent, the need for effective communication of ideas and advocacy may be more important than ever. Research shows that visual design plays an important role in human psychology, helping reinforce perceptions about identity, community, and reality. This project stemmed from collaboration with an environmental organization to design a campaign to encourage residents of the City of Pensacola, Florida to take actions to reduce local impacts associated with climate change. The title of the campaign was #ClimateTogetherPensacola and it was collaborative and relied on continuous communication between me, the designer, and the partner organization, Healthy Gulf. This project is an effective case study highlighting the process of integrating graphic design with environmental science to engage members of the public and promote climate awareness in the City of Pensacola. Upon completion of the design iteration

process the project moved into the information dissemination phase. Information dissemination entailed tabling at community events to distribute campaign materials and partnering with other environmental advocacy organizations to share informational posts on social media. This project produced print material and social media content to share information to the target audience and connect citizens to various opportunities to engage in climate related actions. Project partners applied various fellowship building techniques including social media giveaways and in-person engagement at community events to share information about the #ClimateTogetherPensacola campaign to a broader audience of Pensacola residents.

Nick Newkirk **Art & Design**

An Exploration into Agateware

Faculty Mentor(s): Justin Grubb
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #118

During this project, I focused my research on a style of thrown ceramics that originated in England in the 18th Century called agateware. Agateware is a process where you take two or more different colored clay bodies and wedge them together to achieve a spiralized pattern throughout the body of clay. This wedged clay is when centered on the ceramics wheel with the spiral spinning in a horizontal orientation and the piece is thrown normally. The only difference in the throwing process is the use of a metal rib to scrape off the top layer of muddled cray, to expose the spiralized clay body. After a regular bisque firing, the piece can be clear glazed and fired a final time. A major problem with agateware is the different densities of the clay causing the body to warp during firing and the other, as is evident in my piece, is air bubbles. Air bubbles are more likely in agateware because if you over wedge the piece the colors will go from spiralized to a homogenous muddy color. Another problem that I ran into is the mason stains, which are intended to be used in masonry works such as ceramics, faded during the firing so a couple of the colors were either completely washed out or just completely dulled. Ultimately, this was a research project into a sparsely used ceramic technique and I am not impressed with some pieces, but it was a learning experience.

Daniela Reyes Rivera **Art & Design**

Breakdown of Most Common Used Single-use Plastic Objects

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

The objective of this project is to analyze and call attention to the problem of single-use plastic, raise awareness about this material, the time that it takes to break down in nature, and present different eco-friendly alternatives like reuse, or the use of other materials through a set of functional ceramic ware. I want to make a “paper plate”, a red cup, a crushed plastic bottle mug, a coffee cup, and a container that looks like a plastic bag. I want to make all of them as real as I can in size, color, and texture. For the ceramics, I’m going to make them on the wheel, then I will hand paint them with the colors and patterns that single-use plastic objects have.

Richard Sexton **Art & Design**

Impacts on Identity: Psychology of Stigma and Discrimination in LGBTQ Art

Faculty Mentor(s): Carrie Fonder
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #117

This art installation examines the lasting effects homophobic stigma can have on gay male psychology. Themes will include the psychological notions of lost identity due to stigma, internalized homophobia, and the reclamation of identity via overt expressions of queerness. Conducting inquiry with gay male artists, the information gleaned from group conversations culminate in a work of art that touches on commonalities of shared experiences. Extracted from the cohort is confusion and reconciliation of adolescent identity; the resulting impacts homophobic language has on psychological development. At a young age, participants were assigned feminine labels with negative associations meant to diminish and emasculate before grasping gender and sexual identity concepts. The investigation concludes that among gay males, there were common developments of self-doubt and insecurity during adolescence which, when conquered, help pave the way to more robust identity formation in adulthood. To critique social structures and stigma affecting the psychological development of the gay male, exploration of abstract concepts and fractured substrates will provide the parameters for an installation piece. Merging the disciplines of painting and sculpture, an artwork comprised of ceramic, wood, iron, plexiglass, birch panel, oil paint, brick, and glitter will take shape. Through organized chaos and using rabbits as a visual metaphor, the installation will speak of two distinct life experiences – an internal identity of ridicule and shame and an external identity of freedom and liberation.

Raylene Solis **Art & Design**

Highlighting Filipino Femininity in Art History Utilizing Environmentally Conscious Art Practices

Faculty Mentor(s): Marzia Ransom
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

Raylene Solis explores Filipino cultural heritage through femininity, personal identity, and colonial influence. This project involves the research of indigenous Filipino belief systems pre-colonization, the art developed throughout the pre-colonial Philippines, and the religious influence dictated by the Spaniards specifically on the visual religious iconography. With this research, Solis has created a body of work centering on feminine people of color and imposing onto them the visual language of the fifteenth-century Spanish Renaissance that occurred at the time of Philippine colonization. This process also involved looking for ways to reduce the uses of plastics, toxic materials, and animal products to create an end result that is more natural, non-toxic, and contains no known plastics or animal products. This consisted of learning how to make oil paint from minerals and safflower oil, finding an acrylic paint base alternative to seal the wood, and using reusable items when possible. Keeping in mind the processes

from the fifteenth century while also utilizing what is currently accessible dictated the majority of how the paintings were executed at every step. The project presented consists of three 36 x 36 inch paintings on wood panels. The portraits depicted are based on the mythological sisters Mayari, Tala, and Hanan who are believed to be demi-goddesses from Tagalog folklore. Solis has used themself and their own sisters to represent the demi-goddesses as an expression and connection of personal identity from the past to the present.

Sara Thompson **Art & Design**

ADHD: A Different Viewpoint

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

It seems that everyone these days has some awareness of ADHD. Most typically associate it with hyper and forgetful children. However, what is not widely known is what it is like to have ADHD. Specifically, the negative and positive effects of dealing with ADHD as experienced by a child and parent. Being diagnosed as a child myself and being a parent of an ADHD child, I have become familiar with the side not often noticed by most people. This project is a multi-media installation combining the different mediums of oil paint on canvas, video footage, and audio to explore ADHD from the personal perspective of my son and myself. The video will document and interview my 10-year-old son with voiceover audio from me. It also contains select archival footage clips collected throughout the previous ten years giving real examples of the issues addressed. The video projects onto the oil painting with the audio played through speakers. Combining these mediums is a symbolic representation of the constant flow of information and stimuli in the mind of someone with ADHD. The painting offers a symbolic representation of the disorder. The video and audio highlight some of the complications and implications dealt with daily. However, it equally highlights the positive effects that are a direct result of having ADHD also.ADHD is a vast and complex subject. Like a glacier, most only know what they see above the water. My goal with this project is to show what is below those waters.

Rebecca Wakefield **Art & Design**

A reimagining of art history

Faculty Mentor(s): Valerie George
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

My proposal is to create a triptych of three large canvases using oil paints. The imagery is based on my critique of familiar tropes used throughout art history. These themes are of the historical painting of Susanna and the Elders, a still-life, and an artist's self-portrait. Susanna and the Elders is a biblical story about Susanna being sexually accosted and extorted by two elders and how Daniel saves her at trial. It is about her experience with victim-shaming in rape culture. Many of the recreations eroticize Susanna as the temptress. The female artists in their self-portraits were often dressed in over-the-top elegant clothing and accessories. Also, they would leave clues suggesting their talents, knowledge, teachers, or pupils. These paintings would serve as a headshot and resume simultaneously. Throughout the centuries, female artists could only paint at home and use what was at hand. This is where we see a plethora of still-life paintings involving fruit, flowers, and other society-appropriate items around the house. My work will show a non-sexualized version of Susanna and the Elders, my artist's self-portrait, and a still-life assemblage with a satirical twist.

COMMUNICATION

Melissa Puckett **Communication**

Argo Elites: Why Local Top-Tier Students Chose UWF During a Pandemic

Faculty Mentor(s): Kurt Wise
Session: Main Oral Presenters
Presentation Time: 9:30
Session Time: 9:00-9:45
Location: Auditorium

With numerous studies available on the topic of college choice and myriad challenges facing modern institutions of higher education, there remains the ongoing challenge to understand new generations of prospective students targeted for enrollment at specific institutions, especially in a time of disruption. This primarily qualitative study, which includes added quantitative components, used surveys to explore the college selection of high-achieving first-year students from the two-county area surrounding the Pensacola campus of the University of West Florida, a regional comprehensive state university. The students graduated from high school shortly after the onset of the COVID-19 pandemic and enrolled at UWF. The findings offer insight into the themes students identified as influencing their choice of college, as well as whether COVID-19 circumstances affected their choice. The data echo the effectiveness of the elaboration likelihood model, which provides an effective framework for recruitment efforts of academically top-tier students.

Lexi Miller **Communications**

Beneath the Masks: The Impact of COVID-19 Restrictions on Children's Interpersonal Communication

Faculty Mentor(s): Kelly Carr
Session: Main Poster
Session Time: 9:00-10:00
Location: Virtual Space - Poster #119

The COVID-19 pandemic is impacting everyone around the globe in a variety of ways, including how we communicate with one another. This study examines the impact that social distancing, mask-wearing and other restrictions have had and are continuing to have on children's interpersonal communication. With the pandemic consistently changing social interactions and communication, we have limited understanding of the long-term impact that the COVID-19 restrictions are having on children's interpersonal communication. Some of what we do know is that communicating while wearing facemasks has been found to impact children's ability to read facial emotion (Carbon C-C, et. al, 2021) and the pandemic has impacted the mental wellbeing of children (Ma, Z. et al., 2021). This study proposed to interview five parents and five children between the ages of 7-12 and survey parents from across the United States over a course

of three months to document the impact that both parents and children are recognizing in relation to the COVID-19 pandemic. The goal of this study is to gain an understanding of how worldwide quarantine, social distancing, and mask-wearing procedures are changing children's communication habits as COVID-19 continues to progress. This research will provide valuable information to assist professionals and parents gain deeper insight into the emotional and social needs of children as we continue to navigate COVID-19.

REUBIN O'D. ASKEW DEPARTMENT OF GOVERNMENT

Joshua Fortune **Government**

Aristotle's Discussion of Justice and its Applicability to the Modern World

Faculty Mentor(s): David Ramsey
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Nautilus Chamber

Aristotle tackles many of the issues facing political philosophy and ethics, one of which being the idea of justice. In the Nicomachean Ethics , Aristotle spends chapter five discussing what justice is, its various forms, and how it could be properly executed in a political society. For Aristotle, the end of human activity is happiness, as it is pursued for its own sake. Because human activity is geared towards happiness, Aristotle reasons that what is aimed at the production and preservation of a constituency s happiness is what is just. In order to achieve this happiness, Aristotle says, one s own actions have to be guided by reason in pursuit of the virtues. His discussion of the virtues are what provide the bulk of Aristotle s argument. He comes to the conclusion that justice, as well as the other virtues, is a mean between two extreme vices. This paper breaks down the levels of Aristotle s arguments, pointing out the various categories of justice, and ultimately what end he thinks justice serves. Furthermore, this paper s main concern is the applicability of Aristotle s discussion of justice to the modern world. It may be easy to investigate Aristotle s commentary on how justice should be exercised in a society and deduce that it is unfeasible. However, Aristotle not only offers some principles that could guide an individual in better ordering his own soul, but he also recognizes the shortcomings in government s attempts to remedy injustice, and offers ideas that could help us find remedy outside of a judge.

Grace Grosenbach **Government**

Party Realignment throughout American Politics

Faculty Mentor(s): David Ramsey
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Nautilus Chamber

This presentation will focus on political ideology at work within a democracy. Specifically, how the Republican and Democratic parties in the United States have shifted over time due to varying changes in party centralization. These concepts will be analyzed to determine the strength of political parties in America today.

Hunter Hill **Government**

Defining China's Maritime Actions in the South China Sea

Faculty Mentor(s): Brian Crisher
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #120

How do we define China's maritime coercive efforts in the South China Sea, and what impact does that have on an international response? Conceptual definitions, including naval actions, often give rise to disagreements, and indeed the United Nations Convention on the Law of the Sea (UNCLOS) and the International Maritime Bureau (IMB) disagree on defining certain maritime actions. Here we offer a definitional framework to define what properly constitutes piracy instead of maritime terrorism. Currently, the naval actions committed by China have sweeping consequences for all actors within the region. With China expanding its sphere of influence and expanding its power into the region, the question of how we define its maritime coercive efforts becomes increasingly essential to elicit a response internationally. Because China currently operates within a conceptual gray area, an international response can not properly occur because there is not a proper international basis or reason for an international response. However, conceptual clarity as to whether China's actions were an act of maritime terrorism or piracy could elicit a response because they are defined as an act of maritime terrorism or piracy. Therefore, creating a possible response observed in the Gulf of Aden scenario, creating pushback for China's unimpeded growth in the region.

Delaney Russ **Government**

An Insightful Look Into the Shakespearean Fool

Faculty Mentor(s): David Ramsey
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Nautilus Chamber

This paper examines the complex role of fools within Shakespeare's plays As You Like It and King Lear. The Shakespearean fools displayed within both of these plays while being deemed fools; exemplify great knowledge and understanding of what is taking place within the plays. Taking a deeper look into these characters allows for a better understanding of Shakespeare s plays overall.

Colby Teelin **Government**

The James Madison Problem Revisited

Faculty Mentor(s): David Ramsey
Session: Faculty-led Special Sessions
Time: 12:00-1:00
Location: Nautilus Chamber

Scholars have long debated how James Madison, Virginia delegate to the Constitutional Convention of 1787 and contributing author to the Federalist Papers, found himself at the head of the political coalition composed of Antifederalists. I argue that Madison acted out of a consistent constitutional vision, a stable political philosophy, but remained pragmatic enough to support new policies under changed political circumstances.

HISTORY & PHILOSOPHY

Chiara Chappotin **History & Philosophy**

Black struggle for liberation and revolution in Cuba

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #116

In this project I explore the importation of racial segregation into the society of Cuba which occured in response to forces for racial liberation and integration on the island at the turn of the nineteenth century. This contributed to a war drive in the United States, fearing the country growing as a place of refuge for American blacks and its "Africanization" or becoming another Haiti at a greater scale, intervening and taking control in Cuba's conflict with Spain in response to these transformations. Jim Crow policies were put into place and the United States granted itself the right to intervene militarily and constitutionally in Cuba at any time; popular movements for racial transformation then went underground or moved to the domain of class politics in order to achieve their aims through collective bargaining in unions and in crossracial alliances rather than race-specific parties which were now banned. Black Cubans involved themselves greatly in the struggles around class preceding the Cuban revolution of 1958, laying much of the social groundwork for the later revolution to complete. The Cuban revolution then moved to take measures ending discrimination in public accomidation and implementing social policies which greatly advanced living standards for black citizens of the country, to being some of the greatest in the world at that time. I'll also be exploring the roles of black Cubans in advancing class struggle through political means in the development of socialist and communist forces in the country and the ripening of revolution and later in winning wars of liberation in Africa against apartheid regimes. In closing is an assessment of the political doctrine of the new communist government post-revolution and it's policies towards race, with the state drawing from both its own specific application of Marxism-Leninism to the conditions of Cuba, through universal advancement of material conditions and borrowing from the colorblind tradition of Jose Marti and Cuban liberalism.

History & Philosophy

The Relationship Between Pain and Distress: Complementary, Mutually Exclusive, or other?

Co-Author(s): Robert Jones, Landon Nelson, AvaGrace Robbins, Clark Tipton, Emma Wagner

Faculty Mentor(s): Jack Giddens
Session: Faculty-led Special Sessions
Time: 1:00-2:00
Location: Commons Great Hall

As health care seeks higher quality health outcomes, a key objective is emphasis on treating the whole patient, which includes both physical and metaphysical dimensions. It is no longer enough to treat only the patient s physical ailments; rather, health care professionals must account for the experience of patient distress that may be associated with physical pain, including mental and emotional realms, to achieve better quality outcomes. This study will examine the relationship between pain, distress, and spiritual-religious coping resources based on a sample population of patients where pain and distress were measured using the Spiritual Comfort Index-II platform. The goal of the study is to assess the most representative relationship between pain and distress, whether complementary, mutually exclusive, or relatively non-correlated. Findings from the study are expected to support the assertion that although distress often complements pain, distress may also be a mutually exclusive factor from pain in many cases. Successfully addressing this issue of the relationship between pain and distress is important to the current and future state of health care, and especially as it relates to use of pain medication, as the industry moves toward an increasingly holistic care model.

Eden Belanger **History & Philosophy**

Paving Pensacola: Social and Spatial Impacts of the Development of the I-110 Spur on a 1960s Neighborhood

Co-Author(s): Matthew Fredriksson, Christina Monroig, Dominick Skultety, Conner Bare

Faculty Mentor(s): Jamin Wells
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #264

In the mid-20th century, the United States developed an interstate highway system. Around the same time, the federal government undertook a process of destroying neighborhoods that local officials deemed to be "blighted" in the name of urban development. The vast majority of these neighborhoods were predominantly poor and historically African-American. In cities across the country, deeply-rooted African-American neighborhoods were decimated by large interstate highways. This poster presentation will share our findings on the impact that the construction of the I-110 spur had on communities in Pensacola, Florida. Drawing on published government reports and studies, city directories, and historic newspapers, this poster highlights the social and spatial impacts of the construction of the first I-110 spur in the early 1960s. By tracing the movement of displaced residents, businesses, and places of worship, this poster demonstrates how the construction of the spur uprooted a stable African American community and contributed to the spatial reorganization of Pensacola. The hope is that this research will contribute to a wider understanding of infrastructural racism in mid-century America. It will also offer the first historical study of infrastructure and its impact on this region.

Logan Bevis **History & Philosophy**

Rumble, Young Man, Rumble; Boxing and Masculinity in America, 1880-1930

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #137

Boxing has often been considered, by those in opposition to it, as little more than human cockfighting. The current history of American prizefighting consists mainly of biographical works of individual fighters. Some historians, such as David C. Lafevor and Randy Roberts, have dabbled in boxing s social utility as a means

for one to transcend economic, social, racial, and class constraints. However, few have used boxing as a case study of modern masculinity in the United States. This paper will use David C. LaFevor s work on boxing in Mexico and Cuba in the 1880s, Prizefighting and Civilation, and other texts to study how boxing set the standard for masculinity in late nineteenth, early twentieth century America, and also helped usher the world into modernity. This study will look to fill a gap in the current history of American prizefighting and aims to change the perspective that boxing is nothing more than a social valve for societal bloodlust.

Chazz Black **History & Philosophy**

Speedy Gonzales: An Examination of Cultural Viewpoints

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #121

Over the past two decades, there has been an ongoing debate regarding the portrayal of minority groups in media. In particular, there has been an examination of long-standing franchises and elements of them that society has deemed to be a problematic representation of a group, such as Apu from The Simpsons, or Speedy Gonzales of Looney Tunes. Speedy Gonzales stands as a unique example, as despite the controversy over the character, he remains a hero to many in the Mexican-American community. Even when he was taken off the air in the United States by Cartoon Network for being potentially offensive, he remained popular in Latin America, and the primary group to come to his defense was the Latin American community. In this project, I seek to break down and explain the various cultural viewpoints of why and how, despite the original cartoon seemingly mocking the people of Mexico, Speedy Gonzales has achieved the status of a cultural icon and even, for some, a positive image among the very people he may have been designed to deride.

Braden Boutwell **History & Philosophy**

El Tigre and the effects of bad cultural representation in media

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #122

This poster will focus on the cartoon El Tigre, that aired on Nickelodeon from 2007-2008. The show was co created by two Mexican-Americans in the animation industry: Jorge Gutierrez and Sandra Equihua, and it s inspired by their heritage. The cartoon takes place in a town called miracle city, known for crime, inhabited by the main character Manny Rivera, whose alter ego is the superhero El Tigre. Manny s father is also a superhero, and his grandfather is a villain. Many of the episode plots deal with the struggle between good and evil. Despite the creators Mexican background, the show employs quite a shallow representation of Mexican culture, and even has some inaccuracies, which could, perhaps, be explained by over-involvement of executives in the making of ths show. The poster will use El Tigre as an example of cultural representation in media intended for an audience not of that culture. The environments, themes and art style of El Tigre would be considered exotic to Americans, since this show was made and aired in the United States. This poster answers the question: How does a bad media portrayal impact the perception of a foreign culture? El Tigre, as one of the only cartoons that aired in America made by Mexicans, and using heavy themes of Mexican culture, represents it in a bad way. And the poster will be in support of the argument that portrayal of foreign cultures in badly made media can, indeed, harm their perception, as shown by El Tigre.

Meleah Bush **History & Philosophy**

16-18th century Latin American Cuisine

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #123

Food is essential to the human existence. Not only is it essential, but it also allows room for expression, culture, and comfort. This poster presents the differences in Latin American cuisine across social classes in the 18-19th century: monarchs, aristocrats, working-class, slaves, etc. There is a book called Travels in Brazil written by Henry Koster in 1817. Within this book, Koster speaks of and describes meals made for him by the natives. Also, The Body of the Conquistador by Rebecca Earle gives some insight into how their diets and environments differed for the overall effect of their health. My goal is to find logs, menus, cookbooks, and anything that can lay out the differences and similarities in cuisine. If possible, I would also like to tie in the use of medicinal plants, who had access to them (whether by wealth, location, or convenience), and how they were used in food/meals, if at all. Home cooking in the Global Village by Richard Wilk speaks of natural foods that were used to make tonics and ailments. Perhaps one of the more interesting sources regarding medicinal plants in Latin America is Food of the gods from the Journal of Nutrition. It is an article that focuses on the medicinal and ritual use of chocolate throughout the 15-20th centuries.

Rylee Buzbee **History & Philosophy**

An Analysis on the Changing View of Pets under the Eyes of the Law

Faculty Mentor(s): Jennifer Brinkley
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #267

Pets across the nation have always been considered as members of their families by their families, but the law has never regarded them as such. Over the recent decade though, there have been multiple laws passed in various states regarding the consideration of a pet's well-being in divorce cases. Instead of pets often being divided in the same manner as property, they are now being considered more like members of the family through these pet custody laws. This consideration changes how pets are viewed under the law. In these jurisdictions, the impacts are extremely important and will determine if other states will also create pet custody laws. The history of statutes and case laws protecting and recognizing animals as more than property is extremely important to understanding the direction that pet custody laws are heading. For instance, The Animal Welfare Act 7 U.S.C. Ann. 2154 (2021), recognizes that domesticated animals need an advocate. This is crucial as it highlights the ultimate goal of pet custody laws: advocacy for pets.

Valarie Collins **History & Philosophy**

Beyond Sugar Skulls: Popular Culture and Dia De los Muertos
Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #124
Día de los Muertos (Day of the Dead) is celebrated throughout Mexico and Latin America. It is a time to remember those who have passed on. Día de los Muertos is when the spirits of the dead return home for the night to visit their loved ones. Mexican Americans have celebrated Día de los Muertos for centuries, and in the United States, there has been an evolution of how Día de los Muertos is celebrated today. In the United States, Día de los Muertos is a cultural phenomenon, and this symbolic and commercial experience has influenced many people around the world. Día de los Muertos has crossed over into the United States popular culture through movies, products, toys, shapes of skulls, and skeletons. Día de los Muertos is a holiday that is deeply rooted in Latin American history and culture. However, the commercialization of Día de los Muertos has been transforming this holiday for many years. This research aims to demonstrate the transformation of Día de los Muertos from a humble holiday in Mexico and Latin America to a cultural phenomenon in the United States and beyond through examination of the holiday's origins and the way it is celebrated today.

Charles Cox **History & Philosophy**
Shot for Shot: Tequila in the Golden Age of Mexican Cinema, 1936–1969
Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #138
Every November in the town of Tequila, Mexico, the Feria Nacional del Tequila (the National Fair of Tequila) is held to celebrate the history of the drink that many outside of Mexico identify with as one of their worst hangovers. The celebration of tequila ends on December 12 with cockfighting, art displays, concerts, fireworks, and much more. Tequila has a rich cultural history in Mexico. One area where tequila impacts the Mexican cultural progression is in what most consider the golden age of Mexican cinema from 1936 to 1969. Often songs sung in these movies mentioned tequila. It was also portrayed as a sign of masculinity in cinema. This poster will demonstrate how tequila was used throughout Mexican cinema from 1936 to 1969 by pointing to important clips and lines that demonstrate the importance of tequila in Mexico. The scripts and films from the time show the importance that tequila played in masculinity, courage, family, and manners. Through these scripts, song lyrics, and pictures, this poster will demonstrate how tequila became synonymous with and defined Mexican culture during the early to mid-twentieth century.

Aidan De La Garza **History & Philosophy**
Androgyny and Male Homosexuality in the Ancient and Early Modern Mediterranean
Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #125
My thesis will address androgyny and homosexuality in the ancient and early modern Mediterranean. Androgyny poses consistent questions, especially the androgyny of male youths. Artworks focusing on it have been praised as images of the sacred as well as the profane, from ancient Greece and Rome to the Italian Renaissance and beyond. The Italian fascination with androgyny is pervasive in the visual arts of the Renaissance. The dichotomy of profane and sacred pervaded artistic existence. Androgynes were not men or women. They were something entirely other. Where does this other come from? Why does it weave itself through Italian art and music history, and yet is often overlooked? It has Classical roots, not merely in Platonic ideals but in ancient Greek and Roman art and culture in general. I want to trace the development of this other gender in Italy, this youthful male androgyny, from its Classical roots to its artistic Renaissance and eighteenth-century incarnations, with a sensitivity to the question: is such beauty sacred, or is it profane? Queer theory will form the basis of my approach, but I will be utilizing an interdisciplinary approach including literary and formalistic art analysis. I will focus on the historicity of homosexuality s perception in ancient Greece, Rome, and the fifteenth and sixteenth centuries in Italy, and how this perception has been altered by various forces, both sacred and profane.

Aidan De La Garza **History & Philosophy**
Tolkien: Fantasy, Folklore, and the Allure of History
Faculty Mentor(s): Kevin Scott
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #136
In the history of fantasy art and literature, few names hold such weight as that of J.R.R. Tolkien. Tolkien was not merely an author, but a visual artist and an academic whose creation of the so-called Legendarium the perceptions of common folkloric figures such as elves, and goblins (which he called orcs) and ushered in a new age of fantasy. Tolkien famously declared that he aimed to create a mythology for England, but his intricate designs and works came to influence all western fantasy fiction and the craft of worldbuilding to this day. I will argue that his work represented a n effort to create a narrative of fantasy, a logic of fantasy that would become its own self-sustaining mythology. It is this effort, the creation of a fictional "history" that made his work so enormously influential. I utilise an interdisciplinary approach including literary critical theory and formalistic art analysis. I will analyse Tolkien's influences, his works, both literary and visual, and those he directly influenced, and how his academic approach to the creation of a fictional history is not only appealing, but also vital to our understanding of the purpose of fantasy fiction in our society today.

Koen Dunlap **History & Philosophy**

The Role of Death in Mexican Culture

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #126

I hope to focus on the depictions and roles of ghosts in Mexican culture, specifically where it relates to enforcing societal standards, symbolizing the intermingling of different Mexican cultural groups, and contributing to a wider connection of cultures to create a more cohesively-whole common culture in Mexico. One of my current intended research avenues includes the societal roles of folk ghosts like La Llorona, who is used as a specter to scare young children into obeying their parents. I also wish to research into the cultural aspects of holiday traditions like those observed on the Mexican holiday, El Día de los Muertos. Mexican culture does, after all, place a large degree of importance upon the ideas of souls and the afterlife, as well as how important it is for the living to honor and remember the dead. Finally, I wish to research how the different cultures and ethnicities in Mexico have converged together to create one common culture, and how this common culture has placed a certain amount of importance on the concept of death. Such stories of ghosts and of the supposed tragedies that created them have become infamous folk tales in much of Mexico, and have created a common ground of culture between different groups within the country to cling to as a national identity. I believe that this forms a significant piece of Mexican culture.

Raymond Ejikemeuwa **History & Philosophy**

(Ir)regular Maritime Migration from Africa to Europe across the Mediterranean

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #127

(Ir)regular Maritime Migration from Africa to Europe across the Mediterranean Irregular maritime migration has existed for a long time and is not a new phenomenon. In 2015, more than 2000 African migrants drowned in the Mediterranean Sea. These deaths occurred amid an increasingly contentious discussion in Europe about migrants and migration, yet this escalating humanitarian disaster is not immediately a question of refugee policy or immigration support. African irregular maritime travel is reprsented in this study as a continuing occurence. This research aims to discover the various theories of African maritime migration to Europe. Many of those who left their loved ones for “greener pastures” perished in a Mediterranean shipwreck. This research paints a picture of resilience, bravery, and strategic judgements that constrast with media reportage that the migrants are powerless and hopeless. The choice to move is complicated, but it can typically be broken down into two categories: push and pull. Primary and secondary souirces, including monographs, academic journals, pamphlets, magazines, newspapers, university libraries, archives, and textbooks, will be used to research this topic. To interpret the movements of these migrants, effective use of photographic evidence will be employed. Because societies fail to profit from what youths can do, mass migration of Africans to Europe results in a loss of potential.

Daniel Engelgau **History & Philosophy**

Pensacola’s Ku Klux Klan: A Social History of the 1920s Pensacola Chapter of the Ku Klux Klan

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #140

In the summer of 2020, a series of documents owned by TT Wentworth Jr., a well-known figure within the community of Pensacola, was released to the University of West Florida historic trust. These documents contained evidence of the existence of a Pensacola chapter of the Ku Klux Klan in the 1920s. Though there was evidence of the Klan existing in Pensacola, it was not common knowledge when learning Pensacola history. This was the case until the release of the Wentworth papers, which brought this secretive organization to the front pages of the Pensacola News Journal. The basis of this research comes out of the documents released by the Wentworth estate, with a particular focus on the Klan membership ledger. The membership ledger provides a list of every member who joined the chapter of the Klan from 1922 to 1925. This research focuses on telling the social and economic history of the Pensacola Klan members. History of the Klan groups the 1920s Klan with the first iteration Klan created during the reconstruction era and the 1950s and 1960s Klan with the Civil Rights movement. Stigmas around Klan members argue that members are uneducated poor white men. This is not the case for the 1920s Klan. Using occupational breakdowns of the Pensacola Klan prove that these were not poor, uneducated individuals but were middle-class, educated, prominent members of the Pensacola community.

Lila Fitzpatrick **History & Philosophy**

Determined Dissension: Life for Latin American Indigenous Women Before, During, and After Spanish Colonization

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #150

Prior to the late fifteenth century and Christopher Columbus s discovery of the New World, Latin American indigenous communities lived and survived in a much different manner than afterward. What life looked like for each specific tribe varied, each woman could expect different societal and familial roles or responsibilities depending upon her specific location or class status. These roles and responsibilities began to look different with the introduction of the Spanish conquistadors. With them, these conquering Spaniards brought to the New World exposure to foreign illness, indiscriminatory abuse, Spanish culture, Catholicism and baptism, and waves of changing tides regarding race, gender, and class. The following centuries were rife with inequality for women living in Latin America, indigenous women providing the bulk of the population, and over time the need for rebellion stopped simmering and started to boil. By the end of the twentieth century, rebellion and revolution had taken place all throughout Latin America for a myriad of issues. These rebellions and revolutions for the rights for women often held indigenous women at their centers, pushing for the changes they hoped to bring. The use of historical texts helps to look deeper into how the changes brought about by colonization helped to shape indigenous women s lives afterward and how those changes fueled dissension hundreds of years later.

Jackson Freeman **History & Philosophy**

The Irish in Argentina

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #113

During the 19th and early 20th centuries, there were numerous ethnic groups from Europe that migrated to the burgeoning Latin American countries searching for a new life and opportunities. One of the most impactful groups were the Irish, who for the most part settled in Argentina and Chile. Estimates place the total number of Irish that migrated into Argentina from 15,000 to 30,000. These groups tended to settle in the hills surrounding Buenos Aires and lived as though they were in their homeland again. They often chose not to interact with the Argentinian population and lived an isolationist lifestyle, away from the modernizing state. However, in the wake of tragedies involving migrants, the flow of the Irish coming into Argentina began to trickle to a halt. This would represent a turning point in the history of the Irish in Argentina; they would soon begin to come out from their hibernation and integrate themselves into Argentinian society. At the culmination of this integration were the demonstrations of 2008 led by farmers in the hills of Buenos Aires protesting new taxes levied against their crops. The Irish farmers in the countryside played a decisive role in the demonstrations being a success, and demonstrated that the Irish were fully integrated into the identity of Argentina. Although it is not certain why the Irish came out of their isolationist mentality, the lack of immigrati on after the Dresden affair, marriage of high-ranking persons in the Irish community with local Argentines, and the death of prominent isolationist leaders coupled with a change in how to view Argentinians led to the integration of the Irish-Argentines into the fabric of the nation.

Michaela Gay **History & Philosophy**

Symbols of Disease: The Evolution of the Plague Doctor

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #141

Over time, plague doctors have gone from real historical figures to monstrous symbols of disease and death. When the real doctors were practicing, they struggled to combat the Plague effectively, and public opinion of them was very low. They were believed to be greedy, atheistic quacks who would charge high prices to do more harm than good. The collective trauma and fear caused by the Plague needed a symbolic outlet, and the doctors were a prime candidate since they were associated with the disease and the public thought poorly of them already. The distinctive look of the beaked masks developed in the 17th century helped to solidify this role, as they now had a specific and striking image to match their reputation. As the Plague stopped being an omnipresent fear in people s lives, the doctors began to symbolize a more general fear of disease and became exaggerated further, from real people trying to do good to mysterious, hostile, or even non-human entities. They have proven influential in modern popular culture with depictions across many artistic mediums, from written stories to video games to memes. This poster will examine this evolution of the plague doctor through the centuries.

Destiny Hammac **History & Philosophy**

The Effects of Drug Trafficking in Central American Countries

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #128

My research project investigates the effects that drug trafficking has had on Central American countries, more specifically, drug trafficking s impact on poverty in Central American countries, the environmental effects of drug trafficking, and the social/cultural repercussions of drug trafficking. Drug trafficking has had a devastating impact on Central American culture and has caused a steady increase in violence in major cities. The increase of violence and poverty in trafficked areas has led to a spiraling effect throughout generations. Through this project, I will uncover why drug trafficking is so prominent in Central American countries as well as what steps are being taken to eliminate this issue.

Sydnee Hammond **History & Philosophy**

Las Mariposas: Understanding the Role of Women During Trujillo's Reign

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #142

Rafael Trujillo or el jefe was a Dominican president who ruled half of Hispaniola for over thirty years and has a contentious legacy. He is remembered by history as a dictator who brought prosperity to the Dominican Republic while committing heinous human rights abuses and murdering thousands of Haitians. This poster will focus on women who opposed Trujillo s regime, most notably the Mirabal sisters. While the Mirabal sisters are martyrs for their actions against Trujillo, there were smaller movements orchestrated by lesser-known women. Subsequently, this poster analyzes the roles of Dominican women while Trujillo was in power and how they used their position within society to fight for their beliefs.

Alli Hays **History & Philosophy**

Afro-American Bluegrass: The Sound's True American Roots

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #143

It is common knowledge that blues music and hip hop derived from the Black experience in America. The nation s enslaved and their following generations used music as therapy to connect and survive. That experience is a fundamental aspect of the nation s creation. Another core trait associated with pride in America s heritage is bluegrass music. The sound is widely associated with the pre-Civil War poor, white southern farmer. Depictions typically showed these individuals posed with acoustic instruments, like the guitar and the banjo. Over time, famous musicians, like the father of bluegrass himself, Bill Monroe, popularized the music in the mid-twentieth century. Eventually, rock and roll took over mainstream media until recently in the twenty-first century. Like Bela Fleck and Billy Strings, Grammy award-winning artists reintroduced bluegrass to younger crowds. The

resurgence of this musical interest has begun to inspire historians to study the music s origins, only to realize there is not much research upon which to build. This research begins with Bela Fleck and his desire to trace the banjo s origins. He finds out that the instrument followed the same path as the enslaved Africans of early America. After tracing the banjo through the transatlantic slave trade into the southern United States, the research will analyze the migration into Appalachia and the commonalities between some bluegrass songs with the lyrical spirituals that came out of American slavery. Bluegrass beautifully embodies the Americana aesthetic with unknown deep American roots.

Dom Limle **History & Philosophy**

Challenging The Crown

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #139

In the American Declaration of Independence Thomas Jefferson wrote that King George III of England had deprived colonists of the right of jury trials. This was such a serious charge that the right appeared in both the Articles of Confederation and again in the Bill of Rights for the U.S. Constitution. The source of this specific grievance has its roots in illegal smuggling that was occurring in the American Colonies. When faced with salutary neglect by their homeland, American colonists found new ways to ensure they had an acceptable quality of life. The Trade and Navigation Acts made these decisions illegal. While the English Navy was capturing smuggling ships, American colonists were fighting back by acquitting the accused sailors and captains of charges to keep the flow of goods and currency alive in the colonies. The English solution was Admiralty courts, where a jury would not be present or decide the fate of colonists. This betrayal by King George III was so damaging to the incomes and capability of colonies to be self-sustaining, that war became a certainty.

Amanda Martins **History & Philosophy**

Reforesting Our Collective Perception of Haiti: How New Data Challenges Widely-accepted Narratives of Haiti's Tree Coverage

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #149

In 1987, National Geographic published an image of Hispaniola's border that drew international attention to Haiti's deforestation. The image casts Haiti's barren landscape against the Dominican Republic's forested mounds. Forty years later, this image dominates global discussions that assume Haitian peasants are the primary agent of deforestation. Despite extensive reporting on Haiti's environmental degradation, there was no consensus on total forest coverage. Grainy aerial imaging that failed to capture incontiguous forest pockets resulted in the systematic underestimation of forested areas. Beyond insufficient data, even peer-reviewed publications (as recently as 2012) have included a widely-accepted 2% forest cover statistic without citing a source. In 2014, a team of researchers published a data set using advanced geospatial technology that revealed the country has 30% - 40% total forest cover. This disclosure rendered previous measures obsolete, suggesting that common perceptions of Haitian forests are myths. From these debates, two competing narratives have emerged. One positions Haiti as a story of ecological recovery, and another predicts Haiti is undergoing a mass extinction event where most biodiversity will be lost by 2035. Domestic and foreign actors have used the story of Haiti's environmental demise for political benefit. By examining arboricultural traditions and Haitian-led forest management programs, I join efforts to discuss forest coverage and tenure through a decolonial lens.

Hannah Matthews **History & Philosophy**

A New Deal for Pensacola

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #144

The Great Depression acted as a catalyst for a significant transformation of American society and culture. The New Deal, President Franklin D. Roosevelt's series of emergency relief agencies and policies, was directly responsible for these transformations. Through the sponsorship of public work projects and the creation of unique employment opportunities, the New Deal helped modernize and improve the livelihoods of numerous communities, including Pensacola. Because of the New Deal programs, Pensacola experienced vast modernization and urbanization during the 1930s. Transportation improvements, including the paving of roads and construction of new bridges, connected Escambia County. Education and housing became more accessible to both children and adults living in the city's poorest areas. The presence of the New Deal agencies in Pensacola affected every Escambia County citizen in unique ways. The Works Progress Administration (WPA) employed African Americans and women, two of Pensacola's most disenfranchised groups. The Public Works Administration (PWA) improved the city's infrastructure through numerous improvement projects and the construction of new schools. These agencies also sponsored artistic endeavors such as art galleries and concerts. The Federal Writer's Project hired freelance writers to record Pensacola histories, genealogies, and plays. From 1933 until 1939, FDR's New Deal programs brought Pensacola dramatic social and infrastructure transformations. For the first time in the city's history, employment and educational opportunities became available to the poor and minority groups. The New Deal helped revitalize Pensacola's sense of pride and community through the numerous projects and employment opportunities it sponsored.

Alexandria Nash **History & Philosophy**

Transcending Borders: The International Demand for Polish Prostitutes in the People's Republic of Poland, 1960-1981

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #129

Prostitution is a profession that has forged its way into existence in a wide variety of social and economic settings. An industry rooted in exploitation and acquiescence, early socialist and communist philosophers asserted it

could not exist within their proposed societal structures and likened it to a plague of capitalism. However, details found through analysis of international commerce exemplify the complexities of the sex industry in Poland's capital city. Prostitution flourished in Warsaw not because of citizens of the socialist state but due to the demand from international travelers. The absence of state-sanctioned sex in Poland allowed international travelers to take advantage of the lack of restrictions—drawing foreign men from other nations to conduct capitalist business within a socialist state. Despite a depressed economy, prostitution was a flourishing industry with unique operations in a socialist state. Allowed to operate under the watch of law enforcement, Polish prostitutes worked in the urban center of Warsaw that housed luxury hotels and restaurants. Prostitution became a staple of Warsaw's economy, calling mass foreign tourists to the city. Between 1960 and 1985, sex tourism exponentially grew in Warsaw as prostitution was legal with little restriction, and the supply and demand numbers were carefully balanced. Despite a higher standard of living than most Poles, prostitutes faced adversity in their day-to-day work. The Polish prostitutes navigated greedy concierges, formed relations with men from various countries, and faced an unstable tourist economy. A prosperous environment formed around prostitutes as international tourism demanded services.

Alexandria Nash **History & Philosophy**

Malandros, Mulatas, and Magdalenism no Mangue: Rio de Janeiro's Regulation of Prostitution, 1920s-1930s

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #130

The global Age of Industrialization coincided with various liberalization movements that created a social environment that allowed prostitution to flourish. In a period of colonial revolution in the Americas, prostitution within Latin America followed a similar legal trajectory as the sex industry in Europe. State-regulated prostitution was common in many states, and the new nation of Brazil was no exception. The capital city, Rio de Janeiro, fostered a flourishing red-light district known as Mangue. Working within Mangue were mulatto women, who served a unique population of men commonly referred to as malandros, or rogue men. The complex relationship between race, class, and gender within Mangue fostered a diverse red-light district rich with culture and seething with debauchery. Between the early 1920s and late 1930s, Mague was a bustling yet grimy center that received scrutiny but little assistance from the Brazilian government. Regulars of the district were often of middle-class backgrounds. They provided a tremendous financial supplement to the women. The intermingling of castes prompted the elite class to call for reform led by medical professionals to ensure the physical wellness of its inhabitants. Despite increased medical oversight, various aggressions plagued the district based on racial prejudices. Segregation resulted in prostitutes of darker complexions being strictly regulated compared to their light-skinned counterparts. From racial prejudice stemmed a significant disparity in the treatment of prostitutes within Mangue. This poster will demonstrate the way in which prostitution within Mangue flourished under close supervision while the regulation was disproportionately and systemically racist.

Ryan Obray **History & Philosophy**

The Pensacola I-110 Spur: The Story of a Community Overlooked for an Overpass

Faculty Mentor(s): Jamin Wells
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #135

In the 1950s, the United States began an ambitious project to build a national network of highways. The passage of the 1956 Federal-Aid Highway Act, allocated $24.8 billion in federal money to this effort, resulting in the construction of 40,389 miles of interstate highways. Florida, being a popular destination for tourists, had a number of highway projects to replace old roads and build a more efficient transportation route for visitors and tourists. Pensacola, Florida was a city that was already looking to build a better highway system in 1955. The southernmost east-west highway, Interstate 10, neared Pensacola in 1962. Soon thereafter, city leaders publicly advocated for an interstate spur to connect downtown Pensacola to the highway, located 10 miles away and to relieve traffic congestion in the city. Before I-110 there was not a straight route for people to connect North Pensacola to downtown. The I-110 spur, completed in two sections over a four-year period, uprooted hundreds of residents along with businesses and places of worship. Many of the residents that were forced to move were a part of low-income housing made up of mostly minority groups. It also helped the traffic situation in downtown Pensacola as well as boosted tourism because of the easier access to other highways. Drawing on historic newspapers and government reports contextualized in the scholarly literature, this poster examines decisions that shaped the construction of I-110 and the diverse impacts it had on Pensacola.

Tyler O'Day **History & Philosophy**

The Rise and Impact of Narco Culture in Latin America

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #131

My poster explores the popular culture that has come to be known as Narco Culture/Cartel Culture . The emergence of this culture can be traced back to the rise of Pablo Escobar. Narco Culture depends on the importation/exportation of cocaine as it is native to the Andes highlands through the South American continent. Escobar succeeded in the mass-production and mass-exportation of cocaine across the globe. The success of Escobar s organization would make him one of the richest men in the world with a net worth of over 30 billion dollars by his death in 1993. Cocaine became easily obtainable across Latin America, bringing other small organizations, and individuals into this lifestyle. Cartels and traffickers spread like wildfire distributing cocaine across every inch of the globe. Inherently, a sub-culture known as Narco culture developed alongside the business of importation/exportation of cocaine. Despite media portrayal of the Narco culture as a villainous inclination full of greed, in reality, it has become a lifestyle for lower-class Latin Americans out of financial necessity; it is not the glorified way of life depicted by television and movies. Additionally, the narco trade became increasingly dangerous as its profitability fueled violent competition, and the addictive/dangerous nature of cocaine enticed the US

to initiate its War on Drugs, which brought about thousands of deaths and thousands of others displaced or disappeared .

Mel Parchment **History & Philosophy**

An Analysis of the Fiesta de la Virgen Candelaria

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #132

One of the largest celebrations in Peru, Fiesta de la Virgen Candelaria is a festival held in Puno in honor of the Virgin Mary. Thousands journey to the port city to pay homage to its patron saint, enjoying several weeks of parades, dancing, music, fireworks, and religious observances. Socially, culturally, and economically diverse, the contemporary celebration amalgamates indigenous, European, and African influences that echo the complex, conflictive history of the region. This project aims to chronicle the ethnic and cultural influences of this geographic area and delineate how those various influences have evolved in modern times. Much of the data utilized in this project will be qualitative. The interdisciplinary approach will employ ethnographic research, participant interviews, historical records, historiographies, and secondary source materials to elucidate the complex history and enduring racial, ethnic, class, and religious partitions apparent at the world-famous festival. This project will review early colonial interactions and venture through the nineteenth and early twentieth centuries as festival details shifted across several arenas. As political perspectives evolved, so did the public perception of the value of indigenous culture, and the number of tourists intent on experiencing the festival firsthand sharply escalated. Special efforts to preserve various cultural elements expanded with this evolution while disputes concerning the authenticity of various specificities also increased. Both beloved and contentious, the Fiesta de la Virgen Candelaria is an amalgamation of diverse influences. A deeper examination of the festival is sure to provide appreciation and awareness to those otherwise unaware.

Chrissy Perl **History & Philosophy**

The Borderland Hunt: Locating Evidence of Pirates through Historical Archaeology

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #145

Up until recently many professional archaeologists have avoided research pertaining to pirates for several ethical and methodological reasons. One major reason for the avoidance is that academics do not want to be associated with going after treasure or treasuring hunting that often goes along with stories of pirates. The second major factor that dissuades research in this area is the uncertainty of locating pirate sites. Two edited books touch upon the beginnings of pirate studies in archaeology, X Marks the Spot (2006) and Pieces of Eight (2016) these are two welcoming introductions into the possibilities of pirate studies in archaeology but much more can be done. My research will analyze several historical documents discussing pirate encounters and archaeological projects of known pirate sites to gather a deeper understanding of the locations of pirate activities. For this project I will be looking at the Port Royal, Jamaica excavations, the Whydah project, and two pirate locations in Madagascar. My goal is to set the scope for future pirate studies in historical archaeology research by understanding the factors and themes that shaped the lives of pirates within non-illicit societies. I argue that borderlands were the ideal locales for breeding various groups of pirates because of the uncertainty of the terrain, limited government control, easy access to target cities or vessels, and the accessibility to move goods to markets both nearby and overseas. This research will offer new ways of exploring the historical and archaeological record to better locate pirate sites of worldwide.

Mackenzie Sutt **History & Philosophy**

Forgotten Florida Suffragists: The Pensacola Equal Suffrage League

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #146

The women s suffrage movement is a vital aspect of American history that many have evaluated. However, much discourse surrounding the movement focuses upon the contributions of northern suffrage leagues and does not analyze the actions of women in the South. Even in scholarship that does acknowledge Florida s leagues, the Pensacola Equal Suffrage League remains largely untouched, relegated to a brief footnote, or ignored entirely. I address the importance of the Pensacola Equal Suffrage League as the only suffrage league in north Florida and pays special attention to the contributions of southern women to the movement, as many leaders of south Florida leagues were northern women. Specifically, I analyze the implications of a league so vastly separated from the urban peninsula, the true Floridian leadership present in the Pensacola league, and the importance of engagement with local communities. I argue that the Pensacola Equal Suffrage League is a crucial aspect of the women s suffrage movement that represents the unique challenges that women in rural areas faced while fighting for their right to participate in American democracy and attempting to advocate for their local community. Through focusing on archival sources, this work illuminates an oft-untold story of Floridian women s leadership and dedication to earning the right to vote and supporting the city of Pensacola.

Joy Sypniewski **History & Philosophy**

Importance of the Ofrenda

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #133

Death in Latin-American Cultures, primarily in Mexico, celebrates death on November 2, known as the Day of the Dead. My research will address the significates of ofrenda in Latin-American celebrations on the Day of the Dead. The development of the ofrenda, home alters to commemorate souls of family members, is a tradition originating with the Aztecs. The Aztecs considered souls to be alive and enter different realms upon death. The Spanish conquest of the Aztec Empire, the two cultures merged “All Souls Day” from the Spanish, a Roman Catholic holiday of “All Souls Day,” which commemorates the souls of the departed faithful, and from the Aztecs the Day of the Dead tradition of building

ofrendas in the home and on family graves. An ofrenda contains three tiers. The top tier identifies the dead persons being invited to the altar, with photos or favorite objects of the deceased. The second tier consists of the deceased persons' favorite foods, including sauces, candy, sweetbreads, and especially pan de muerto, a sweet specifically made the week leading up to the Day of the Dead. The third tier comprises candles and objects to allow the spirit to clean themselves after their long journey. Similar to the Aztecs, Latin-American cultures believe that the souls of the dead continue to be around, and each year they are celebrated and remembered. The ofrenda is essential to the celebration of the Day of the Dead. It identifies the person being honored, providing food, drink, and implements to clean themselves.

Olaf Talbert **History & Philosophy**

Pseudohistory

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #147

Pseudohistory is a historical anomaly that unfortunately has become more prevalent in the last twenty years. It, along with other pseudoscience, has been increasingly studied by different professions such as anthropologists, journalists, psychiatrists and other medical professionals and political and social scientists. However, historians have only just begun to publish on the phenomenon. Pseudohistory can be seen as a subset (or result) of the larger culture wars that have occurred in American academia and society approximately every 20-30 years post-World War 2, and there is a solid amount of literature published on these wars. Yet pseudohistory itself has rarely been addressed, much less countered, by the historical profession. With the increasing amount of politicization of knowledge and agendas, it is becoming more important to understand the why and how pseudohistory has increased its popularity, where it came from, and it s use as a tool of extremist groups and political organizations to bend society towards their desires. Historians have as important a role in deconstructing pseudohistory as medical professionals have in combatting false COVID-19 treatments. This poster will illustrate the rise of pseudohistory and the dangers it poses to education and academia today.

Joe Vinson **History & Philosophy**

Black Beaches of Pensacola

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #148

In his 2012 book The Land Was Ours , historian Andrew Kahrl examines how Black beaches sprang from two concurrent phenomena: the rise of beach culture and racial segregation. Excluded from white seaside resorts, Black entrepreneurs and community organizations created their own private spaces for swimming, dancing, and other activities. While these spaces empowered the African Americans who owned and enjoyed them, the coastal capitalism of increasingly coveted beachfront land led to many instances of intimidation, relegation, and dispossession. After the end of legal segregation, Kahrl argues, the racial divisions were reconstituted along class lines. Pensacola, Florida serves as a compelling case study of this history that has not been thoroughly documented. Starting with a petition in 1903 to establish an African American bathing pavilion on the military reservation of Santa Rosa Island (now Pensacola Beach), there were at least seven distinct Black beaches in Pensacola in the twentieth century five private and two public. The creation of these beaches, their merits and drawbacks, and the post-segregation fate of the properties largely conform with the patterns identified by Kahrl. Other aspects of Pensacola its Creole heritage and proximity to a U.S. Naval Air Station, for example make it a singular example. I intend to create an inventory of Pensacola s Black beaches; to connect them temporally to each other and relevant contemporaneous events; and to show how they fit into the framework established by Kahrl.

Kyle Williams **History & Philosophy**

Jan Hus: Influence of John Wyclif and Death at the Council of Constance

Faculty Mentor(s): Erin Stone
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #134

In the late fourteenth and early fifteenth century, a minister in Prague challenged the unethical abuses of his fellow clergymen and the papal authority of which they derived their power structure from. The Czech minister used the pulpit to develop theological doctrine that spread throughout Bohemia, a theological contention of authority placed at the base of the most powerful socio-political entity in Europe, the Roman Catholic Church. The minister was accused of heresy and was forced into exile from his home in Bohemia. Eventually, he was cajoled by papal authorities at the Council of Constance in 1414 to travel to the ecumenical council under an agreement of good will. There at Constance the minister was granted an allowance to speak his mind and offer a persuasive argument of clerical reform to the papal authorities and cardinals. He was never allowed his concert with the papacy and was thrown in prison soon after arriving in Constance, Germany. Jan Hus was burned at the stake and declared a heretic of the Catholic Church on July 6, 1415. The story of Jan Hus is much broader than the ecumenical council held in Constance. Hus s theological development within the Bohemian Reform Movement of the late fourteenth century and its connection to the earlier clerical reformer Englishman John Wyclif, provides a background to the emerging continental-wide theological remodeling that eventually ended with Luther and the Protestant Reformation. The poster I am presenting represents this process of reform through Jan Hus.

DR. GRIER WILLIAMS SCHOOL OF MUSIC

Selena Neal **Music**

The Art of Storytelling: From Script to Score

Faculty Mentor(s): Joseph Spaniola
Session: Main Poster Session, Time: 2:00-3:00, Location: Virtual Space - Poster #151

"The Art of Storytelling: From Script to Score" is an artistic amalgamation of my undergraduate studies at UWF. I am utilizing my previous knowledge of music theory, creative writing, as well as music composition to tell a story in two

mediums: a screenplay and two arrangements of an accompanying musical piece covering one important scene from the screenplay. In addition to previous classes, I have also received assistance from Dr. Spaniola with my musical compositions, as well as with Prof. Pilger for my script. My goal is to show the interdisciplinary nature of storytelling, as well as to portray the various ways in which both fields communicate with their audiences.

Alisha Hernandez **Music**

Concerto No 5 in f minor, Bach

Instrument or Voice Type: Piano
Accompanist: Hedi Salanki-Rubardt
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Jahni Joisin **Music**

1st movement of the A minor Piano Concerto Op.54, Robert Schumann (1810–1856)

Instrument or Voice Type: Piano
Accompanist: Hedi Salanki-Rubardt
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Abigail Mallory **Music**

"Voi che sapete" and "Non so più cosa son" from Le Nozze di Figaro, Wolfgang Amadeus Mozart 1756–1791

Instrument or Voice Type: mezzo-soprano
Accompanist: Blake Riley
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Skyler McLeod **Music**

Concertino for Flute and Piano, op. 107, Cecile Chaminade 1857–1944

Instrument or Voice Type: flute
Accompanist: Blake Riley
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Sarina Paolini **Music**

Violin Concerto No.1 in G minor Op.26, II. Adagio (E-flat major), Max Bruch (1838–1920)

Instrument or Voice Type: Violin
Accompanist: Hyunjoo Kim
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Duncan Miller **Music**

Concerto for Alto Saxophone – Recitative, Passacaglia, Rondo alla Marcia: Allegro Brioso, Ingolf Dahl (1912–1970)

Instrument or Voice Type: Alto saxophone
Accompanist: Blake Riley
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Andrew Gregg **Music**

Piano concerto No. 1 in E minor, op. 11, Allegro maestoso, Frédéric Chopin (1810–1849)

Instrument or Voice Type: Piano
Accompanist: Hedi Salanki-Rubardt
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Daniel Perkins **Music**

Concerto no. 3 Movement 3 Alla Breve, Sergei Rachmaninoff 1873–1943

Instrument or Voice Type: Piano
Accompanist: Andrew Gregg
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Chloe Romack **Music**

Ferdinand David (1810–1873)

Instrument or Voice Type: Trombone
Accompanist: Blake Riley
Session: Musical Concerto
Time: 9:30-1:00
Location: Music Hall (also livestream in Virtual Space)

Patrick Bass **Music**

The plight of the modern music education student.

Session: Lecture Recital
Time: 2:00-3:00
Location: Music Hall (also livestream in Virtual Space)

This lecture will cover the problems facing today's music education students. When music education students were asked how they were feeling, one word stood out above all others: "tired." The causes of this shared fatigue are obvious to see. Being expected to practice four hours a day, attend classes, and complete homework assignments is already a struggle. Add in work, exercise, eating, and sleeping eight hours a day, and you're lucky to have a moment left for yourself. Employment is especially a cause of stress among students. Trying to fit in multiple shifts during the week is a nightmare. Scheduling on weekdays is difficult due to rehearsals, classes, and concerts, while weekends may be taken up by even more concerts and ensembles. My job caused me to miss several classes, and even then, I failed to provide enough money for basic necessities. For my own

wellbeing, I was forced to quit and rely on my family for finances. My academic aspirations would have come to an end without such a supportive family. One more cause of stress is monetary commitment. The average salary for a band teacher is currently between $35,000 and $47,000. Not only is the high end less than the average American salary, but it's also less than some of the managers at McDonald's. Additional costs for rent, instrument repairs, and textbooks can cause music education students to deal with these burdens for decades.

Courtney White **Music**
Helen May Butler and her Ladies All-American Band
Session: Lecture Recital
Time: 2:00-3:00
Location: Music Hall (also livestream in Virtual Space)
Helen May Butler was an American bandleader and composer during the late 1800s/early 1900s. She led an all-women's band from 1898 to 1912 and had an extremely successful career at a time when women were discouraged from such public activities. I plan to explore the life and works of Helen May Butler and the women involved in the band.

Katie Hilliard **Music**
A Stylistic Analysis of Durufle's Requiem: Combining Gregorian Chant and 20th Century Techniques.
Session: Lecture Recital
Time: 2:00-3:00
Location: Music Hall (also livestream in Virtual Space)
I plan to explore Maurice Durufle's Requiem, his incorporation of Gregorian chant into this impressionist work, and why this combination of old and new is significant.

Olivia Wilson **Music**
Music take the wheel: finding the madness in the method
Session: Lecture Recital, Time: 2:00-3:00, Location: Music Hall (also livestream in Virtual Space)

Alisha Hernandez **Music**
Living on the Breath: Strategies for Navigating ADD and Musicianship
Session: Lecture Recital
Time: 2:00-3:00
Location: Music Hall (also livestream in Virtual Space)

THEATRE

Hope Friedrich **Theatre**
The Lion, the Witch, and the Wardrobe - Aslan Puppet Head
Co-Author(s): Holly Dixon, Rebecca Hall
Faculty Mentor(s): Glenn Breed
Session: Theater Exhibit
Time: 11:00-1:00
Location: Conference Room C

COLLEGE OF BUSINESS

ACCOUNTING & FINANCE

James White **Accounting**
Partisan Politics and the Impact on Corporate Tax Fees
Co-Author(s): Barbara White
Faculty Mentor(s): Sherwood Lambert
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #152
This study evaluates tax service fees from 2003 to 2020, as it considers the impact of partisan politics on the level of fees paid. Political ideology and the political cost hypothesis support the idea that political forces can play a role in the level of costs for tax services. As tax policy is known to be partisan, this study reviews the tax fees in light of the political party and sitting President of the United States during the years under examination. The results find that the lowest average yearly tax fees occurred (2017-2020) after Republican President Trump enacted the major reduction in corporate tax rates to 21% for 2017 to present. During Republican President Bush's last six years (2003-2008), the average yearly tax fees were actually higher than during Democratic President Obama's eight-year term (2009-2016). The results suggest that while political party and the partisan nature of tax policy would seem to impact the costs for tax services, the largest impact comes from specific actions taken by specific presidents in the area of tax policy. The corporate tax cuts instituted by Trump, in connection with his Republican Congress, lowered tax rates such that tax minimization strategies and its associated costs could be reduced for SEC publicly listed companies. Partisan politics will continue to be a force that impacts the manager's ability to strategically plan and may drive higher costs for tax services in the future.

Kwan-Chen Ma **Accounting**
Community Presentations for Stocks for Managing 500,000 Real Money Argo Equity Fund
Session: Faculty HIP Showcase
Students of two fund-management courses Invest $1 million and $0.5 million of real money in Argo Stock Funds. At the end of each semester, students present their stock recommendations to the UWF and the community. This experience is part of the Argo Investments Program.

Kwan-Chen Ma **Accounting**
CFA Global Research Challenge
Session: Faculty HIP Showcase
Three UWF students' paper placed #3 (of the 17 participants) at the FL state level

for the CFA Institute Research Challenge. This competition was a 5-level global stock report competition with other 800 universities. The CFA Institute Research Challenge is a global competition that tests the equity research and valuation, investment report writing, and presentation skills of university students.

Kwan-Chen Ma **Accounting**

Southeastern Hedge Fund Strategy Competition

Session: Faculty HIP Showcase

Four UWF students participated in an invited hedge fund strategy competition for the Southeastern Hedge Fund Association. A $10,000 prize is at stake. The paper is currently under reviewed.

BUSINESS ADMINISTRATION

Jonah Ji **Business Administration**

Development of a Smart City Risk Assessment Model

Faculty Mentor(s): June Wei

Session: Main Poster Session

Time: 12:00-1:00

Location: Virtual Space - Poster #153

Smart cities are ecologically harmonized cities, providing benefits of smart services in environmental controls, safety monitors, transportations, utilities, governance, etc. Even though smart cities offer many benefits to achieve a high quality of life and sustainable economic development, the adoption of smart cities is still at an infant stage. Prior research in the realm of smart cities focused primarily on the plan and design of smart cities. Motivated by the apparent lack of research concerning the assessment on the risk level of a smart city, this research project aims at discovering the major dimensions of risks in smart cities and developing an index to assess the risk level of a smart city. Specifically, this research first develops a smart city risk assessment model based on the value theory by combining four infrastructures, namely information and communication infrastructure, application infrastructure, governance infrastructure and engagement infrastructure. Second, the survey method is used to quantitatively measure the mean and fundamental objectives in each infrastructure. Data analysis is performed from 261 valid survey data and factor analysis is applied to derive risk dimensions for a smart city. Third, a risk index is developed based on the derived major dimensions of risks of a smart city. Last, recommendations will be provided. Results of this research will have a large impact on the future smart city development and evaluation, hence accelerating the adoption of smart cities to enhance sustainable economy development and increase quality of citizens and organizations environments.

COMMERCE

Helena Allman **Commerce**

Study Abroad Attitudes – Comprehensive Research Project in the MAR4613 Class

Session: Faculty HIP Showcase

This is a semester long group research project in my Marketing Research class (MAR4613). Students work in groups and follow the 11 steps in the marketing research process covered in the class. The topic for this semester is "Covid-19 Economy and Student Behavior & Attitudes towards Studying & Traveling Abroad". The four main deliverables throughout the semester are: 1) Secondary & Qualitative Data Introduction to Covid-19 Economy and Student Attitudes towards Studying & Traveling Abroad (10-15 pages long paper utilizing secondary data sources), 2) Survey (Qualtrics), 3) Data Analysis (SPSS), and 4) Final Written Report (final end-of semester research report, incorporating the first three deliverables, approximately 100 - 120 pages total, including Appendix with Data analyses output). Students work in groups and continuously receive my feedback.

MARKETING, SUPPLY CHAIN LOGISTICS & ECONOMICS

Kevin Dulion **Marketing, Economics, & Supply Chain Logistics**

U Choose Awards 2022 – Measuring the Brand Equity of Local Businesses based on UWF Student Perceptions

Co-Author(s): Trenten Kawas, Sydney Alger, Jack Kramer, William Branham, Jaileen Cruz, Rafael de Souza Filho, Emily Bloodworth, Josephine Laing, Ashelin Walker, Thales Machado de Souza, Megan Downing

Faculty Mentor(s): James Mead

Session: Main Poster Session

Time: 12:00-1:00

Location: Virtual Space - Poster #154

An organization's brand equity represents the goodwill and reputation it has earned from positive customer interactions. Organizations with high levels of brand equity tend to offer excellent product/service experiences to their customers (Agarwal and Rao 1996; Cobb-Walgren, Ruble, and Donthu 1995; Punj and Hillyer 2004). The U Choose Awards is an independent marketing research project conducted by UWF's American Marketing Association (AMA). The purpose is to measure the brand equity of Pensacola restaurants based on surveys of UWF students. The ultimate goal is to gain a better understanding of how these restaurants successfully deliver exceptional value to the UWF student community.

COLLEGE OF EDUCATION AND PROFESSIONAL STUDIES

CEPS - General

Nicole Niebuhr **College of Education and Professional Studies**

InsideOut: Contemporary Social Justice Issues

Co-Author(s): Jenn Brinkley

Session: Faculty HIP Showcase

This HIP is an InsideOut course held at held at the Santa Rosa Correctional Institution

on Fridays where 11 UWF students and 14 incarcerated students meet weekly and explore the intersection of contemporary social justice issues, and policy implications. Throughout the course the students engage in dialogue, write a number of reflective essays, and work together in small groups to complete a project where they will identify a current real-world issue and then figure out a potential solution that could help address the issue in society. They will be presenting the project to the class and community members who will serve as judges.

ADMINISTRATION & LAW

Jenn Brinkley **Adminstration & Law**

Period Poverty and Life Strains: Efforts Made to Erase Stigma and to Expand Access to Menstrual Hygiene Products

Co-Author(s): Nicole Niebuhr

Session: Main Oral Presenters
Presentation Time: 10:15
Session Time: 10:15-11:30
Location: Nautilus Chamber

Period poverty is the inability to access clean menstrual hygiene products. It can negatively impact the lives of menstruators. Replicating a 2021 study, the authors created an anonymous survey for undergraduate students at the University of West Florida. The intent was to gauge instances of period poverty among the student body, as well as determine what life strains students were under when trying to access menstrual hygiene products. Not only did eighteen-point eight percent of the undergraduate students surveyed experience period poverty over the last twelve months, but seven-point six percent experienced it every month in the last twelve months. The results also indicate twenty-seven-point six percent of students surveyed used other materials, like toilet paper or fabric, when they could not access menstrual hygiene products. Additionally, thirty-two percent of students left a menstrual hygiene product in for longer than recommended by the manufacturer, placing them at risk for infection. Based on the depression score from the survey, a significant relationship between period poverty and negative mental health outcomes is suggested. Menstrual hygiene products are required over the reproductive lifetime of the menstruator, which can be several decades. The cost to menstruators can be high, especially for indigent individuals. Most states do not exempt menstrual hygiene products from sales tax, making the cost that much higher for the consumer. There is a desperate need for legislative action at federal, state, and local levels in the United States to expand access to menstrual hygiene products.

Autumn Lindquist **Adminstration & Law**

CSEC in Northwest Florida: Identification, Intervention and Services for Child Survivors of Human Trafficking

Faculty Mentor(s): Jennifer Brinkley
Session: Main Oral Presenters
Presentation Time: 10:45
Session Time: 10:15-11:30
Location: Nautilus Chamber

Abstract The rapidly increasing rate of commercialized sexual exploitation of children (CSEC) in the Pensacola area has resulted in the direct involvement of the criminal justice system with child survivors of human trafficking. This presentation will examine identifiable risk factors for exploitation, early intervention resources, as well as the available service spectrum for CSEC survivors in Northwest Florida to prioritize identification, prevention, and response to human trafficking within the State of Florida s legal community. Data gathered from state governmental resources, local respite care centers, and law enforcement statistics are analyzed to provide accurate means for the identification and intervention of human sex trafficking. The children at greatest risk for trafficking include runaways with histories of neglect and abuse, with only 1% having criminal charges of prostitution. After identification, the legal, medical, and social needs of the child can be met through legal advocacy, trauma-informed care/language, and substance abuse treatment as alternatives to incarceration or other punitive measures. Ultimately, proper use of these skills within the legal system will prevent future re-traumatization of exploited children, promote rehabilitation in the long term, and keep CSEC survivors out of the courtroom. Keywords: Exploitation, human sex trafficking, legal community, criminal justice, intervention

Gaige McMillian **Adminstration & Law**

Redlining in Academia

Faculty Mentor(s): Charlie Penrod
Session: Main Oral Presenters
Presentation Time: 11:15
Session Time: 10:15-11:30
Location: Nautilus Chamber

Specialized education strongly impacts financial earnings within the American workforce. As such, a lack of participation in higher education is directly linked to lower economic standing. Therefore, equal access to higher education is crucial for maintaining a just distribution of opportunity across demographics. Our research asks if the current college admissions process uses criteria which act as proxies for discrimination, and, if so, what changes might resolve this issue. In doing so, this paper will analyze the statistical diversity of degree-seeking candidates across levels of academic achievement. Specific attention will be paid to the equity of opportunity, or lack thereof, among graduate level students of different racial, cultural, and national backgrounds. As the data permits, inferences will be drawn that address calls for reform. Potential resolutions will be assessed based on their necessity, their efficacy, and their legal viability.

Gaige McMillian **Adminstration & Law**

Politics, Public Health, and Accessibility: Vaccine Hesitancy in Northwest Florida

Co-Author(s): Trisha Medeiros

Faculty Mentor(s): Christopher Atkinson
Session: Main Oral Presenters
Presentation Time: 10:30
Session Time: 10:15-11:30
Location: Nautilus Chamber

Relatively low COVID-19 vaccination rates in Northwest Florida present a challenge to public health measures due to the infection-related health risks to those who remain unvaccinated and the resultant risk for increased transmission. Vaccine hesitancy remains a significant concern in some areas. Understanding what

drives hesitancy is crucial to crafting policy responses that can reduce uncertainty and improve public trust. Northwest Florida is particularly fitting for research due to its intense partisanship, which evidences itself as strongly conservative, but is likely distrustful of official measures regardless of partisanship. Our research explores what we can learn about the efficacy of public health policies that address COVID-19 and how these policies can better respond to public feedback and participation. In response, our team will design and administer a survey which will target a representatively diverse group of participants from Northwest Florida counties and query them about factors that may contribute to their COVID-19 vaccine hesitancy. Factors of interest in this survey include individuals' relative trust towards healthcare systems, preferred methods of receiving health information, and partisanship. Ideally, we will collect 1,100 or more responses that proportionally represent the counties comprising this district. The collected data will help identify systemic factors and beliefs that disconnect modern medicine from those that it was created to serve. This, in turn, can inform high-leverage solutions to the problem of COVID-19 vaccine hesitancy. Moving forward, we will use this research to analyze the feasibility of public health proposals from the health industry, public policymakers, and the law.

CRIMINOLOGY & CRIMINAL JUSTICE

Bailey Bullion **Criminology & Criminal Justice**

Carrying a Handgun v. Taking a Handgun to School: An Analysis of Risk Factors Related to Delinquency, Aggression, and Victimization among Youth

Faculty Mentor(s): Hasan Buker
Session: Main Oral Presenters
Presentation Time: 11:00
Session Time: 10:15-11:30
Location: Nautilus Chamber

Gun violence in school settings has been of great concern in the US in recent years. However, research on carrying a gun to school among youth and improving evidence-based security measures is limited in number and scope. This study strives to contribute to the improving literature on understanding the risk factors associated with taking a gun to school among middle and high school students. Based on a data set collected from rural, urban, and suburban schools in New York, New Jersey, and Pennsylvania, this study explored the predictor value of potential risk factors derived from two prominent theoretical frameworks: delinquency and aggressive behavior, and victimization and fear, on two major outcome variables; carrying a gun, and taking a handgun to school. The predictor variables included measures of bullying, violence against a dating partner, non-gun delinquency, mental health conditions, and demographics. The bivariate analysis indicated no significant difference between the likelihood of a youth s gun-carrying and taking a handgun to school, while certain risk factors were varying among gun carriers and non-gun carriers. The multivariate analysis indicated that non-gun delinquency was the most important predictor for both outcome variables. Cyberbullying, sexual victimization, reciprocal sexual and physical dating violence experience, and reciprocal psychological bullying experience were also significant predictors increasing the likelihood of gun-carrying among the participants.The implications included a discussion on how taking a gun to school was an extension of general gun carrying and how it was mostly shaped by delinquent lifestyle, more than any other possible predictors.

Laylah Curran **Criminology & Criminal Justice**

Human Trafficking: Decriminalization of Minors in States Connected by I-10

Faculty Mentor(s): Hasan Buker
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #156

Human Trafficking is a critical social justice issue that must be combatted with a unified and effective practice. Several of the states connected by Interstate 10, an interstate with high levels of human trafficking cases, have passed Safe Harbor laws for trafficked minors. Yet, there are meager policy changes within different sections of the system within these states as well as at the federal level. The primary goal of this research is to identify which policies and approaches have provided a significant decrease in the criminalization of these individuals. The evidence includes a comparative analysis of the legislation of each state on Safe Harbor laws as well as how policy changes affect the local community. The necessary data exploration on this topic includes the impact that local safe harbor partners have on legislation, such as lobbying. Essentially, this includes examining which policies have proved to be effective and which have been statistically shown to be ineffective. Sources used include both larger organizations such as the Polaris Project as well as more personal insights from smaller projects and safe harbor homes, such as The Secret Place Home. This research would provide an insight into the failures of the legislative process for these trafficked minors as well as recognize which procedures prove to be helpful in this issue.

Caroline Hornsby **Criminology & Criminal Justice**

Psychopathology as a determinant of Police misbehavior: findings from literature and future directions for research

Faculty Mentor(s): Hasan Buker
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #155

The purpose of this research is to analyze how psychopathology can be applied to police misbehavior. Corruption within police departments across the world is a massive issue that could possibly be attributed to multiple different aspects associated with psychopathology. Research has previously been done to address this topic and the published papers will be analyzed and used within this current research to help back up any information that is found. Previous research has found that childhood trauma, increased stress of the job, certain personality traits, as well as many others could all be aspects associated with increased likelihood of police misbehavior. Research has found that pre-employment screenings and reoccurring psychological assessments can help to predict as well as lower the chances of police corruption. However, something that must first be addressed before diving deep into the issue at hand, is the blue wall of silence phenomenon. This is a phenomenon that allows for police corruption to continue out of fear of being reprimanded, a silent code of silence, and fear of being known as the snitch in the department. Though this research has only just begun, it shows great promise in helping to finally gain a better understanding of police misconduct.

SOCIAL WORK

Erin King **Social Work**

Merging Experiential Learning about Poverty with Evaluative Practices

Session: Faculty HIP Showcase
Time: 9:45-10:00
Location: Virtual

Students enrolled in SOW 6432 (Evaluation of Social Work Practice)in the clinical year of their master's degree in social work participated in an interdisciplinary poverty simulation experience in Fall 2021. The purpose of their participation was twofold. Students participating in the simulation were assigned to a "family unit" and were able to experience issues related to poverty (i.e. lack of transportation, lack of resources, interactions with community agencies, navigating 4 "weeks" of life in simulated poverty). Students then participated in a debriefing where they were able to share their experiences and perceptions, discuss larger issues related to poverty, share community resources, and discuss potential changes needed within the local community. The students in SOW 6432, while participating in the simulation, were also instructed to evaluate the simulation using the tools learned in the classroom related to agency/program evaluation and reflect on the experience both personally and as an evaluator of the program. Students viewed the simulation as an "intervention" to improve students' perceptions of poverty. A written evaluation with reflective component was submitted by each student who participated. Results of their evaluations will be presented.

Dana Dillard **Social Work**

Undergradute Social Work Group Research Proposals

Session: Faculty-led Special Sessions
Time: 10:00-11:00
Location: Conf Center Lounge

Students in Dr. Dillard's Spring 2022 Social Work Research Foundations course (SOW4403) worked both independently and in groups to design either a quantitative or qualitative research proposal. Students were placed into groups following the solicitation of their individual preferences from a comprehensive list of broad areas agreed upon by the class in week two. This resulted in seven groups of approximately two to three students, with four broad subject areas. The seven groups were subsequently randomly assigned to either a quantitative or qualitative methodology to demonstrate how areas can be researched from different approaches. Individual work products included an annotated bibliography and literature review, which also engaged a peer review activity. After completing independent research in their broad area, students worked in their small groups to distill one research question and a research design based on their randomly designated methodology. The final work product was a group research proposal presented as a scholarly poster. Poster expectations included: one overall introduction/literature review, at least one clear research question, sampling strategy, measurement concepts, data collection methods, ethical considerations, limitations, and social work implications. Students also participated in a peer/self-evaluation of the group process.

Mental Health Quantitative Research Proposal
Author(s): Marissa Barber, Nicholas Stott, Colleen Coy

Trauma: Qualitative Research Proposal
Author(s): Mady Beech-Wise, Alexis Miller

Trauma Quantitative
Author(s): Angelina Breshars, Ashley Rojas

Mental health qualitative research proposal
Author(s): Savannah Brown, George Hahner, Si'Miah Johnson

Substance Use Disorder/Quantitative research proposal
Author(s): Evan Hubbard, Dan Frisbie, Bailey Mott

Child Welfare/ quantitative
Author(s): Megan Pedraza - Jordan

Child Welfare Qualitative Research Proposal
Author(s): Daymen Tompkins

Nicky Butler **Social Work**

Fall 2021/Spring 2022 Grant Research for C A Weiss

Faculty Mentor(s): Erin King
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #157

This year for my research for the OUR program, I was recruited to help with research to get grant approval for CA Weiss school here in Pensacola, Florida. Although I was unable to go out in public the last two months to speak with the citizen in the community due to a back injury, I did learn the importance of research methods. I used the UWF library to search for information on school grants, what the funding could be used for, what CA Weiss had used previously funding for in the community. Before my fall, I was able to go over and check out the new walking track that CA Weiss helped provide to the community, and I, also, was able to learn that the community has now started giving back more to the education center as well. For Christmas, at least one class was presented with matching pajamas and recently the school held an outdoor event for the students. Recently, there have been a few write-ups in PNJ about CA Weiss and the changes that are being made from the funding that has been presented to them already. Most important of all is the new community clinic that serves not only students at CA Weiss, but also, the members of the community as a whole.

Dana Dillard **Social Work**

Firefighter Resiliency Project: Survey Findings and Implications for a Program Model

Co-Author(s): Erin King, Kellie O'Dare, Robert Rotunda

Session: Faculty-led Special Sessions
Time: 10:00-11:00
Location: Conf Center Lounge

Firefighters are trained to respond to an array of acute emergencies that culminate in repeated exposure to trauma subsequently impact ing their mental health. Yet, they often fail to seek services that could mitigate th ose adverse effects due to stigma , as well as a dearth of systematized resources and first responder proficient trained mental health professionals. This study explored work-related traumatic event exposure, PTSD symptomatology, levels of depression, anxiety, and suicide risk, and barriers to care for firefighters in a designated catchment area of a southeastern state. Results were used to inform local departments interested in culture change and intervention, as well as providing the basis for successfully obtaining federal grant monies. Using Qualtrics researchers administered a cross-sectional survey to firefighters between Fall 2020 and Spring 2021. The survey included the PCL-5, PHQ-9, GAD-7, SBQ-R, and BACE. Descriptive statistics, correlations, and independent t-tests were run to determine the level of trauma exposure and clinically significant mental health symptomatology, associations between different types of trauma and mental health symptoms, and barriers to accessing care. Due to the high levels of work-related trauma exposure, firefighters in this study were at an increased risk of developing mental health symptomatology when compared to the general population. Additionally, perceived and actual barriers to care provided implications for the grant program application. Findings were provided to local departments regarding the prevalence of mental health i ssues and contributed to the establishment of a grant-supported program that provides free telehealth counseling, mental health literacy, peer support, and leadership development.

TEACHER EDUCATION & EDUCATIONAL LEADERSHIP

Tiffany Marlow **Teacher Education and Educational Leadership**

Women's Representation in The Images of Three World History Textbooks Through A Critical Feminist Lens

Faculty Mentor(s): Giang-Nguyen Nguyen
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #160

Women are underrepresented in frequency compared to men in history curricula (Bohan, 2017; Chick & Corle, 2016; Engebretson, 2014; Maurer et al., 2017); however, the number of women has slowly increased as gender and social science curriculum researchers have critiqued their underrepresentation (Nakagawa & Wotipka, 2016). The increase of represented women in history curricula is not equitable when viewed intersectionally, particularly regarding how women are incorporated and which women are incorporated (Chick & Corle, 2016; Schmidt, 2012; Woyshner & Schocker, 2015). This presentation will share findings specific to the images of women included in three current editions of world history textbooks through a Critical Feminist lens (Crenshaw, 1995; hooks, 2015a; hooks, 2015b). This presentation aims to describe the visual representation of women provided to students in Modern World History courses. Moreover, this presentation will present the implications of the visual representations along with suggestions for future research and a call to action for teacher educators, teachers, and curriculum developers. These findings stem from a more extensive dissertation study that employed a qualitative instrumental single case study to understand better women's representation in California's tenth-grade World History curriculum.

Tim Morse **Teacher Education and Educational Leadership**

From Practitioner to Researcher: Report of a Demonstration Project for Developing a Single Subject Research Proposal Involving Students With Disabilities

Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #159

Undergraduate and graduate students completing a program of study in the field of special education may be tasked to conduct an applied single subject research study to fulfill a program requirement. In many cases, particularly those involving graduate students who are also full-time teachers, a student researcher will seek to conduct their study in an existing school program. Two reasons for doing so include convenience and addressing concerns about a study s external validity. However, student researchers also must be cognizant of many other issues that must be addressed properly so that a credible study is conducted. Thus, the focus of this presentation is an explanation of the process the presenter followed this school year that involved working as a volunteer teacher in a preschool program for students with developmental disabilities and subsequently designing an applied single subject research study. The process can serve as an example that student researchers can follow for the purpose of developing and executing an applied single subject research study in an existing school program serving students with disabilities. Four topics will be addressed in this presentation. Strategies for identifying a potential school-based program for conducting an applied single subject research study with students with disabilities A protocol to follow to coordinate ongoing classroom instruction with the focus of a research study Crafting a proposal for submission to an Institutional Review Board for full committee review Ideas for dealing with unanticipated delays and ethical concerns.

Giang-Nguyen Nguyen **Teacher Education and Educational Leadership**

Elementary pre-service teachers' motivation for learning and teaching mathematics

Faculty Mentor(s): Giang-Nguyen Nguyen
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #158

Student motivation in mathematics is an area that has received special attention in the mathematics research community. More research studies are needed to understand factors that influence student motivation and also what needs to be done to support students. In that respect, this presentation reports the preliminary findings from an ongoing research study that examines factors that influence pre-service teachers' motivation for learning and teaching mathematics.

HAL MARUCS COLLEGE OF SCIENCE AND ENGINEERING

BIOLOGY

Ian Barkhuizen **Biology**

Effects of Parasites on Chemical Signaling and Contest Behavior in Crayfish

Faculty Mentor(s): Sarah Wofford-Mares
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #189

Parasites play a crucial role in influencing physiological and behavioral changes within a multitude of organisms. A parasite s influence ranges from the ability to increase their transmission rates by altering a host s fitness to altering the behavior of the host along a personality spectrum. While studies have monitored parasites ability to influence bolder behaviors, such as aggression, little research has focused on parasitic influence on related factors such as chemical signaling. Chemical signaling plays a key role in aquatic environments where sight visibility is low and chemical detection has indirect or direct impacts on fitness. The goal of this experiment is to determine if parasites influence chemical signaling via increased production of urine during dyadic crayfish contests. Crayfish were chosen for this experiment due to their prevalence in aquatic, murky environments and a heavy reliance on chemical signaling. Furthermore, crayfish are model organisms for understanding contest behavior. Crayfish will be divided into a control group (non-parasitized) and a treatment group (parasitized). Three types of contests will be conducted: (1) control vs control, (2) parasitized vs parasitized, (3) control vs parasitized. All animals will be injected with fluorescent dye and will fight under black lights in dark conditions. This protocol allows the visual assessment of urine release events in the fight arena. We predict an increase in secretion of chemical signals from crayfish that are infected with Microphallus sp. If successful, this project will shed light on parasites abilities to alter chemical signaling in organisms.

Lauren Bednaroski **Biology**

Photo ID of Sea Turtles at Artificial Habitats along the Florida Panhandle

Co-Author(s): Emma Roberto

Faculty Mentor(s): Susan Piacenza
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #214

Sea turtles utilize natural and artificial habitats in the northern Gulf of Mexico. However, it is unknown how long individual turtles are residents of northwestern Florida artificial habitats. In this study, we utilized photogrammetry to contribute to the mark-recapture database focusing on loggerhead (Caretta caretta), green (Chelonia mydas), and Kemp's ridley sea turtles (Lepidochelys kempii) from November 2020-February 2022. We conducted in-water surveys along 13 shallow artificial reefs in the Gulf of Mexico via snorkeling using a handheld action camera paired with stereo-video cameras to measure straight carapace length (SCL). We analyzed facial profiles of each encountered turtle using I3S to better understand site fidelity, habitat preference, and potential seasonal usage of artificial reefs in relation to body size and age class. From November 2020-February 2022 as a part of an ongoing study, we had 107 turtle encounters, and nine turtles were re-sighted. Seven of the individuals were green sea turtles. The other two re-sighted individuals were Kemp's ridleys. Based on SCL measurements (range: 34.2-59.5 cm), all turtles re-sighted were juveniles. The Navarre area appeared to be a favored site, as six out of the 21 re-sighting events occurred at Navarre reef and seven of the encounters were observed at Navarre Pier. The re-sighting rate, 8.41%, suggests that overall site fidelity was low across our survey area of artificial habitats of the northeastern Gulf of Mexico. However, the high number of new encounters indicates juvenile turtles may be ontogenetically recruiting into this region from elsewhere in the Gulf of Mexico.

Andrew Brown **Biology**

Marine Microbiome Investigation for Bacteriophage Hunting at Pensacola Beach

Faculty Mentor(s): Hui-Min Chung
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #211

Bacteriophages (phages) are viruses which require a bacterial host to replicate. Phages can be found everywhere bacteria exist, from the peaks of mountains to the depths of the oceans. Studying phages can help us understand more about bacterial evolution and be used to mirror pathogenic human viruses without exposing researchers to unnecessary risks. However, in order to study phages in a lab, a bacterial host strain must be selected based on its culturability, growth rates, and safety. My research is focused on hunting phages at Pensacola's Casino Beach, specifically from intertidal sand. Previously, using host strain Psychrobacter nivimaris , a gram-negative aerobic marine bacterium, I made little progress in the way of isolating phages. I have since taken it upon myself to use Casino Beach sand to isolate a new bacterial strain to use for phage hunting. To do so, I have cultured samples from sand in different types of nutrient media to enrich bacteria for morphological and genetic analyses. I have also isolated environmental DNA from the same sand samples to aid in determining the relative abundances of culturable and unculturable bacterial strains. As of October 2021, Thioalkalivibrio , Marinobacter , and Geobacter have been identified as the most abundant genera at Casino Beach from metagenomic samples. Eight unique strains have also been cultured and await genetic identification for potential use as bacteriophage hunting hosts. I will discuss the final results at the Student Scholars Symposium.

Hunter Brown **Biology**

Claw and Order: The effects of differences in signal availability on male crayfish contests.

Faculty Mentor(s): Sarah Wofford-Mares

Session: Main Oral Presenters
Presentation Time: 11:45
Session Time: 10:30-12:00
Location: Auditorium
Competition for resources via contest behaviors is ubiquitous across animal species. Crayfish act as an excellent model species for contest behavior by giving researchers the ability to study interindividual differences in contest behavior based on information availability in a lab setting. During a conflict, crayfish use chemical information released by the contestants to assess whether to continue the contest or retreat. Removing access to chemical information, this process is known as lesioning, translates to longer and more intense contest behaviors. This study aims to explore the relative importance of chemical and size-based information for male crayfish pairs. Generally, size-matched individuals are considered equally likely to win a contest. This study will explore whether access to chemical information is more important than size matching in crayfish contests. Five treatments will be used to assess the relative role of contestant size and chemical information: (1) size matched, no lesions; (2) size matched, one lesioned contestant; (3) size varied, no lesions; (4) size varied, larger contestant lesioned; (5) size varied, smaller contestant lesioned. Each contest will be video recorded and analyzed for contest duration, fight intensity throughout the contest using a previously developed ethogram, and the winner and loser of each contest. We predict that lesioned opponents will tend to win over non-lesioned in size matched contest, and that smaller lesioned will win more often than larger in size varied. This would support the idea that chemical information is more important than size in determining a winner.

Cooper Catalani **Biology**
Investigating the Effects of Genetic and Nutrient Factors on the Gut Microbiome of Drosophila melanogaster
Co-Author(s): Andrew Pomareno
Faculty Mentor(s): Hui-Min Chung
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #193
The interest in gut microbiome research is rapidly growing due to the many connections between gut health and overall health. Health factors like behavioral development, immune function, digestive regulation, etc. all have been shown to be impacted by the gut microbiome. Probiotics are often used to better gut microbiome health because they aid in increasing microbiome function and diversity. In addition to probiotics, this study compares whether genetic variations have any effect on gut microbiome composition. The ADH gene, which encodes for the conversion of alcohol into acetaldehyde, is essential for metabolizing alcohol in vivo. In previous trials, the ADH n1 mutant flies showed significantly less microbiome diversity when compared to the wild-type fly results. This suggests that genetic factors may influence the microbiome spectrum. Our plan is to expose both fly types to three different probiotic groups over the period of 12 days. The probiotic groups being used are Bifidobacterium , Lactobacillus plantarum , and a combination of both. After exposure, DNA of the fly samples (both control- and experimental groups) will be isolated and then the bacterial 16S rRNA genes will be amplified and sequenced using a Nanopore MinION sequencer. The resulting data will be analyzed with EPI2ME software. We expect to see an increase in microbial diversity after probiotic exposure in both wild-type and ADH-mutant populations. Additionally, we predict that the ADH n1 samples will remain consistent with our prior research and exhibit lowered diversity when compared to the wild-type. We will present and discuss our results in the symposium.

Hope Ebert **Biology**
Temporal and spatial variability of bacterioplankton community structure along the West Antarctic Peninsula
Co-Author(s): Rebecca Gast, Jean-David Grattepanche, Leila Harris, Erika Headrick, Robert Sanders, Arianna Simmering
Faculty Mentor(s): Wade Jeffrey
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #187
Seasonal and spatial patterns of bacterioplankton diversity were investigated across an approximately 450 km transect along the western side of the Antarctic Peninsula (WAP) during two research cruises (austral fall/winter and spring/summer 2019). This was part of a larger project examining mixotrophy in the Southern Ocean. While there have been studies on bacterial communities in the Southern Ocean, none have included complementary data on mixotroph community characteristics and how they might influence bacterial diversity. Mixotrophy has been demonstrated to have appreciable ecological impacts in other ecosystems, though the role of these organisms in the Southern Ocean is not yet well characterized. Physical oceanography data, and biological data (pertaining to the abundance, activity/productivity, and diversity of both microbial eukaryotes and prokaryotes) were obtained during both cruises. Prokaryotic community composition was determined using current bioinformatics techniques for 16S rDNA sequencing data. Non-metric multidimensional scaling was used to compare prokaryotic community structure between sampling sites for both austral winter and summer. These preliminary analyses of the data indicate that, for surface communities in austral winter and summer, the Marguerite Bay sites were more similar to each other than to the other sites in the study. After gathering subsurface samples in the upcoming austral winter, we will further investigate our data to determine which environmental parameters best explain the changes in prokaryotic community structure that we are beginning to see. Our research should increase the knowledge of Southern Ocean bacterioplankton and mixotrophs, specifically that of bacterial diversity on a seasonal timescale near the WAP.

Elizabeth Everett **Biology**
Biofilm; The New Threat to Marine Debris
Faculty Mentor(s): Alexis Janosik
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #207
Anthropogenic activities and production have been the source of environmental change all around the planet. Marine litter has a new focus as it can play a role as a dispersal vector for non-indigenous species (NIS). Specifically, NIS attach

to marine litter and can be dispersed around the planet with ocean currents. NIS can then become invasive once it causes ecological harm in its nonnative area. This study will focus on characterizing marine biota attached to plastic litter items by using next generation sequencing of DNA extracted from biofilm. Specifically, the objective of this study is to collect marine litter from beach locations in Northwest Florida and characterize the biofouled communities on the litter. These data will be used to assist in analyzing the composition of the communities inhabiting the marine debris. Marine debris will be collected from Johnson's Beach, Casino beach, Bay Bluffs, and Quiet-water Beach. DNA from collected marine litter will be extracted using the DNeasy Blood and Tissue kit (Qiagen). Agarose Gel Electrophoresis will be performed after the extraction. The DNA dataset will be analyzed. It is paramount to understand the composition of microorganisms with the ability to attach to debris, because invasions could affect the balance of the local ecosystem.

Taber Faurie **Biology**

Microplastic Abundance in Tubeworms from Pensacola Beach and The Gulf of Mexico

Faculty Mentor(s): Alexis Janosik
Session: Main Oral Presenters
Presentation Time: 12:30
Session Time: 12:30-1:45
Location: Auditorium

Microplastic abundance has become an increasingly important field of study as researchers observe microplastics saturating a wide range of habitats, including marine environments. Microplastics are fragments of plastic that are less than 5 millimeters in length. These microscopic fragments of plastic pose a huge threat to many different marine organisms. In particular, tubeworms of the family Onuphidae (Annelida) build tubes by secreting a mucous substance and encrusting material available in their environment (e.g. sand, shell fragments, plant debris); however, it is not known if microplastics are being incorporated into their tubes. The goal of this study is to evaluate overall microplastic abundance in the tubes of Onuphidae worms from Pensacola Beach and the Gulf of Mexico. The presence of microplastics will be determined through the digestion of tubes using nitric acid. Microscopy will be utilized to count the number of microplastics in each tube. Each tube sample will be weighed and measured before digestion to determine if size is correlated with the microplastic abundance and/or color or type of microplastics. Additionally, species identification of the worms will be confirmed using DNA barcoding and morphological examination. The lack of microplastics in any sample is equally important for the study as it can be used as a reference point for future research.

Conor Flannigan **Biology**

The comparative effects of parasite load and increased serotonin levels on crayfish aggression

Faculty Mentor(s): Sarah Wofford-Mares
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #190

Animals are in constant competition for resources, and this can sometimes manifest in physical contests. Contests, however, are very costly and animals need to have ways to control when they decide to have a physical contest. When an animal engages in a physical contest, a suite of internal chemicals is produced that can increase or decrease the animal s likelihood of remaining in a contest. When crayfish engage in one-on-one contests, they produce a chemical called serotonin in their hemolymph which dictates aggressive behavior. In invertebrates, increased serotonin concentrations contribute to bolder behaviors and longer contest duration. One of the potential factors that can impact this chemical cocktail is the presence of internal parasites. Crayfish infected with trematode parasites (Microphallus sp.) show an increase in boldness which could be associated with serotonin levels in the hemolymph. The goal of my project is to gauge whether parasitized animals exhibit the same levels of aggression as animals with elevated serotonin using three experimental groups: (1) animals without elevated serotonin or parasites; (2) animals with elevated serotonin; (3) animals infected with parasites. Contests will be analyzed for winner/loser, total duration, and the intensity of the contest. The comparison between these groups will provide evidence about whether parasites have similar effects on crayfish as serotonin. By better understanding parasite impact on behavior, we can predict how parasites may impact population dynamics and broad scale ecological processes in aquatic communities.

Makailyn Hernandez **Biology**

Characterizing marine fishes of Santa Rosa Sound using environmental DNA metabarcoding

Co-Author(s): Amy Fellgren

Faculty Mentor(s): Alexis Janosik
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #208

As organisms interact with their environment they are also leaving behind traces of DNA or eDNA. Environmental DNA in combination with high-throughput sequencing, can be used to detect taxa in an environment. Specifically, these tools can be employed to characterize marine fishes, many of which are at risk due to various anthropogenic impacts such as overfishing. The objective of this study is to survey marine fishes in Santa Rosa Sound, Pensacola, Florida using eDNA metabarcoding. Water samples were collected aboard the R/V Hogarth and DNA was extracted. DNA was amplified using universal primers designed to amplify marine fishes. Water samples will be sent for high-throughput sequencing and then the resulting reads will be analyzed for species identification and compared based on depth of water column. eDNA collection allows for rapid, cost-effective, and standardized collection of data about species distribution and relative abundance.

Stephanie Jones **Biology**

Biomarker Assay Development for Alzheimer's Disease-Modified Tau Protein

Co-Author(s): Brennen Lewis

Faculty Mentor(s): Rodney Guttmann
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #200

Alzheimer s Disease (AD) is a devastating and sadly too prominent disease. It plagues about one in two older adults and is the 7th leading cause of death. Hence, there is an impetus for research to treat this disease as our population grows older. Symptoms and biological signs of AD can be seen in some unfortunate individuals as early as age thirty, maybe even younger. However, one of the difficulties of AD is that it s indiscernible in its early stages from other dementia-causing diseases; most of these diseases carry similar biomarkers and are currently only identifiable in their later stages when it s too late. Aggregates of a protein called tau are one such biomarker, and it s an antecedent to the symptoms of a few dementia-causing diseases (AD included). For such aggregates to form, covalent modifications must occur that disrupt the normal nature of tau, and it s been suggested that different modifications of tau correspond to different dementia-causing diseases. The objective of this project to target a known modification of tau in AD: phosphorylated threonine 217. In a method referred to as phage display, the physiology of bacteriophages provides a promising way for screening differences between AD phosphorylated tau and non-AD phosphorylated tau. As a proof of concept, we are developing an assay based upon phage display to screen for phosphorylated tau, with hopes to make it specific for phosphorylated thr217. If we re successful, it would shine light on a potential avenue for early diagnosis of people with AD.

Christina Kilpatrick **Biology**

Alliance of the Arts and Sciences: Development of a 3-D printed Turbidity Sensor through Trans Collaboration

Co-Author(s): Rebekah Dilavore, Connor Webb, Sara Thompson, Aniana Monteverde, Douglas Hunter

Faculty Mentor(s): Lisa Waidner
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #185

The objective of this study is to use the knowledge and experience of the Art and Biology Department students at UWF to design and develop a reliable, simplified sensor, which will be locally made using 3-D printing. Students from ART 4633 and PCB 4125-5525 will work in collaboration on this project as a High Impact Practice. With the success of this study, turbidity sensors can be made with minimal cost to venues of education or scientific study. The turbidity sensor that will be developed in this study will utilize open-source concepts in frame design, electronics, and software. Upon completion of this project the improved sensor will provide data regarding turbidity that will record to a data card and also show on a screen the moment the measurement is acquired. Data collected from the sensor should be correlated with the total amount of suspended solids in seawater. Quantitative Polymerase Chain Reaction (qPCR) will be used to quantify anoxygenic phototrophic bacteria that are present and attached to particles, which can be detected as the turbidity reading. Through development of the sensor, UWF students will be enabled to work with people outside of their field to gain knowledge and experience in areas including communication, application of reasoning, applying critical thinking skills and more. The results of this project will be used to improve future turbidity sensors while improving transdisciplinary collaborations.

Sierra Landreth **Biology**

Identifying Occupancy Patterns of Sea Turtles at the Navarre Beach Fishing Pier Using Photograph Identification

Faculty Mentor(s): Susan Piacenza
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #213

The use of photograph identification databases over traditional capturing techniques is a less invasive method for analyzing animal behavior. Photo ID allows for tracking individuals of a species and estimating population characteristics. Along the northern Gulf of Mexico, sea turtles are increasingly using artificial structures as habitats, including fishing piers. The number of sea turtles incidentally captured at fishing piers along the Gulf Coast has increased, with the Navarre Beach Fishing Pier (NBFP) having the highest rate in the region. To better understand the patterns of sea turtle occupancy of the pier, we developed a photograph identification database via field surveys from Summer 2021 through Spring 2022. A high zoom camera was used to photograph an observed sea turtle's head, and the location of the turtle and survey duration were recorded. Photos were uploaded to the I3S pattern software to determine if the sea turtle was a resight. We analyzed the patterns of observed sea turtles to determine possible temporal patterns in occupancy. To date, we have sighted 58 turtles with 23 being resightings. Most sea turtles observed were green sea turtles (N=46), but we also observed loggerhead sea turtles (N=11) and Kemp's ridley sea turtles (N=1). We calculated catch per unit effort (CPUE) based on sightings and survey duration. The average monthly CPUE was highest in the summer months overall. Our results can be used to understand patterns of sea turtle occupancy at fishing piers and provide scientific guidance to reduce bycatch at fishing piers.

Brennen Lewis **Biology**

Biomarker Assay Development for Alzheimer's Disease-Modified Tau Protein

Co-Author(s): Stephanie Jones

Faculty Mentor(s): Rodney Guttmann
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #201

Alzheimer's Disease (AD) is a devastating and sadly too prominent disease. It plagues about one in two older adults and is the 7th leading cause of death. Hence, there is an impetus for research to treat this disease as our population grows older. Symptoms and biological signs of AD can be seen in some unfortunate individuals as early as age thirty, maybe even younger. However, one of the difficulties of AD is that it's indiscernible in its early stages from other dementia-causing diseases; most of these diseases carry similar biomarkers and are currently only identifiable in their later stages – when it's too late. Aggregates of a protein called tau are one such biomarker, and it's an antecedent to the symptoms of a few dementia-causing diseases (AD included). For such aggregates to form, covalent modifications must occur that disrupt the normal nature of tau, and it's been suggested that different modifications of tau correspond to different dementia-causing diseases. The objective of this project to target a known modification of tau in AD: phosphorylated threonine 217. In a method referred to as phage display, the physiology of bacteriophages provides

a promising way for screening differences between AD phosphorylated tau and non-AD phosphorylated tau. As a proof of concept, we are developing an assay based upon phage display to screen for phosphorylated tau, with hopes to make it specific for phosphorylated thr217. If we're successful, it would shine light on a potential avenue for early diagnosis of people with AD.

Allie Linkous **Biology**

Identifying the Differential Binding Between Phosphorylated and Unphosphorylated Tau on ELISA Plates

Co-Author(s): Maddy Scott

Faculty Mentor(s): Rodney Guttmann
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #202

Alzheimer s is the leading cause of irreversible dementia in adults over 65. While several new drugs have entered the market over the last 30 years, there remains no treatment or cure. Among recent developments via several groups of leading researchers is the recognized need for biomarkers of AD during the path of its progression. Primarily the focus is on biofluid markers, found in CSF, blood, urine or saliva. Recent work has shown that several key proteins associated with neuronal repair or synaptic function are also associated with AD and measurable in CSF or blood. However, the specificity and selectivity of these proteins are too variable to be reliable. The focus of the present study is to use phage display to assess the CSF for AD-specific forms of tau. Currently, we have found that standard ELISA methods based on total tau appear to be biased. A current standard biomarker assay for tau is used to detect the presence or absence of pTau181. In our experiments, we have found that binding to the ELISA is, in fact, biased towards non-phosphorylated tau. These findings suggest that current use of the ELISA method may be misleading and under-reporting the presence of pTau181. Further studies are evaluating methods to improve ELISA results to eliminate this bias. Achieving this will allow more accurate measurements of tau upon doing phage display and will therefore pave the way towards in-depth analysis once phage specific to AD-specific forms of tau can be identified.

Anna List **Biology**

Ongoing disproportionate rates of incidental sea turtle bycatch at local fishing piers

Faculty Mentor(s): Sarah Wofford-Mares
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #212

Increasing rates of incidental capture of sea turtles has been the subject of concern in the United States, with yearly increasing numbers being associated with coastal fishing piers. The northern Gulf of Mexico currently lacks up-to-date, baseline abundance and demographic sea turtle data which was exemplified by the 2010 Deepwater horizon oil spill. The purpose of this research is to examine effects of angler practices as they relate to the ongoing disproportionate differences in rates of incidental sea turtle bycatch at local fishing piers in the Florida Panhandle. The Navarre fishing pier currently has the highest rate of incidental sea turtle captures by fisherman in the state of Florida. Meanwhile, the nearby pier on Okaloosa sees drastically lower rates of bycatch. This research project seeks to examine angler fishing practices in relation to these bycatch incidents in order to better understand how specific fishing practices may contribute to higher than normal sea turtle interactions. Surveys developed by NOAA will be administered via tablets with anglers giving oral answers to be recorded by the interviewer with surveys being conducted on a weekly basis at alternating piers. The current goal is to administer surveys twice a month per location. Responses will be uploaded to a national database overseen by NOAA for further research regarding management and species protection in both the Gulf of Mexico and nationwide. Furthermore, data collected from this study can increase collective understanding of the influence of angler behavior on sea turtle bycatch rates.

Jason Neidigk **Biology**

Microbial Analysis of a Bosque Environment in Northwest Florida

Co-Author(s): Tracey Holliday, Katie Bray, Tim'meashai Hale

Faculty Mentor(s): Jeanetta Floyd
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #205

Microbial life is found throughout the world. They can be found anywhere from tabletops, to rivers, and to even some of the harshest, most inhospitable environments on this planet, like hydrothermal vents. Despite their ubiquity, less than 1% of all microbial life is culturable in the lab. This makes it extremely difficult to study and understand microbes. To compensate for this uncultivability, a practice known as metagenomics is used. Metagenomics is the process by which samples are taken from an ecological, or natural, environment and the total DNA is extracted and analyzed. In this project, a soil sample was taken from the University of West Florida's campus on the banks of the Conecuh River. The sample area, although not in the southwest, is considered a bosque. Polymerase chain reactions, or PCR, were selected for the bacteria using 16s primers. The DNA sequences were analyzed using Epi2Me. The data yielded 219,000 fragments of DNA across 3,000 microbial species and showed genera such as Bradyrhizobium, Paraburkholderia, and even the pathogenic genus Legionella. The respective percentages of genera and species in the sample are also reported. Gathering this information is of vital importance for microbiological research in Northwest Florida. In an environment prone to hurricanes, understanding the microbial life in the water allows researchers to predict microbial and pathogenic bacterial outbreaks, and the best way to mitigate these outbreaks should they occur.

Hailee Nigro **Biology**

Effects of Microplastics on Telomere Elongation in Regenerated Tissue of the Gray Sand Star

Co-Author(s): Rebecca Varney

Faculty Mentor(s): Alexis Janosik
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #209

Microplastics are plastic debris particles that are taken up by marine organisms that filter water from their environment, filter-feed, and consume other organisms. These small plastics either originate from breakdown of larger plastics

or are directly manufactured. Microplastics are an increasing topic of concern, as they are connected to physiological harm and reduced survival among marine organisms. This research aims to understand whether presence of microplastics in regenerated tissue of the Gray sand sea star (Luidia clathrata) will affect elongation of telomeres. Present in all organisms with linear chromosomes, telomeres function in protecting valuable genetic coding stored in chromosomes from being degraded. Shortened telomere length occurs naturally with age but is influenced by one's environment and lifestyle. When telomeres reach a critical length, apoptosis initiates. Prior research shows telomere length increasing after a sea star regenerates a limb. This study investigates whether typical lengthening behavior of telomeres in sea stars post-regeneration will be impacted by uptake of microplastics from their environment. It is hypothesized that microplastic exposure will cause a decrease in telomere length. Regenerative experimentation was performed with exposure to different concentrations of microplastics and DNA was extracted from tissue samples. Telomeric repeats in each sample reading allows baseline and post-exposure telomere length comparison. Loss of telomere length by microplastic intake reveals critical threats to organism survival and to all linear chromosome species that must elongate telomeres in gonads for reproduction. Reduced telomere length speeds the process of cell aging and cell death, emphasizing the importance of this study.

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
Time: 9:00-10:00
Location: Virtual Space - Poster #206

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.

Keara Quijano **Biology**

The Impact of 12 Weeks of Adapted Dance on Balance, Gait, and Lower Extremity Function Among Persons Living with Alzheimer's Disease or Dementia Related Disorder (ADRD)

Faculty Mentor(s): Crystal Bennett
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #192

Person's living with ADRD 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 ADRD. An experimental design was used to randomly assign persons with ADRD 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.

Hunter Rider **Biology**

A Race Against Time: Detecting the River Redhorse in the Escambia River Using Environmental DNA Metabarcoding

Faculty Mentor(s): Alexis Janosik
Session: Main Oral Presenters
Presentation Time: 9:15
Session Time: 9:00-9:45
Location: Auditorium

Environmental DNA (eDNA) metabarcoding is a molecular tool that can be used to detect and catalog biodiversity. Detections can include threatened and endangered species, as well as those that are elusive when conventional field sampling is too costly and/or ineffective. Environmental DNA metabarcoding was utilized in this project to detect the presence of River redhorse (Moxostoma carinatum) in the Escambia River, a "species of greatest conservation need" in the state of Florida. Populations of M. carinatum in Florida are spatially isolated, and specimens have been collected only three times in the past 60 years. Surface water samples were collected at specific sites in December, as well as March through June from the Escambia River and lower Conecuh River. Collected water samples were preserved in sodium acetate and ethanol, and DNA was extracted. Universal fish primers were utilized for PCR amplification of extracted DNA, and samples were sequenced using Illumina HiSeq. Bioinformatics tools will be utilized to determine present fishes by aligning sequenced samples with reference sequences from the GenBank Database. Detection of M. carinatum DNA

will provide evidence that the population is extant in Florida, along with ideal temporal locations for conventional sampling methods. Furthermore, potential habitat use and spawning migration routes of M. carinatum can be assessed with positive detections to implement future management actions in Florida. Environmental DNA metabarcoding is the beginning of providing efficient conservation for M. carinatum and other fishes in the Escambia River.

Olivia Sanders **Biology**

Effects of Complexity on Primary and Secondary Production of Artificial Reef Systems in The Gulf of Mexico

Faculty Mentor(s): Jane Caffrey
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #184

Artificial reefs are essential aquatic ecosystems as they provide a variety of benefits to marine organisms and humans such as reestablishing fish populations, protecting coastlines from incoming wave action, and relieving stress from natural reefs by providing fresh fishing sites for fishermen. In this project, local artificial reefs in the Gulf of Mexico are being studied to determine if complexity (multiple reefs together) increases these benefits more than simple reef systems (a singular reef). I am comparing primary and secondary production of complex reefs versus simple reefs. Primary production from algae and phytoplankton influences oxygen and nutrient levels in the food web. Secondary production of biofouling invertebrates is an important food source for higher trophic levels. The role of invertebrates on artificial reefs is understudied compared to fish communities. Sampling began in May of 2021 and ended in September of 2021 in the Northeast Gulf of Mexico off Pensacola, Florida. Triplicate limestone rocks were deployed at each of three complex reefs and three single reefs. Oxygen and conductivity sensors were placed at each site. Water samples were filtered and collected at the beginning and end of the study to measure chlorophyll A, dissolved inorganic phosphate, nitrate+nitrite, and ammonium. Additional water samples were collected and filtered for natural abundance of 13C & 15N. In September, replicate rocks at the reefs were collected and analyzed for colonized invertebrates to determine secondary production. Water samples were also filtered for nutrient, chlorophyll A, and isotopic analysis.

Maddy Scott **Biology**

Modulating Calpain Activity By LSEAL

Co-Author(s): Allison Linkous, Sydney Truax

Faculty Mentor(s): Rodney Guttmann
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #203

Calpains are calcium-dependent thiol-proteases involved in various human diseases and conditions. Primarily it has been observed that calpains become overactivated in these disease states, mainly due to overwhelming rises of intracellular calcium levels. In Alzheimer's disease specifically, such an overactivation is that to result in the formation of tangles of tau, a critical neuropathological hallmark of the disease. Thus, inhibiting calpains is likely to represent an essential therapeutic path. Calpastatin is the natural and endogenous inhibitor of calpain and is the gold-standard when developing a pharmacological inhibitor. It was identified in prior works that a small peptide sequence, LSEAL, have similar inhibitory effects as the previously discovered calpain inhibitory binding domain calpastatin. We found that LSEAL inhibited the well-defined protein-substrate tau, but it accelerated the cleavage of the pseudo-substrate Suc-LLVY. To address this seeming inconsistent finding, we took a pharmacological approach to determine LSEAL's mechanism of action. Presently, we hypothesize that the because LSEAL acts allosterically, the binding of tau is blocked, leading to decreased proteolysis by the enzyme, calpain. In contrast, the pseudo substrate interacts only with the active site, and thus, LSEAL may be resulting in a conformation shift of calpain, that increases access of Suc-LLVY to the active site. Additional experiments with active site directed inhibitors are ongoing to test this hypothesis.

Leah Strickler **Biology**

Keep your Friends close and your Anemones Closer: Combative Interactions between Aiptasia pallida Individuals in a Controlled Environment.

Faculty Mentor(s): Sarah Wofford-Mares
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #191

Although we tend to associate contest behaviors with complex neural anatomy, some of the most phylogenetically ancestral animals exhibit contest behaviors and can establish dominance hierarchies. Although ancestral animal phyla like cnidarians have simple nervous systems, some representatives have been actively studied for aggression and hierarchy establishments. Sea anemones, in particular, have been studied for their aggressive responses and behaviors Furthermore, previous work has demonstrated that repeated behaviors within one anemone species, Actinia equina , may exhibit "personalities" that influence their fighting behavior. The aim of this study is to establish a behavioral assay for contest behavior in an invasive species of anemone, Aiptasia pallida . After establishing a behavioral ethogram for A. pallida contests, a subset of individuals will be chosen to stage aggressive encounters to ascertain hierarchy establishment. Four different outcomes would be considered to end these interactions: 1) aggressive behavior leading to one individual fleeing, 2) removal from substrate due to contact or aggressive behavior from the opposing anemone, 3) both individuals remain in place for the allotted time, despite aggressive behavior from either anemone, and 4) both anemones flee after first contact with the opposing anemone. Knowing the combative and dominance patterns of A. pallida could open the door to the use of other, non-pestilent anemones to control this invasive species. It could also provide us an evolutionary lens into origins of competition and dominance hierarchies.

Aliyah Sylvester **Biology**

Exploring Environmental and Pathogenic Microbial Diversity within our Community

Co-Author(s): Angelina Walling, Djenika Georges

Faculty Mentor(s): Jeanetta Floyd
Session: Main Poster Session
Time: 11:00-12:00

Location: Virtual Space - Poster #194
A metagenomics approach was used to investigate bacterial communities living in the sand in Pensacola, FL. In particular, we compared the abundance and diversity of pathogenic and biodegrading bacterial species within two different coastal ecosystems. Metagenomics is a process used to identify mixed communities of microorganisms. Using molecular techniques such as DNA purification, PCR, and next generation sequencing, we analyzed samples taken from Pensacola Beach and Bay Bluffs Park on Escambia Bay. Oxford Nanopore sequencing technology showed there were diverse bacterial populations within each sample and between sample locations. Prior to sequencing, PCR was used to amplify 16S rDNA to specifically identify bacteria. Post-base-calling analysis of sequences using EPI2ME software revealed that samples contained pathogenic and biodegradable species of bacteria. Diversity and abundance of microorganisms at different sampling depths and different locations were visualized with graphs of Shannon Wiener index and relative abundance.
The most abundant genera identified were Microbacterium, Terrimonas, and Pseudochrobacterum. Microbacterium, which was the most abundant genus found in the Pensacola Beach samples, is known to include pathogenic species, one of which can cause pneumonitis, a disease resulting in lung inflammation in humans. Pseudochrobactrum, found only in Pensacola Beach samples, is known to play a role in the biodegradation of phenols, while both Terrimonas and Microbacterium play a role in the biodegradation of phthalates. Our results indicate that both pathogenic and biodegrading microbes are present in sand samples taken from both Pensacola Beach and Escambia Bay, however, there are differences in abundance and types of organisms.

Lydia Thomas **Biology**
Antipsychotics Implication In Neutropenia: Determination of Dopamine Receptors on Neutrophils
Faculty Mentor(s): Peter Cavnar
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #196
White blood cells are vital to the immune system and any disturbance to the balance of their development, operation, and death would cause drastic effects on the system. Neutrophils are the most abundant type of white blood cell in peripheral blood averaging 1.8 7.0 billion cells per liter. Neutrophils provide the first line of defense by the immune system in response to tissue injury or infection. Neutropenia is a group of diseases characterized by decreased neutrophil counts which cause defects in the ability of the immune system to fight bacterial, fungal, and viral disease making a person more susceptible to recurring life-threatening infections. Our lab has previously shown that the atypical antipsychotic drug aripiprazole, which is used to treat bipolar disorder and schizophrenia, causes increased neutrophil death and neutropenia. Aripiprazole s mechanism of action is through dopamine signaling, however, there is very little known about dopamine receptors and signaling in neutrophils. Dopamine is a neurotransmitter involved in growth and development, memory, and emotions. There are five classes of dopamine receptors that receive and transfer signals: DR1 through DR5. There is inconclusive information about the dopamine receptors in neutrophils, so it is imperative to determine if neutrophils express all or some of the dopamine receptors. Here we present results of qRT-PCR to determine the presence of mRNA that codes for dopamine receptor expression in undifferentiated and differentiated PLB-985 cells. In addition, we will present data characterizing other pro- and anti-apoptotic gene expressions in response to aripiprazole treatment.

Kieu Tran **Biology**
Exploring the Minimum Bactericidal Concentration and Time-Kill Kinetics of Benzothiophene Derivatives in Gram-Positive Bacteria
Co-Author(s): Terelan Le
Faculty Mentor(s): Prerna Masih
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #199
Antimicrobial resistance poses a problem from the laboratory to patient care as pathogens are rapidly evolving. Consequently, new compounds are being synthesized to oppose antimicrobial resistance. Benzothiophenes have demonstrated promising antimicrobial, anticancer, and antifungal activity in literature and will be further explored. Through this project, a chloro-benzothiophene derivative was synthesized and used in a series of microdilution and macrodilution assays against gram-positive bacteria, Staphylococcus aureus and Enterococcus faecalis. The benzothiophene derivative concentrations ranged from 128 &micro g/ml to 1 &micro g/ml. These assays determined the minimum inhibitory concentration (MIC) needed to inhibit bacterial growth, which helped to determine the minimum bactericidal concentration (MBC) too. Plating macrodilution tubes and making subcultures of tubes that did not demonstrate visible bacteria growth helped to determine bactericidal activity. Then, time-kill assays were performed at 1, 2, 4, 8, 12, and 24 hour intervals at 0x, 1x, 2x, and 4x the MIC to determine the activity of the benzothiophene derivative on the bacteria. The experimental data revealed that the minimum inhibitory concentration for both S. aureus and E. faecalis is 16 micro g/ml and the minimum bactericidal concentration for S. aureus 16 micro g/ml and is greater than 64 micro g/ml for E. faecalis. The compound works time-dependently on S. aureus, showing strong bactericidal activity after 1 hour. Further dilutions, time-kill assays with other organisms, and eventually, human cancer cells will be conducted using this benzothiophene derivative to better understand how this class of compound works, and if other derivatives produce similar results.

Minh Khuyen Tran **Biology**
Characterization of dopamine receptor expression in the human neutrophil-like PLB-985 cells.
Co-Author(s): Emma Wagner
Faculty Mentor(s): Peter Cavnar
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #197
Neutrophils are one of the most abundant of the white blood cells, and part of our innate immune system. When there is inflammation, infection, or injury the neutrophils are the first responders that are at the site and capture the pathogens either through engulfing the molecule into a compartment, called

phagocytosis, or releases an extracellular trap that captures and possibly kills the pathogen. Because neutrophils are important to fight infections, understanding how internal and external signals regulate neutrophils is important to understanding neutrophil-related diseases. Dopamine is an important neurotransmitter involved in behavior, motor function, and cognition. Although dopamine s most studied effects are in the CNS, dopamine is present in multiple tissues, circulation, and in bone marrow, suggesting that immune cells may be regulated by dopamine. It is still unclear whether human neutrophils express all five dopamine receptors as there are several differing reports on neutrophil dopamine receptor expression. Using flow cytometry we have characterized the expression of four out of five human dopamine receptors on the surface of the neutrophil-like cell line PLB-985 cells. In addition, we will show data characterizing dopamine receptor expression via Western blot.

Sydney Truax **Biology**

Utilizing M13 phage display as Biomarkers for ptau231 with Shrimp Alkaline Phosphatase elution strategy

Faculty Mentor(s): Rodney Guttmann
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #204

Alzheimer s is a progressive disease that destroys memory and other important mental functions. Based off recent studies, it is believed that Alzheimer s diseased patients possess hyperphosphorylated groups on the tau protein at site 231. It is hypothesized that an M13 bacteriophage library can be used as a platform to target the hyperphosphorylated groups on the ptau231 site. The objective of this project is to screen a commercially available M13 bacteriophage library against purified pTau231. Phosphate-specific phage that are reactive to pTau231 are removed by treatment with Shrimp Alkaline Phosphatase (SAP). In the +SAP treatments, phosphate groups are cleaved from tau, releasing the phage that have bound to ptau231 in a phosphate dependent manner. This research is significant to the realm of Alzheimer s disease as the success in finding a biomarker that can target the phosphate groups present on the tau protein at site 231 can potentially lead to a way to diagnose Alzheimer disease. Additionally, finding a biomarker that can successfully bind to ptau231 would reveal characteristics about what type of conformation is required for proper binding. This can be achieved by performing DNA sequencing on the phage that have shown specific binding properties to the ptau231 site.

Elena Weaver **Biology**

The Fungal Root Microbiome of Rice Cultivars, Presidio and CL151: Correlation of Associated Fungal Species with Plant Growth

Co-Author(s): Tristan Craig

Faculty Mentor(s): Joe Lepo
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #195

The goal of this project was to culture from root zones of rice fungi that showed symbiotic affiliation to one of two cultivars Presidio or CL151 . Subsequently, pure cultures of isolated fungi were grown in liquid culture for extraction of fungal DNA and for experimental use to assess their effect on growth of rice plants. Characterized fungal strains were added back onto root zones of individual rice plants grown under hydroponic conditions, under which root-zone microbiota can be controlled. Rice seedlings were grown in individual cups with or without selected fungal strains. Each experimental trial used 20 cups total, 10 of which contained the Presidio cultivar and ten contained C151; for each cultivar, five were inoculated with a single fungal strain, and five cups for each cultivar served as faux-inoculated controls. Control plants were kept in a separate greenhouse cubicle from the fungal-inoculated treatments to prevent spore cross-contamination. Weeks later, plant growth and general health was assessed by qualitative visual examination and by total dry biomass per plant, in comparison to other strains or controls with no amended fungi. Liquid cultures of each fungal isolate provided fungal biomass from which DNA was extracted for end-point PCR to amplify a portion of the 18S rRNA gene. Sequences of each isolate s 18S gene will be aligned with sequences of published fungal strains. Ultimately, this project will determine specificities of symbioses between rhizosphere fungi and selected rice cultivars, as well as taxonomically assigning fungal symbionts and assessing their gross effect on plant growth.

Kelvin Williamson **Biology**

Near Infrared Device (NIR): An Alternative Method of Measuring Turbidity in Sea Waters

Co-Author(s): Elisa Brown, Hania Ikram, Danielle Muir, Sarah Quinlin, Alyssa Zaleske

Faculty Mentor(s): Lisa Waidner
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #186

This is a High Impact Practice (HIP) collaboration of students between Professor Thomas Asmuth and Dr. Lisa Waidner's classes within the Art/Design and Biology departments of the University of West Florida (ART 4633C and PCB 4125/5525). The goal of our collaboration is to accurately and conveniently measure turbidity, the opacity of water, by utilizing a prototyped device created by Digital Art students. Bodies of water connected to UWF's campus will be used for testing the accuracy of the device compared to general standards used to measure turbidity, such as Total Suspended Solids (TSS). Creation of this prototype can help biologists by replacing the current tedious procedures used for testing water turbidity, and by offering an immediate field test to provide in situ information. Turbidity is important to biologists who want to quantify Aerobic Anoxygenic Phototrophic bacteria (AAP) in sea water. Following the completion of the prototype, Bioinformatics students will compare water samples taken February 2022 to the turbidity information of the device by measuring TSS with the standard EPA protocol. Quantitative polymerase chain reaction (qPCR) will be performed to enumerate groups of bacteria known to be associated with particles found in nearby waters. The purpose of these comparisons will be to determine a linear or logarithmic correlation between the turbidity device and TSS data. Interdisciplinary collaborations such as these, allow for divergent learning. This leads to inspiring students of different academic backgrounds to improve communications and create better connections with each other.

Hue Worrells **Biology**

Hypoxia influence on predator and prey interactions between Beroe ovata and Mnemiopsis leidyi

Faculty Mentor(s): Christopher Pomory
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #210

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 affect the predation of ctenophores and other marine organisms. For this future experiment, I plan to expose both M. leidyi and B. ovata to hypoxia to observe the predator and prey interactions during hypoxic conditions between these two ctenophores, in hopes to offer insight into the success of M. leidyi success in both its native and invasive range.

CENTER FOR ENVIRONMENTAL DIAGNOSTICS & BIOREMEDIATION

Anthony Alberda **Center for Environmental Diagnostics and Bioremediation**

Characterizing the Fish Community in Seagrass Beds

Co-Author(s): Kaylin Regan, Hue Worrells, Amanda Croteau

Faculty Mentor(s): Jane Caffrey
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #228

Seagrass beds are critical for primary production, carbon storage, and act 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, especially seagrass beds. By cataloging the fish community found in seagrass beds, we are establishing a baseline for Santa Rosa Sound. Additionally, fish assemblages can be used as an indicator for seagrass bed health. Environmental conditions such as light attenuation, dissolved oxygen, and pH may affect both seagrasses and fish communities. With the continuation of this study, we will be able to identify seasonal trends and distribution shifts within the fish community associated with seagrass beds. Shoreline Park in Santa Rosa Sound has healthy seagrass beds and is a popular fishing location. We cataloged the fish and invertebrates collected via a 3.6m x 1.4m beach seine (8mm mesh diameter) during the spring 2022. The seine net is pulled multiple times. After each pull, we sorted through our haul of algae and seagrass for fish and invertebrates. We identified and enumerated all organisms. In addition to cataloging fish, we recorded water quality measurements via Secchi disk, YSI, and LiCor PAR. During the February sampling trip, the salinity was 23.24 psu and the temperature was 16.2 C. The dominant fish was Lagodon rhomboides while the dominant invertebrate was Hippolyte sp. We also caught Callinectes sp. All fish collected were very small, suggesting that they are using the seagrass beds as a nursery area.

Gillian Barber **Center for Environmental Diagnostics and Bioremediation**

Effects of Precipitation Events on Phytoplankton Communities in Two Urbanized Bayous of Pensacola Bay, FL, USA

Co-Author(s): Hope Ebert, Gina Rodriguez, Elizabeth Everett

Faculty Mentor(s): Wade Jeffrey
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #220

One result of a changing climate is an increase in unstable weather patterns, including increased severity and duration of storms. As precipitation increases, runoff is expected to increase and impact estuaries, particularly key communities such as phytoplankton. They rapidly adapt to these changing ecosystems, thus serving as important bioindicators. Water quality concerns in the Pensacola Bay estuary have been recognized for decades, and efforts have been made to mitigate stormwater runoff. To address these concerns, we conducted regular monitoring for one year at five locations in two urbanized bayous. We monitored bacterial and phytoplankton production, chlorophyll a, total bacterial numbers, total and dissolved nutrients, water optical properties, temperature, salinity, and phytoplankton community structure and diversity via both microscopic examination and molecular analysis based on DNA sequencing. Following a rain event of >89cm, stations were sampled daily until chlorophyll measurements returned to a pre-event baseline. Microbial responses to storm events were correlated with the amount of precipitation. Results were also evaluated to determine whether there were repeating patterns in the phytoplankton community structure, abundance, productivity, or water quality measured post-storm event. Our goal is to provide additional information on the effects of heavy rain events on the microbial ecology of these local bayous to identify the impact of changing climate and weather patterns so that management decisions surrounding these influences can be better informed. Preliminary data has established that effects from rain events occur upstream first before moving further down the bayous, and all five sites are unique in their responses.

Lacey Bowman **Center for Environmental Diagnostics and Bioremediation**

Near Infrared Device: A Low-cost Solution to Measure the Turbidity of Water

Co-Author(s): Thomas Asmuth, Dylan Bass, Sunny Doan, Mae Flener, Julianna O'Bar

Faculty Mentor(s): Lisa Waidner
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #218

Turbidity is measured to determine the clarity of water and provides a lot of information about the water's health. For example, understanding turbidity allows biologists to estimate the abundance of aquatic photoheterotrophic bacteria because their optimal growth is closely related to a high number of particles in the water. Unfortunately, current turbidity sensors are too expensive for small local research groups. Therefore, there is a high demand to create an affordable

and simple method to measure turbidity. As part of a high-impact collaboration between ART4633 and PCB 4125-5525 students, our group is working to create an improved turbidity sensor that can be made inexpensively and be accessible to citizens and scientists alike. Based on Professor Thomas Asmuth's design and research done by Dr. Lisa Waidner, our team will use field data and observation to create better iterations of the current NIR (near-infrared) device. Improvements to increase accuracy will include adjusting the device orientation in the water, altering water flow in the device, and increasing structural integrity. The accuracy of the new turbidity sensor will be tested using total suspended solids measurements, after which DNA extracted from seawater samples will be evaluated by qPCR to enumerate photoheterotrophic bacteria. After design improvements are made, we expect the new turbidity sensor readings to correlate with quantitative measurements of water clarity obtained in the lab. The improved device will be an inexpensive and reliable way to measure and quantify turbidity.

Tristan Craig **Center for Environmental Diagnostics and Bioremediation**
Sequencing Fungal Nitrogen Assimilatory Genes in the Rice Rhizosphere
Co-Author(s): Elena Weaver, Joe Lepo
Faculty Mentor(s): Lisa Waidner
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #219
Microbes associated with the roots of plants, in the rhizosphere, may encode genes enabling conversion of N 2 into bioavailable nitrogen. Our goals are threefold: isolate root-associated fungal species, attempt to amplify fungal genes encoding enzymes for bioconversion of nitrogen compounds, and sequence those genes. The specific nitrogen cycling fungal genes of interest, eukNR, glnA (gln1), GLT1, and GHD1, encode nitrate reductase (NR), glutamine synthetase (GS), NADH-glutamate synthase (GOGAT), and glutamate dehydrogenase (GDH), respectively. Rice cultivars Presidio and CL151 have susceptibility to drying out, known as sheath blight. Presidio is resistant to rice blast disease, and CL151 matures earlier resulting in higher crop yield. Fungal-selective agar media plates of Sabouraud Dextrose Agar (SDA) and Rose-Bengal Agar were used to isolate five fungal cultures from either Presidio or CL151. We isolated three fungi from Presidio roots. Each isolate had distinct appearances on solid media: one with green and another with white colonies, and the third as white colonies with black specks. The two CL151 isolates had distinct appearances from any from Presidio: one grew as green colonies and the second had a fuzzy appearance. All isolates were grown in liquid SD prior to harvesting DNA from each culture. PCR for each of the functional genes will be done to determine if the fungal isolates contain these genes. If amplicons are obtained, sequencing will be performed. Sequences will be compared to the corresponding genes from known fungal isolates and fungal genome sequences.

Selina Detzel **Center for Environmental Diagnostics and Bioremediation**
Enumerating Total Bacteria and Iron-oxidizing Bacteria in Waters of Julian Mill Creek: A Potentially Important Habitat for the Florida Bog Frog
Co-Author(s): Barbara Albrecht
Faculty Mentor(s): Lisa Waidner
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #230
Abstract Julian Mill Creek is known to be a habitat for a state threatened species, the Florida bog frog, L ithobates okaloosae. Negative human impacts have made this an area of concern for the future of the Florida bog frog. The Florida bog frog is already a very limited species in the Florida panhandle, being that it is only found in a few acidic seepage and steephead streams in Walton, Okaloosa and Santa Rosa counties. Some areas of the Julian Mill Creek such as the eastern tributary, are of concern due to the presence of an orange-colored film on the surface waters. The source of this film may indicate high iron levels. We propose to investigate whether iron is bioavailable by measuring the levels of iron oxidizing bacteria (FeOB). During two separate field sampling days, the goal is to collect a total of 28 water samples collected from 7 different stations, as well as 28 microbiome samples directly from adult Florida bog frogs and tadpoles. Once DNA is extracted, the samples will be used to run quantitative PCR to determine bacterial abundances, including FeOB. The high levels of iron can negatively affect the metamorphosis process for the Florida bog frog, preventing larval development. This not only affects the Florida bog frog but also the entire ecosystem. This assessment will be the first to determine biologically-available iron analyses, using FeOB as a proxy, in the Julian Mill Creek habitat.

Maisha Epps **Center for Environmental Diagnostics and Bioremediation**
Comparing Release of Oxygen from the Roots of Different Submerged Aquatic Macrophytes
Faculty Mentor(s): Jane Caffrey
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #222
Submerged aquatic macrophytes are important primary producers because they are a source of food for wildlife and create a home for microbial, invertebrate, and vertebrate communities. They also affect sediment biogeochemistry, particularly through release of oxygen from roots into anoxic sediments. Previous studies have shown root release of oxygen can be significant in some species. We investigate three species: Cabomba caroliniana (native), Bacopa caroliniana (native), and Myriophyllum spicatum (invasive) which have not been extensively studied. The main purpose of this study is to better understand the oxygen release of these three species. Intact plants were incubated in split compartment chambers where roots & rhizomes were isolated from stems & leaves. Oxygen concentrations were measured in light and dark in each chamber. In the root compartment, rates were near zero and had high variability in the light. During the dark period, oxygen uptake was the general trend with values between -21 and - 10 mgO2/g dw/d. In the shoot compartment, oxygen release as a result of photosynthesis occurred during the light period. Most of these experiments also had low variability. However, during the dark period, there was not a consistent trend because variability was high in all of the replicates. While some experiments had oxygen release from roots, we observed no consistent trends among species due to high variability between replicates and experiments. Compared to literature values, the values for these experiments were more variable and inconsistent but still in the same range as the literature values.

Alexia Figueroa **Center for Environmental Diagnostics and Bioremediation**

Short Term Variability in Oxygen and Sulfide Levels and Effects on Seagrasses

Faculty Mentor(s): Jane Caffrey
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #223

This research investigates diurnal variation in dissolved 02 levels and sulfide concentrations in Big Lagoon in northwest Florida. Sulfide produced by bacterial sulfate reduction by bacteria can reduce oxygen levels and increase stress in Halodule wrightii potentially reducing rates of photosynthesis. I also will examine 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. High porewater sulfide concentrations in Florida Bay seagrass beds led to extensive die-offs. Despite high sulfide levels in northwest Florida, this has not been observed locally. In addition, less is known about the effects of sulfide on Halodule wrightii compared to other seagrass species. Recent data collected suggests that sulfide can get into plants and lower the levels of dissolved 02. Dissolved 02 is also an important indicator of water quality levels., Measurements of the dissolved 0_2 levels can indicate the level of pollutants and stressors currently in the body of water. I anticipate that the sulfide levels will be the highest during the day-night and during the warmer months. Secchi depth, sulfide, nutrients, and chlorophyll-a will be measured weekly. I will also analyze chlorophyll a to observe the trophic conditions in Big Lagoon.

Leila Harris **Center for Environmental Diagnostics and Bioremediation**

Spatial and temporal patterns of photoheterotrophic bacteria and 3H-leucine incorporation along the Western Antarctic Peninsula

Faculty Mentor(s): Wade Jeffrey
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #221

For approximately 30 years, 3 H-leucine incorporation has become the de-facto method for estimating heterotrophic bacterial growth in marine samples. Traditionally, these incubations have been conducted in the dark. Work in the 1990 s observed that exposure to solar radiation significantly inhibited bacterioplankton production. However, several studies have revealed that total radiation or photosynthetically active radiation (PAR) can stimulate bacterial growth efficiency or uptake and assimilation of organic molecules. Functionally, this light stimulation of heterotrophic production could be attributed to photoheterotrophy. Observations of photoheterotrophy-related light-stimulation uptake in Antarctic waters, however, remain unstudied. We observed light stimulation of 3 H-leucine incorporation in April and May (autumnal fall/winter) but none during November/December (autumnal spring/summer) along the Western Antarctic Peninsula. We investigated the spatial and temporal patterns of a specialized group of bacteria, broadly known as photoheterotrophs, who presumably contribute to the activity measured within the microbial ecosystem of the waters along the Western Antarctic Peninsula. Currently DNA samples are being processed for enumerating proteorhodopsin or heliorhodopsin-containing prokaryotes, within subgroups of proteobacteria or actinobacteria. Other than photoheterotrophic activities of cyanobacteria in the Antarctic coastal communities, we anticipate relative abundances of proteorhodopsin- and/or heliorhodopsin-containing bacteria would correspond with light-stimulated uptake and assimilation. By enumerating photoheterotrophs spatially and temporally during each season, we can develop a deeper understanding of the relative importance of photoheterotrophs to light simulated 3 H-leucine incorporation.

Kelly Humphreys **Center for Environmental Diagnostics and Bioremediation**

Working in a Certified Laboratory Engaged in Environmental Monitoring and Public Health Programs

Faculty Mentor(s): Jeremy Bosso
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #224

My experience at the wetlands research lab has been incredibly educational and eye opening. Through OUR I found a position available in the wetlands research lab, under the CEDB. When you see lab work in the movies, they don't show you a lot of what really happens in the lab, and the not so glamorous bits are always left out. Since working at the lab I've learned how much really goes into every little task completed. In my time working at the lab I have been able to calibrate many of the instruments before use. I never realized this step was so important before working in a professional lab setting. In addition to calibration, there are many quality assurance (QA) and quality control (QC) components in producing certified and traceable data. These components are particularly important when it comes to public health monitoring. Every calibration, step, and result, piece of equipment and material must be logged or documented, usually in more than one place. In my presentation I hope to share the valuable lab skills I have learned and some of the practical lab skills I couldn't have learned in class.

Diana Kerowa **Center for Environmental Diagnostics and Bioremediation**

Relationship between turbidity and suspended solids from local water samples measured using Infrared- based sensor

Co-Author(s): Grace McIntyre-Willis, Sydney Moore, Allison Peck, Brianna Robbins, Domani Turner-Ward

Faculty Mentor(s): Lisa Waidner
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #226

Students of Professor Asmuth's Advanced Interactive Electronic Art (ART4633C) and Dr. Waidner's Molecular Biology and Bioinformatics (PCB4125-5525) courses at the University of West Florida are advancing the improvements to an underwater quantum sensor based off Professor Asmuth's design. In addition to the technical improvements to the sensor, our goal is to determine a relationship between the turbidity measurements from the infrared-based sensor and the total suspended solids present in isolated samples from local waterways. Quantification of aerobic anoxygenic phototrophic bacteria (AAPB) populations will be done using qPCR. The population of AAPB is measured in relation to the turbidity since these bacteria are known to be abundant in waterways with high turbidity. The beginning of the development process consists of troubleshooting

issues by conducting field testing, 3D modeling, and physical computing. The materials provided for the research and development team include ample digital and 3D printing materials to construct two working prototypes over the course of the Spring 2022 semester. The final prototype will reflect design changes made in response to troubleshooting and further complications discovered during field testing such as calibration, SD card practicality, and durability. The impact of this research is that the creation of an improved low-cost turbidity sensor can be developed for and used by ecologists. Specifically, the Bioinformatics course students could use it to assist in analysis of the total suspended solids in seawater to assess ecological controls on AAPB and similar types of microbes.

Jessica Marquis Center for Environmental Diagnostics and Bioremediation
Factors affecting Water Quality at Bruce Beach Park in Pensacola, FL
Co-Author(s): Shay Harvin, Julianna O'Bar, Hope Ebert, Maisha Epps, Barbara Albrecht, Lisa Waidner
Faculty Mentor(s): Jane Caffrey
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #229
Bruce Beach, located in downtown Pensacola, is a sandy beach on Pensacola Bay with an adjacent wetlands and seagrass restoration project. Its cultural history includes settlement during the British colonial period and maritime industries at the turn of the 20 th century. Between the 1950s and 70s, it was one of the few recreational sites for the black community in segregated Pensacola until it was abandoned due a lack of funds. The city of Pensacola established it as a park in 2018, although it has been closed since Hurricane Sally. This study is the first systematic investigation of water quality at 3 distinctive sites within the park. Washerwoman Creek runs underground through the city and is daylighted 200 m before entering Pensacola Bay. The other two locations included a site on the beach where kayakers can launch and one in an adjacent restored estuarine tidal wetland. From February to August 2021, we sampled weekly in the Fall sampling was done following rain events and in January weekly sampling was resumed for basic water quality parameters, Enterococcus bacteria, chlorophyll a, total suspended solids, and dissolved inorganic nitrogen and phosphate concentrations . In the first three months of weekly sampling, 75% of the samples from all three sites had Enterococcus values less than 100 MPN/100 mL. Values above 300 MPN/100mL were most common after rain events exceeding 3.7 cm. This study provides key baseline information to help the city manage this beautiful waterfront.

Jamie Martinez Center for Environmental Diagnostics and Bioremediation
Assessment of Mask Efficacy using Escherichia coli Bacteriophage T4 as a Surrogate for SARS-CoV-2
Co-Author(s): Elisebeth Trelfa
Faculty Mentor(s): Joe Lepo
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #225
Facemasks are mandatory in some states because of their ability to block respiratory droplets that carry SARS-CoV-2, the virus that causes COVID-19. However, debate on facemask efficacy continues, and many states have dropped mandatory facemasks restrictions. Both bacteria and bacteriophages have been used as SARS-CoV-2 surrogates for testing facemask efficacy. For this project, we used an Artificial Airway Test System (AATS) that was developed by undergraduate researchers in the Lepo Lab to test whether a virus surrogate for SARS-CoV-2 passes through surgical, cloth, and N-95 facemasks. Each of these mask type incorporates different filtration media. Bacteriophage T4 infects the bacterium Escherichia coli , which is a commensal symbiont of humans; T4 virions are harmless to humans and similar in size to SARS-CoV-2. Every component of the AATS is autoclavable, and trials were conducted in a laminar flow hood to minimize risk of microbial contamination. Air sucked through the AATS by a vacuum pump simulated human breathing. A spray bottle containing a suspension of T4 (approx. 1X10 6 virions/mL) propelled a 100 L aerosol of virions into a hole on the side of the AATS, simulating a sneeze. The vacuum pump ran for 2 minutes in the short duration experimental trials. Each run of the AATS with facemask media in place was compared to a control run with no mask medium in the AATS. Variations of the trials included time of facemask use and viral density. We found in the short duration tests, that all tested facemasks were effective at blocking T4 bacteriophage aerosols.

Sarafina Mowe Center for Environmental Diagnostics and Bioremediation
Continuation of Time Series Database for Pensacola Beach Microbial Ecology
Co-Author(s): Dixie Lauderdale, Kaylin Regan, Kaia Czerwinski, Hope Ebert, Jackson Reimer
Faculty Mentor(s): Wade Jeffrey
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #232
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 six years at the Pensacola Beach Pier. Surface 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 sixth year, year-to-year seasonal fluctuations are becoming increasingly apparent. 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 production. 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 cement baseline trends in Coastal Gulf of Mexico microbial dynamics.

Elise Trelfa **Center for Environmental Diagnostics and Bioremediation**

Human-Associated Microbiota of Gym Equipment, Lockers and Showers at the University of West Florida Health, Leisure and Sports Gym Facility and Efficacy of Sanitization Protocols.

Co-Author(s): Jamie Martinez, Cassie Owens, Kendall Bobbitt

Faculty Mentor(s): Joe Lepo
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #227

We investigated whether gym equipment, locker, and shower facilities within the UWF Health, Leisure and Sports (HLS) harbored representative human microbial pathogens or their surrogates, and performed laboratory comparisons of currently used sanitation agents and protocols in killing and inhibiting growth of the microbes recovered from HLS. Samples collected from gym equipment, floors and other surfaces within HLS using saline-moistened cotton swabs were transported aseptically to the lab where they were inoculated onto media selective and differential for common human-symbiotic microorganisms, some of which are human pathogens. Microbe classes were (1) fecal bacteria, represented by Escherichia coli; (2) potentially pathogenic staphylococci, represented by Staphylococcus aureus; (3) dermatophytic fungi, which cause athlete s foot, ringworm, and other skin infections; and (4) lipophilic yeasts, which exacerbate acne. General heterotrophic bacteria were monitored to assess overall sanitary conditions of HLS surfaces. Staph was the most recovered bacterium from exercise floor mats, bench seats, dumbbells, and medicine balls. E. coli was found on dumbbells and restroom handles, shower floors had fecal coliforms and fungi. Phenol coefficients standards of efficacy for disinfecting- and sanitizing-chemicals reflected in vitro efficacy of QuatStat TM at the concentration used by HLS. QuatStat TM PCs against E. coli and S. aureus cultures recovered from HLS facility surfaces were very low. Our engineered assay compared QuatStat TM with 10% household bleach on porcelain tiles inoculated with microbes recovered from HLS. QuatStat TM did not perform as well as bleach in killing S. aureus and E. coli over time (30 min 2 h).

Lisa Waidner **Center for Environmental Diagnostics and Bioremediation**

STEAM Collaborations in Bioinformatics and Industrial Design: Enhancing Interdisciplinary Cohorts

Session: Faculty HIP Showcase
Time: 10:30-10:45
Location: Virtual

In Spr2022, I am having my Bioinformatics students collaborate with those of Art/Design course, "Advanced Interactive Electronic Art" (ART 4633C). The HIP-grant-funded course enhancement is intended to enhance research-focused learning activities of students in the Bioinformatics for Biologists course. The activities are exposing Biology students to the engineering needs and considerations for field instrumentation design. By adding field and 2 lab components to the currently research-intensive course, Biology students will work with the Design students in trial of instrumentation and provide real-time feedback during discussions, trial-and-error in the lab, and will work collaboratively with the Design students to put together presentations and/or posters at the Spring (April) 2022 Student Symposium.

CHEMISTRY

Lauren Carnley **Chemistry**

Not-So-Congenial Congeners: An Analysis of Congeners in Alcoholic Beverages

Co-Author(s): Kate Harper

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #233

Many adults consume alcoholic beverages, so it is important to understand the components as to what makes up an alcoholic beverage. Congeners are compounds produced during the fermentation/aging process of alcohol production and are responsible for some hangover side effects like headaches. With the different varieties of alcohols, there are also varying levels of congeners found in each specific type of alcohol. This led the project to focus on the analysis of congener-induced headaches and the number of congeners found within different types of alcohols. For analysis of congeners, Solid Phase Microextraction (SPME) is used with an Agilent Intuvo Single Quadruple 5977B Gas Chromatograph Mass Spectrometer. Solid-Phase Microextraction (SPME) is a technique commonly used in sample preparation that involves a fused-silica fiber that is coated in a stationary phase which allows volatile compounds to coat the fiber, which is then injected and run through Gas Chromatography Mass Spectrometry (GCMS). This allows the contents on the fiber to be read and analyzed and documented. This project will be used to determine which specific congeners are found in which certain types of alcohols.

Danielle Cuppan **Chemistry**

Preserving Our Living Laboratory

Co-Author(s): Joel Lukens, Emily McMahon, Kathleen Kunert

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #249

The University of West Florida campus encompasses a wide range of diverse habitats that are not only available for students to use as a "living laboratory," but for local native species to take refuge as well. A large portion of the UWF Nature Trail is backed by Thompson's Bayou. The section of wetlands connected to UWF contains waterways running from Escambia and Blackwater rivers, both crucial sections of habitat for the threatened Florida Bog Frog (Lithobates okaloosae.) Five sites containing water sources were chosen on campus to sample including: marsh, bayou, drainage, daylighting creek and downstream from the creek. These samples were collected in triplicate the day after heavy rainfall and a week after rainfall. Each sample was then filtered through a 0.45 μg syringe filter and ran through the ICP-OES to test for the concentration of different minerals, specifically heavy metals. Also, other tests for pH and salinity were conducted to get a better understanding of the composition and the quality of the water, and creating a baseline for further research.

Danielle Cuppan **Chemistry**

Heavy Metal Bioaccumulation in Crassostrea virginica Determined with ICP-OES

Co-Author(s): Eden Eckland, Alexandra Seppanen, Joel Lukens, David Kawula

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #250

Eastern oysters, Crassostrea virginica, are filter feeding organisms with the extraordinary ability to clean waterways of contaminates. They are not able to metabolize or excrete heavy metals at the rate required. As a consequence, metals accumulate in the shell and soft tissue. This study focuses on the bioaccumulation of heavy metals concentrations in C. virginica harvested from the Gulf of Mexico. Local watersheds feeding into the Gulf carry harmful substances such as zinc, arsenic, lead, and copper. To thoroughly evaluate the bioaccumulation of metals in the oysters, eastern oysters were bought from a local seafood market and water samples were collected from all harvest sites. Using ICP-OES, metal concentrations were gathered, and by comparing the results to 2018 FDA eastern oyster nutrients list, the question of safe consumption was determined.

Victoria Drake **Chemistry**

Detection of Real World Samples Using Surface Assisted Laser Desorption/ Ionization (SALDI) Mass Spectrometry

Co-Author(s): Eli Mayo, Rosemary Nguyen

Faculty Mentor(s): Karen Molek
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #248

Quinine is a small biomolecule, historically used to treat malaria. Due to its low molecular weight of 324 g/mol, quinine has been difficult to detect using more traditional analysis methods. Surface Assisted Laser Desorption/ Ionization Time of Flight Mass Spectrometry (SALDI TOF-MS) utilizes an inorganic nanoparticle surface to reduce the impact laser energy has on ionization of a sample to improve intensity, and reduce noise. SALDI TOF MS was a good candidate for analysis of quinine due to its excellent detection in the low mass region. Transition metal oxide (TMO) nanoparticles were used due to many of their favorable high surface area-to-volume ratios, low porosity, high photo-absorption, low heat capacity. Cobalt (II/III) oxide was compared to iron (II/III) oxide as a TMO species comparison and then small iron (II/III) oxide was compared with large iron (II/III) oxide as an iron TMO species comparison. This method of analysis was used in the detection of pure quinine, tonic water (which contains quinine), and tonic water spiked with quinine. Overall, it was found that all SALDI trials of pure quinine, tonic water, and spiked tonic water were able to detect samples at a higher signal to noise ratio than normal LDI trials. Of the SALDI trials, the small iron (II/III) oxide nanoparticle surface produced the strongest detection of the sample. The results from this research could pave the way for greater validation of SALDI MS as a means of analytical detection in the lower mass region.

Kevin Graciano **Chemistry**

Validation and Verification of a MATLab Automated OCTA Volume Stitching Pipeline

Co-Author(s): William Warriner, Mariana Dupoint

Faculty Mentor(s): Brian Samuels, University of Alabama at Birmingham
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #242

Diabetic Retinopathy (DR) is the leading cause of blindness in the Unites States affecting nearly 4.9 million people. Changes to retinal vasculature caused by DR can be analyzed non-invasively using Optical Coherence Tomography Angiography (OCTA; Spectralis OCT2 Hidelberg Engineering). VESel GENerational analysis (VESGEN) is a free automated, user-interactive software that maps and quantifies major vessel parameters useful for quantification of DR damage. VESGEN, developed by NASA, uses a highly specialized algorithm to mark boundaries between branches on black and white images of vascular trees and assigns branches to the appropriate generation. The purpose of this study was to determine whether an automated MATLab pipeline could stitch adjacent OCTA volumes together for faster analysis without loss of accuracy compared to analyzing individual un-stitched volumes. OCTA volumes were obtained from mice, stitched together in MATLab, and then stacked in ImageJ. This single binary input image was mapped by VESGEN and quantification of vascular trees, networks, or-tree network completed. The individual stacked volumes were hand traced in Photoshop and plugged into VESGEN. Output parameters generated by VESGEN include the vessel number, vessel diameter, vessel length, vessel tortuosity, and vessel density, which were determined by the region of interest (ROI). There was no significant difference in vessel number, diameter, density or tortuosity between stitched and summed un-stitched volumes. Vessel number was slightly lower due to volumes having area overlap which were counted twice. The investigation suggest that the imaging stitching pipeline can accurately stitch images together for measurement of vascular trees in mice.

Anne Harper **Chemistry**

Photo-Chemically Produced Reactive Oxygen Species by Motor Oils

Co-Author(s): Lauren Heidenreich, Ian Parker, Brianna Meredith, Tatijuana Wood

Faculty Mentor(s): Pamela Benz
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #244

Petroleum products are introduced into the environment through a variety of mechanisms and are shown to produce highly reactive oxygen species though 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 (·OH) species produced. Using high performance liquid chromatography (HPLC), the resulting formation of para-hydroxybenzoic acid (p-HBA) was measured and total ·OH flux determined.

Kate Harper **Chemistry**

The Future of Fragrance: An Analysis of Volatiles in Citrus Perfumes

Co-Author(s): Erica Kim

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #247

Florida is responsible for supplying the US with over 70% of its citrus fruits. Due to citrus greening, a virus infecting and eventually killing citrus plants, the production of citrus in Florida has decreased significantly. This decrease in availability may have led the fragrance industry to find new ways to replicate citrus aromas without use of raw fruit materials. Solid-phase micro-extraction (SPME) and Gas Chromatograph Mass Spectrometer (GCMS) were utilized to determine the volatiles in popular citrus-perfumes. Volatiles were absorbed onto a polymer coated SPME fiber suspended in the headspace of the sample. Samples are then desorbed from the fiber into the GC-MS for analysis. The majority of the perfume volatiles identified were available in numerous natural sources, and were common among all citrus oils tested. Synthetic volatiles were identified in all perfume samples, but their percentage was small in comparison. Natural volatiles made up the majority of the perfumes, but their abundance in nature makes it likely they were not obtained from citrus fruits.

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: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #243

The cosmetic industry regularly markets new lines of products focused on the latest trending 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. 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.

Josh Legaspi **Chemistry**

Effect of Substrate Concentration on its Hydrolysis by a Metalloenzyme Mimic

Co-Author(s): Emen Sukhera

Faculty Mentor(s): Ajay Lajmi
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #238

A macrocyclic polyamine with a proximal -cyclodextrin (BCD) served as binding sites for the catalytic Zn (II) ion and the hydrophobic substrate, p-nitrophenyl acetate that was used to mimic the active site structure and hydrolytic function of the carboxypeptidase A enzyme. It was hypothesized that the binding of the Lewis acidic Ba (II) ions to the hydroxy groups in BCD would cooperatively hydrolyze the substrate. This work summarizes the kinetic study of the effect of substrate concentration on its hydrolysis by the metalloenzyme mimic. The data of multiple substrate concentrations were collected, ranging from 30 uM to 500 uM, to study the effect of reaction rates on the hydrolysis of p-nitrophenyl acetate.

Patrick Luciani **Chemistry**

Synthesis and Characterization of 1,4-bis(tosyloxy) butane and the Impacts on 1,5,9-Triazacyclododecane Formation

Faculty Mentor(s): Ajay Lajmi
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #239

Macrocyclic polyamines are commonly used as ligands in the synthesis of metalloenzyme mimics. However, some of the starting materials can be either a challenge to make or to source commercially. In this paper, we report the synthesis and purification by recrystallization of 1,4-bis (tosyloxy) butane which will be used for the synthesis of 1,5,9-triazacyclotridecane (TACT), a macrocyclic polyamine enzyme mimic ligand. In this protocol, 1,4-bis(tosyloxy)butane was synthesized by reacting 1,4-butane diol with p-toluenesulfonyl chloride in the presence of a base. The crude product was subsequently purified by recrystallization. The purified product will be characterized using GC-MS, 1 H-NMR and 13 C-NMR spectroscopy techniques. Attaching a longer chain of carbon atoms to form larger macrocyclic rings generally tends to make such rings less stable.

This synthesis will help us study the effect of ring size on the stability of the enzyme mimic ligand, TACT as well as its effect on the enzyme mimic function to hydrolyze ester and amide substrates in the presence of metal ions such as zinc and barium.

Joel Lukens **Chemistry**

Dinoflagellates To Bloom or Not to Bloom: Using Molecular Environments to Control Overall Fitness of Dinoflagellates

Co-Author(s): David Kawula, Danielle Cuppan, Alexandra Seppanen, Tori Castilow

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #234

Algae can be used as a bioindicator in many ways to help in identifying environmental conditions. Tracking the levels of cations such as: Ca 2+ , Fe 2+ , NH 4 + /NH 3 , anions NO 2 - , NO 3 - and -PO 4 3- . This was achieved with discrete analyses and ICP-OES (inductively coupled plasma optical emission spectroscopy), which utilizes plasma to increase the energy levels of metals in the sample solution. The discrete wavelengths emitted correspond to an element. The intensity of the emission is proportional to the concentration of the analyte of interest. Samples of dinoflagellates were exposed to consistent levels of pollutants, contaminated water, deionized water, and or nutrient solution. The dinoflagellate population was overtaken by opportunistic algae. This research showed how different algae species can thrive in specific realized niches, outcompeting one another. This led to the exclusion principle in the respective environment, until all resources needed for reproduction were consumed and nutrient recycling ended. Nitrogen, phosphorus and iron were among the most important for biomass accumulation.

Joel Lukens **Chemistry**

Limiting Reactants in Dinoflagellates

Co-Author(s): David Kawula, Danielle Cuppan, Alexandra Seppanen, Tori Castilow

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #235

Limiting Reactants in Dinoflagellates Abstract 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. Cations such as: Ca 2+ , Fe 2+ , NH 4 + /NH 3 and anions including NO 2 - , NO 3 - and phosphates are monitored to compare the change in nutrients with the life cycle of the organisms. This monitoring will be achieved via discrete analyses and ICP-OES. The Utermöhl method will be used to enumerate proliferation of algae. For this experiment three types of fertilizer will be used to affect reproduction. In addition, a food designed for dinoflagellates and a control with no added nutrients will be utilized. This study will show how different nutrient loads can affect dinoflagellates' recovery from a resting stage and initiate sexual reproduction. Tracking the lag phase, exponential phase, stationary phase, and death phase will give a better understanding of man-made pollutants impact on the detrimental algae. Examining this data can show what elements have the larger potential to lead to HAB's and endanger fresh and marine environments.

Joel Lukens **Chemistry**

Heavy Metal Concentrations in Local Watersheds

Co-Author(s): David Kawula, Danielle Cuppan, Alexandra Seppanen, Tori Castilow

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #236

Heavy Metal Concentrations in Local Watersheds Local watersheds are often used by humans for recreational purposes, family gatherings and for enjoyment. Nonpoint sources of pollution such as runoff may carry heavy metals that enter local watersheds. ICP-OES (Inductively Coupled Plasma Atomic Emission Spectrometry) is utilized to determine levels of heavy metal concentration in collected samples. The collected sample is pumped into the instrument as a stream of liquids and then converted into an aerosol through a process known as nebulization. The sample is then transported to the plasma where it is vaporized, atomized and/or ionized by the plasma. The excited atoms and ions emit radiation, and the wavelengths are detected and captured by the spectrometer. This data is transported to the computer for analysis. Various metals were picked for testing, including: Ca, Cu, Zn, Fe, Pb, As, Cd, Cr, Ni, Al, Mn, and Cr. Multiple testing samples identified a variety of metals in the water, at low concentrations. Surface water was tested for this research, and it is likely that the concentration of heavy metals is higher near the soil. Identifying the presence of metals in local watersheds, can provide important information to the public who want to use that body of water for recreational purposes.

Summer Mando **Chemistry**

Spice of Life: Determination of Volatile Compounds in Saffron Utilizing SPME-GCMS

Co-Author(s): Lauren Carnley, Kate Harper, Erica Kim

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #237

The international spice market accounts for more than 15 billion USD. It is important to know what you are purchasing in this complex and imitable market. Saffron itself is prone to adulteration and can be sold for upwards of 10,000 dollars. The ability to falsify this product is abundant in the market. The technology used to determine the volatile compounds in the saffron samples ranging from different price points were SPME and GCMS. Solid phase microextraction was used to isolate a sample of the volatile molecules that can authenticate the sample. The method allows for easy transfer of a sample of the volatile molecules into an Agilent Intuvo Single Quadrupole 5977B Gas

Chromatograph Mass Spectrometer (GCMS). GCMS involves a system of both Gas Chromatograph and Mass Spectrometry, in which the GC unit separates the compounds by using helium as a carrier gas and a stationary phase coated in a column. Mass Spectrometry identifies the different compounds by their mass to charge ratio (m/z). By utilizing SPME and GCMS, it is possible to test the authenticity of different saffron brands. The data collected for this experiment can also be used for future adulteration research of spices.

Flavia Miccolis Martins Per **Chemistry**

A pedagogical approach for the simultaneous analysis of caffeine and acetaminophen in analgesics by HPLC

Co-Author(s): Aubrey Ross

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #241

Caffeine and Acetaminophen are often consumed by undergraduate students. This investigation aimed to analyze caffeine and acetaminophen in analgesics by High-Performance Liquid Chromatography. Prior literature methods involved techniques which were not conducive to an academic setting. A new method for simultaneous analysis of the active ingredients in headache tablets was developed for an undergraduate chemistry laboratory. It emphasized a concise procedure, accessible solvents, and simple instrument conditions. This experiment will be implemented in Analytical Chemistry, in a replacement of a similar procedure, in conjunction with a pre and post surveys to assess student understanding.

Jason Neidigk **Chemistry**

Efficiency of the Glucatell Chromogenic Assay Kit in the Filtration of a Beta-Glucan Buffer Solution

Co-Author(s): IanGustavo Ramirez de Arellano Rosario

Faculty Mentor(s): Ajay Lajmi
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #240

(1 → 3)- **β** -D-glucan, commonly known as beta-glucan, is the D conformation of glucose that is found in the cell walls of fungi, algae, bacteria, and the endosperm cell walls of certain grains. The molecular weight of beta-glucan can range from 20 to 3100 x 103 g/mol depending on the source and the purification methodology. Beta-glucans have been shown to have immune-regulating effects as well as effects on cholesterol, modulation of glucose, and weight management. However, the effects of beta-glucan in high concentration in IV administered medications can be quite severe. Beta-glucan has also been found to cause allergic reactions to different vaccines, like the HIV vaccine; contamination of beta-glucan in pharmaceuticals can be suspected when an "out of specification" result is given after an endotoxin test. Beta-glucans are typically introduced as contaminants from buffers and cellulose-based membrane filters that are used during the manufacture of monoclonal antibody recombinant protein drugs. In this project, we describe the efficiency of the Glucatell chromogenic assay kit using different filters in the filtration of beta-glucan in a buffer solution. The types of filters used will be a positively charged nylon membrane, a hydrophobic interaction membrane, and an anion-exchange membrane. There will also be a positive control, where the buffer and beta-glucan will not be filtered, and a negative control, where only the buffer solution is used (no filtration or beta-glucan). This work will be a proof-of-concept work that will allow us to determine filtration membranes provide the highest beta-glucan removal per unit membrane volume.

Alexandra Seppaenen **Chemistry**

Pedagogical Approach to Heavy Metal Determination in Vitamins

Co-Author(s): Danielle Cuppan, Joel Lukens, Eden Eckred

Faculty Mentor(s): Karen Barnes
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #251

Balanced vitamin and mineral compositions are vital for a majority of functions in eukaryotic organisms. As developing scientists, it can be important to understand how to identify heavy metal levels in different supplements. The methodology of this determination will be conveyed to students in an educational context through a pedagogical approach, also known as the science of teaching. Students at the University of West Florida have access to the ICP-OES (inductively coupled plasma optical emission spectroscopy) that can precisely determine heavy metals and their concentrations. For this project, three sets of three different types of calcium supplements are to be radially read by the instrument. The possibility of high concentrations of calcium in the samples makes a radial read better suited. Through looking at the data the concentration of calcium in the supplement can be determined and compared to the labels of the vitamins.

Audrey Stemen **Chemistry**

Structure Elucidation of a Copper(I) Thiolate and its Water-Soluble Complex

Co-Author(s): Aubrey Ross, Raquel Da Conceicao, Chau Tran, Mohsan Khan, Sunny Doan, Justin Bobbitt, Milan Gembicky, Robert Papoular, Dean Johnston

Faculty Mentor(s): Arun Timothy Royappa
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #245

The goal of this research was to develop reproducible methods to crystallize a certain copper(I) thiolate (CuSR) and its water-soluble complex and obtain high-quality crystal structures of both using single-crystal X-ray diffraction. We specifically focused on obtaining the crystal structures of copper(I) 2-hydroxyethanethiolate, CuSCH 2 CH 2 OH (Cu2ME), and hexakis(2-hydroxyethanethiolato) tetracuprate(I) ([Cu 4 (SCH 2 CH 2 OH) 6] 2-). The crystal structure of neutral Cu2ME was obtained using crystals formed by vapor diffusion of diethyl ether into a solution of Cu2ME dissolved in methanolic 3M NH 4 SCH 2 CH 2 OH at room temperature. In this case, the complex anion did not crystallize; instead, the Cu2ME starting material formed X-ray quality single crystals. The water-soluble complex anion was synthesized according to the equation below: 2NR 4 OH + 2HSCH 2 CH 2 OH + 4CuSCH 2 CH 2 OH → 2(NR 4) 2 [Cu 4 (SCH 2 CH 2 OH) 6] + H 2 O It was hypothesized that using bulky cations such as

tetrabutylammonium ions would allow the entire salt to crystallize due to the similar bulkiness of the [Cu 4 (SCH 2 CH 2 OH) 6] 2- anion. Crystals suitable for structure elucidation of the [Cu 4 (SCH 2 CH 2 OH) 6] 2- complex were formed by vapor diffusion of tetrahydrofuran into a solution of Cu2ME dissolved in aqueous 1.5M tetrabutylammonium 2-hydroxyethanethiolate (NBu 4 SCH 2 CH 2 OH) at 5 deg C. This tetranuclear complex consisted of a tetrahedral Cu(I) cluster with one thiolate group bridging each of the six edges of the tetrahedron.

Jade Wheeler **Chemistry**

Connections Between Autism Spectrum Disorder and Aural Disorders

Faculty Mentor(s): Sal Ruiz
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #215

Hearing disorders can cause problematic symptoms and lower the quality of life for anyone that has them. Individuals with neurodivergence such as Autism Spectrum Disorder are more likely to be born with or develop an auditory disorder at some point in their lives, which can cause further problems in cognitive, social, and emotional development. Research has shown that although there is a definite correlation between autism and hearing disorders, the nature, cause, and identities of the hearing disorders remain generally vague beyond the broad umbrella of 'auditory processing disorder'. It is pertinent to gather research on the connections to the two diagnoses; to learn and discover ways to accommodate and provide relief, therapy, or assistive technology for individuals with both ASD and auditory disorders. In doing so, many individuals with both broad disorders, concurring or not, will be able to have better development, communication, and social skills, among many other benefits. Research for this poster was found using the online databases available to students of the University of West Florida through John C. Pace Library.

Charlie Womack **Chemistry**

Heteroatom-free Copper(I) Complexes for Semiconductor Electronics

Co-Author(s): Shane Miller

Faculty Mentor(s): Arun Timothy Royappa
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #246

Our research team is working to synthesize pure, heteroatom-free copper(I) complexes (i.e., molecular compounds containing only C, H, and Cu). Such compounds would have direct applications in chemical vapor deposition (CVD) and atomic layer deposition (ALD), which are fabrication methods important in semiconductor chip manufacturing. These techniques are currently used to deposit copper circuit lines on silicon chips; a vapor-phase organometallic complex, such as our target compounds, is used to deposit the copper. Complexes devoid of heteroatoms (i.e., atoms other than C or H, but specifically halogens in this case) are sought after in this industry. In our method of synthesis, a weak hydrocarbon acid and a hydrocarbon ligand are reacted with cuprous oxide (a strong base) in an effort to produce our target complexes. We also attempt to optimize other reaction conditions (catalysis, temperature, reactant concentrations, etc.) to maximize yields. The identity of any promising products we synthesize are evaluated using established laboratory methods such as nuclear magnetic resonance spectroscopy and single-crystal X-ray diffraction, while product purity is established by elemental analysis.

EARTH & ENVIRONMENTAL SCIENCES

Kiersten Cavender **Earth & Environmental Science**

Influence of Political Affiliation Toward Support of Solar Energy in Florida Gulf Coast Counties

Faculty Mentor(s): Kwame Owusu-Daaku
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #252.5

According to the United States Energy Information Administration, over the last decade there has been considerable growth in renewable energy, specifically in wind and solar. With this being said, the same growth has not been seen within the Sunshine State of Florida. Due to this observation, data collection was conducted to determine the influence political affiliation may have on support of solar energy in counties along the Gulf Coast of Florida, namely, Escambia County south to Monroe County. These counties were selected the implementation of criterion sampling based on level of solar potential. The goal of the research extended to if other criteria such as cost, care for the environment, energy independence, or regulations had an impact on solar support. Respondents were selected based on those individuals who were registered to vote in the selected list of counties available through publicly accessible data. Results show that political affiliation is not independent from the way respondents answered many questions regarding solar energy. Questions gauging concern of an increase or decrease in energy independence showed that political affiliation was independent of responses. These results can be used by decision makers to identify future policies and incentives that encourage or increase preference for support of solar energy.

Kiersten Cavender **Earth & Environmental Science**

Influence of Political Affiliation Toward Support of Solar Energy in Florida Gulf Coast Counties

Faculty Mentor(s): Kwame Owusu-Daaku
Session: Main Oral Presenters
Time: 9:00-9:45
Location: Auditorium

According to the United States Energy Information Administration, over the last decade there has been considerable growth in renewable energy, specifically in wind and solar. With this being said, the same growth has not been seen within the Sunshine State of Florida. Due to this observation, data collection was conducted to determine the influence political affiliation may have on support of solar energy in counties along the Gulf Coast of Florida, namely, Escambia County south to Monroe County. These counties were selected the implementation of criterion sampling based on level of solar potential. The goal of the research extended to if other criteria such as cost, care for the environment, energy independence, or regulations had an impact on solar support. Respondents were selected based on those individuals who were registered to vote in the selected list

of counties available through publicly accessible data. Results show that political affiliation is not independent from the way respondents answered many questions regarding solar energy. Questions gauging concern of an increase or decrease in energy independence showed that political affiliation was independent of responses. These results can be used by decision makers to identify future policies and incentives that encourage or increase preference for support of solar energy.

Emerson Cheney **Earth & Environmental Science**

Complexity in Practice: An assessment of the ways in which environmental practitioners understand environmental management complexities

Faculty Mentor(s): Kwame Owusu-Daaku
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #252

Complexity in Practice attempts to question how environmental practitioners understand complexity in their work. This research is intended to expand upon an existing body of research that defines environmental management as situated practice (Lippert, I., Krause, F., Hartmann, N.K., 2015). A number of environmental managers were interviewed for this study. Interview participants were asked a series of questions designed to uncover the conditions that contribute to management complexities in the environmental field. This research was designed to begin to understand the complexities of environmental management that are perceived by environmental managers and to determine whether or not there are trends in management complexities that cut across professional environmental disciplines. A qualitative data analysis tool, known as MAXQDA, was used to analyze interview transcripts and determine trends in environmental professionals' perceptions of management complexities in the environments that they work in. This research may be expanded to generate models of management complexities in an attempt to further investigate the ways in which ecological, social, institutional, and economic complexities, or otherwise, dictate the efficacy of environmental project development and environmental justice initiatives. Understanding complexity in environmental professionalism is critical for ensuring that necessary stakeholders are involved in conversations about environments. A robust understanding of complexity in environmental professionalism may also help to ensure that environmental managers are held accountable and do not inadvertently sustain unsustainabilities by neglecting to consider emerging or historic biophysical or social components.

Kelly Dunn **Earth & Environmental Science**

Visualizing the SPSR Indes for Northwest Florida's Coastal Dune Lakes

Faculty Mentor(s): Kwame Owusu-Daaku
Session: (withdrawn) Main Oral Presenters
Time: 12:30-1:45
Location: Auditorium

Coastal dune lakes (CDLs) are found in five countries around the world and Florida s Panhandle is home to 15 CDLs. These unique lakes in Northwest Florida have been ranked globally significant as defined by the 2010 Florida Natural Areas Inventory. Due to the proximity of the CDLs to beaches and available recreational activities, CDLs experience a tourism draw. As the ecologically sensitive CDLs experience varying types of anthropogenic activity, the demand for development and recreation may pose as pressures for the state of the CDLs. This research focuses on the adverse impacts of anthropogenic pressure on the CDLs based on proposed planning and state legislations. Land use land cover (LULC), water samples, and hurricane Michael s impact on Philip s inlet were visualized based on a Driver-Pressure-State-Impact-Response Model (DPSIR). The conceptual model of the DPSIR bridges the communication gap between researchers and policymakers but commonly lacks visualization. Six CDLs were evaluated using the DPSIR model and its cyclical flow of variables such as population growth, LULC, nutrient loading, and variability of inlets to identify the current health of these lakes. Then by visualizing, the impacted areas identify areas of high-risk. Since 2015, most of the six CDLs show growth in surrounding residential use. CDLs located in state protected areas such as Campbell Lake have shown healthy parameters whereas highly developed areas surrounding likes like Oyster Lake pose as a threat as nutrient levels continue to grow. Identified areas of high-risk may help establish strategies that could mitigate the impacting factors.

Cameron Jackson **Earth & Environmental Science**

Species distribution modeling of seagrass in the Gulf of Mexico

Faculty Mentor(s): Zhiyong Hu
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #253

Seagrass meadows function as vital underwater forest ecosystems integral to biological, chemical, and physical process dynamics. Seagrass habitats, and the marine animals who exist in these spaces, are vulnerable to exploitative anthropogenic practices, and shift in environmental conditions. Species distribution modeling (SDM) is useful in linking observed species occurrence data with coinciding environmental conditions, measuring the relationships and variable importance, and predicting geographical range of species within the region(s) of interest. We conducted SDM of seagrass in the northern Gulf of Mexico using Random Forest (RF) modeling. Environmental [predictor] variables and [coastal] seagrass presence-absence datasets were prepared, and the model assembled, within ArcGIS Pro. RF model predicted and mapped habitat suitability at grid locations using binary classification, thus forming potential seagrass range. The most important predictors of seagrass range were sediment grain size, median bottom shear stress (for calculations spanning one year), silicate, nitrate, and phosphate. Suitable habitats were predicted to reside in coastal and select shelf areas off west Texas, eastern Louisiana (north of the Mississippi River delta), Mississippi, Alabama, and the West Florida Escarpment, as well as in multiple stretches of the mid Texas-Louisiana shelf. Study findings offer insight into environmental driver influence, and binary habitat suitability map, pertinent to the protection and restoration of seagrass habitats.

Madison Williams **Earth & Environmental Science**

Evaluation of Sea Turtle Nesting Preference Related to Beach Morphology Characteristics on Santa Rosa Island and Perdido Key, FL

Co-Author(s): Jordan Iserman
Faculty Mentor(s): Phillip Schmutz
Session: Main Poster Session
Time: 11:00-12:00

Location: Virtual Space - Poster #254
Over the last 30 years, sea turtle nesting numbers have fluctuated annually but overall their total population has declined. This is mainly due to the effects of humans on nesting habitats through coastal development and sea level rise. Sea turtles participate in natal homing and search for specific morphological characteristics for their nest site selection. To prevent further decline of the sea turtle population, it is imperative to know what morphology sea turtles prefer for their nest site. Pensacola Beach and Gulf Islands National Seashore are both areas impacted by natural and anthropogenic factors that have modified the natural beach morphology potentially influencing sea turtle nest site preference. To assess nesting preference, we conducted beach profile lines at and around 14 loggerhead nest sites during the 2021 nesting season. Our hypothesis is that the profile along the exact nest location represents the preferred morphological nesting characteristics; whereas the adjacent profiles depict the non-preferred morphological characteristics for nest site selection. Paired t-tests were run to establish statistical differences between the morphological characteristics at the nesting site profile and the adjacent profiles. Box plots were produced to display the median and quartile range of each morphological characteristic for each nest. Results illustrate that foreshore slope and beach slope were the two most important morphological characteristics influencing nest site selection. Data from this study can provide insight for environmental managers highlighting nest site preference thus aiding in the design of management practices, such as beach nourishments, for preserving sea turtles nesting habitats.

Kwame Owusu-Daaku **Earth & Environmental Science**
Conducting Literature Reviews to Inform a Health Impact Assessment
Session: Faculty HIP Showcase
Students enrolled in EVR4412 Environmental Aspects of Urban Growth in the Summer of 2021 conducted literature reviews that informed a Health Impact Assessment conducted for the implementation of the North Port St. Joe community's Master Plan. Students worked in teams and informed the work of professors at UWF and USF who conducted the Health Impact Assessment for the community.

Kwame Owusu-Daaku **Earth & Environmental Science**
The Wonder Challenge: Developing Science Education Videos for 6th graders
Session: Faculty HIP Showcase
Students enrolled in GE04004/5331 Environmental Science, Politics, and Policy partnered with Elizabeth Eubanks a local science educator to work in teams to create science education videos for 6th graders of the Dixon School of the Arts and Sciences. The video development was dubbed The Wonder Challenge (inspired by the Alan Alda Center for Science Communication's Flame Challenge) and created 3 minute videos on topics students asked questions to in response to the phrase "I wonder what/how...."

Kwame Owusu-Daaku **Earth & Environmental Science**
Conducting an Economic Opportunity Study of (North) Port St. Joe
Session: Faculty HIP Showcase
Students enrolled in EVR4870/5435 Urban Planning conducted an economic opportunity of (North) Port St. Joe to identify potential opportunities for economic development within the community, city, county, and local region. Students worked in teams and received feedback from local community economic development consultants. Students also got the opportunity to virtually present their work at the Florida & Alabama Annual Brownfields Conference in October, 2021.

Kwame Owusu-Daaku **Earth & Environmental Science**
Developing Environmental Justice Videos of North Port St. Joe
Session: Faculty HIP Showcase
Students enrolled in GE04357/5358 participated in the Environmental Protection Agency's Environmental Justice Video Challenge for Students to create videos with differing foci of North Port St. Joe's Environmental Justice Challenges. Students worked in teams to create no more than six-minute videos and submitted their final videos to the challenge on April 1st - awaiting announcement of winners in June 2022.

Kwame Owusu-Daaku **Earth & Environmental Science**
Using Pre and Post Course Surveys to Identify Student Learning Gains
Session: Faculty HIP Showcase
I have been using the Student Assessment of Learning Gains (SALG) survey tool to assess how much students have learned in my courses since the Fall of 2020. This presentation is a reflection on how to use the tools pre and post course surveys and the learning gains that the survey is able to highlight for the instructor. (A note: I selected this experience as a capstone project because that was the best HIP type that I thought could reflect this experience. However, these surveys are less of a HIP type and more of an assessment tool to demonstrate the value of courses that embed HIPs).

Kwame Owusu-Daaku ***Earth & Environmental Science Conducting Conducting Oral Histories to Learn About (Environmental) Injustice***
Session: Faculty HIP Showcase
Students enrolled in GE04005/5007 Environmental Management and Planning conducted oral history interviews with residents of the predominantly black community of North Port St. Joe about their experiences growing up and/or living in the community and the (environmental) injustices they have experienced over the course of their lives. Students went down to North Port St. Joe on Saturday, March 5th and spent the afternoon interviewing residents. Students later transcribed the interviews and created shareable short clips of the recorded media of the interviews.

ELECTRICAL & COMPUTER ENGINEERING

Ibrahim Chami **Electrical & Computer Engineering**
Fire-Fighting Robot
Co-Author(s): Mateo Ramos, Luke Roberson, Bryan Nguyen
Faculty Mentor(s): Mohamed Khabou
Session: Engineering Showcase, Time: 10:00-12:00, Location: Cannon Green
Abstract Several developments have already occurred in the fire-fighting scene with regards to autonomous drones and vehicles using water as their main

source to combat fire. In our research, we set out to prototype a working scale model of a fire-fighting vehicle capable of fighting fires utilizing a typical fire extinguishing unit. We have also developed subsystems capable of keeping our robot in a designated course as well as alert nearby occupants of ongoing fires. The results of our research will allow for safer buildings and work environments if implemented in a commercial setting.

Ryan Davis **Electrical & Computer Engineering**

UWF IEEE Competition Robot

Co-Author(s): James Merrett, Brandon Fenters, Nick Newkirk

Faculty Mentor(s): Sam Russel
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The UWF IEEE Southeastern Conference Hardware Competition team will develop an autonomous robotic vehicle to compete in a Mardi Gras themed competition against other Universities and Colleges from the Southeastern Region. The IEEE SoutheastCon 2022 Hardware Competition will be held in Mobile, AL from March 31 to April 3, 2022. The 2022 competition is a Mardi Gras themed parade where autonomous robot floats will navigate an L shaped parade route while performing various tasks and avoiding obstacles. The robot will be required to collect beads from trees on the track and distribute them into nets or cup receptacles while traversing the parade route. Additionally, the robot will be required to remove an obstacle, a marshmallow, from the track while also avoiding additional obstacles such as power lines, trash receptacles, and buildings. The robot will be a collaboration between the Department of Electrical and Computer Engineering and the Department of Mechanical Engineering, and will utilize multiple senor systems and programming techniques to complete the course and required tasks .

Carolyn Henry **Electrical & Computer Engineering**

Expandable Node-Based Forest Fire Detection System

Co-Author(s): Lisa Blubaugh, Christian Rosa, Connor McLemore

Faculty Mentor(s): Sam Russel
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

Uncontrolled forest fires pose a danger to wildlife, the environment, and to human life and infrastructure. In 2020, the U.S. witnessed 58,950 active fires, over 10 million acres. Early forest fire detection creates the opportunity to mitigate the danger that forest fires pose to wildlife, the environment, human life, and infrastructure. This project proposes to build a scalable network of sensor nodes that use environmental indicators to detect and relay the presence of a fire to an end-user. This design will provide proof of concept for future projects to expand and improve upon. The Expandable Node-Based Fire Detection System (FDS) will assist the end-user in monitoring conditions by collecting data that directly coincide with the presence of forest fires. The conditions tracked by FDS are temperature, humidity, and carbon dioxide emissions. The nodes will use radio frequency to communicate between each other and send data back to a central node.

Charles Hostick **Electrical & Computer Engineering**

Dual Testing Platforms for an Autonomous Surface Vessel

Co-Author(s): Shane Imm, John Osmialowski

Faculty Mentor(s): Tarek Youssef
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The UWF Marine Robotics Team is participating the 2022 RoboBoat Competition in Daytona Beach, Florida. The team designed, built, and programmed an autonomous unmanned surface vehicle (USV). The goal of the robotic boat is to be able to complete challenges established by the sponsor, RoboNation. The team developed dual testing platforms consisting of a pontoon boat and a tank. The sensors and systems needed to operate autonomously is contained in what the team has dubbed the boathouse. The boathouse is basically a large box designed to protect the vital equipment from the elements. A rail system on top of the boathouse serves as a mount for equipment such as the LiDAR, cameras, GPS, and antennas. The boathouse can be mounted on both the tank and the boat for testing and autonomous operation. The team s ability to use the tank for testing significantly increased progress in this project. The reason for this is launching the boat required several hours in preparation and transportation as the most suitable freshwater location is about an hour away. Thus, a test of about two hours took a total of about six hours. The tank only takes about fifteen minutes to prepare for a test session. Since the team was able to use the tank on the UWF grounds where the team s lab is located, several sessions a week could be accomplished. Without the ability to test using both platforms, the team may have fallen short of our goal of creating an autonomous unmanned surface vessel.

Charles Hostick **Electrical & Computer Engineering**

Waypoint Navigation for an Autonomous Surface Vessel

Co-Author(s): Shane Imm, Erik La Brot

Faculty Mentor(s): Tarek Youssef
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The UWF Marine Robotics Team is participating the 2022 RoboBoat Competition in Daytona Beach, Florida. The team designed, built, and programmed an autonomous unmanned surface vehicle (USV). The goal of the robotic boat is to be able to complete challenges established by the sponsor, RoboNation. Critical to the success of autonomous operation is the boat s ability to move from its current location to a predetermined coordinate in the boat s environmental map. At the center of the team s design for the deployment of waypoint navigation is the Pixhawk 2.1 Cube. The Pixhawk receives navigation commands from the Robotic Operating System (ROS) operating on our main onboard computer and send the appropriate signals to the boat s motor controllers to move the boat to its new target position. This allows the main computer to focus on collecting the vast amount of sensor data and developing a navigation solution based on the boat s detected environment. The Pixhawk 2.1 Cube also handles the task of switching the boat from manual mode to autonomous while allowing for remote and manual shutoffs. When in manual mode, the Pixhawk 2.1 Cube can receive its commands

directly from a remote-control transmitter allowing a team member to drive the boat. Without the ability to perform waypoint navigation, the team may have fallen short of our goal of creating an autonomous unmanned surface vessel.

Trevor Levins **Electrical & Computer Engineering**
Subaquatic Photon Communication
Co-Author(s): Justin Byrd, Charles Travis, Blake Russell, Preston Taylor
Faculty Mentor(s): Yazan Alqudah
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green
Underwater communication using means such as RF and Sonar can be unreliable and inconvenient. We are designing and developing a Subaquatic Photon Communication system which will evaluate the reliability and effectiveness of underwater light communication using an LED. Our transmitter system will consist of a processor generating a signal and sending said signal using a photo driver circuit and LED. The photodiode will recognize the signal and relay it to a transimpedance amplifier. The amplifier will convert the signal into a useable voltage and then be sent to the filtering stage. Our signal will be converted into useable data and displayed using a secondary processor. Experimental data will then be gathered to determine the reliability of the communications system. We hope to see an improvement in underwater communications with our system and ultimately set the ground work for future groups to improve our communication technology.

Michael Morgan-White **Electrical & Computer Engineering**
Beach Cleanup Bot
Co-Author(s): Christopher Wright, Josh Aiken, Kaya Beasley, Michael Fraczek, Shae Gibbs
Faculty Mentor(s): Sam Russel
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green
This showcase follows the design, development, and function of an autonomous Beach Clean-up Bot. The robot is five feet long, four feet wide, and three feet tall, powered by two wheelchair motors set up for differential steering. The front section consists of a large scoop capable of filtering waste from sand when driving forwards, which is deposited in an internal collection bin. The robot is autonomous, following a hard-coded path guided by an inertial measurement unit in order to clear a predetermined area.

Carly Ritchie **Electrical & Computer Engineering**
Auto Batch System
Co-Author(s): Hanna Larmore, Cristy Higginbotham, Samara Potter, Bruno Ariza
Faculty Mentor(s): Tarek Youssef
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green
Our team is eager to introduce you to our product, Auto Batch System. The Auto Batch System is an automated machine that dispenses dry cooking ingredients, such as flour, sugar, and other dry materials into a bowl while also weighing said ingredients. The bowl is first placed on a scale, which will measure the materials dispensed, that is attached to a conveyor. Once the user types in the amount and type of material needed (i.e. one cup of flour) the conveyor will move to one station where the material is dispensed into the bowl. This process can be done up to three times for a total of three cooking ingredients in one cycle. These cooking ingredients can be replaced by the user to whichever dry ingredients they desire. This system is designed for a home setting but is scalable for an industrial setting as well. The Auto Batch System s purpose is to potentially lower the amount of people needed for a production line, while also limiting human exposure to the powdered ingredients by keeping them contained and preventing them from being released into the air.

Brooke Sanders **Electrical and Computer Engineering**
Argoponics
Co-Author(s): Vlad Zhukov, Michael Sherrill, Johnny McDonald, Shelby Miller
Faculty Mentor(s): Bhuvana Ramachandran
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #188
ArgoPonics is a small-scale renewable energy system that promotes sustainable aqua- and agricultural growth. Based on the idea of aquaponics, this project will consist of an aquarium, a garden, and a solar powered monitoring system. Water from the fish tank will be transferred to the plants, providing them with the nutrients needed to grow. The plants will then filter the water and it will be delivered back into the aquarium, creating a cycle. The rate of water filtration will be controlled by a motor and level sensors, and users will be able to monitor PH and temperature in order to determine the overall health of the system. Argoponics is dedicated to providing a reliable ecosystem that allows fish and plants to directly feed off of each other in a cycle. Our product uses solar energy to power an automated system to keep the living creatures healthy - using water that is recycled throughout the process. This system proves that renewable energy is a viable alternative capable of providing a safe, dependable micro ecosystem.

INFORMATION TECHNOLOGY

Elizabeth Arthur **Information Technology**
A Data Warehouse for Analysis of Teacher Education and Educational Leadership Instruction
Faculty Mentor(s): Dallas Snider
Session: Main Oral Presenters
Presentation Time: 2:15
Session Time: 2:00-3:00, Location: Auditorium
The practice of data-driven continuous improvement is tightly connected to program and university accreditation. As the ability to collect and analyze data grows, accreditation entities are looking to institutions and programs to review data in ever increasing ways. The Office of Assessment, Accreditation and Strategic Planning

(OAASP) housed in the College of Education and Professional Studies (CEPS), proposed to develop a data warehouse to store data for the Teacher Education and Educational Leadership Department for programs leading to licensure. Designing and building a data warehouse will create a more streamlined method of analyzing the data, which c urrently reside within six different systems. Integrating the disparate data sources is key in creating a comprehensive schema to process data to meet internal and external stakeholder needs. It will increase efficiency in OAASP by enabling automation of data manipulation which informs Tableau reports and providing more timely data to faculty and administrators. An added benefit is the ability to map multiple standards to assessment data which will provide faculty the opportunity to view data through the lens of different standards.

Jonathan Burstein **Information Technology**

Assessing Social Media Risks for Special Forces

Co-Author(s): Corey Baughn, David Clark, James Gandy, Jeremy Russel, Ke'Aundrix Ware, Kumi Miner, EJ Hammersmith, Mia Montenaro, Miguel Figueroa-Martinez, P.J. Lazo, Sary Nachabe

Faculty Mentor(s): Dallas Snider
Session: Main Oral Presenters
Presentation Time: 2:30
Session Time: 2:00-3:00, Location: Auditorium

CTS4950 Innovative Solutions for Industry, formerly known as Hacking for Defense (H4D) is sponsored by the Department of Defense and teaches students to work with the Defense and Intelligence Communities to rapidly address the nation s emerging threats and security challenges. [1] Spring 2022 marks the fifth term H4D is being held at UWF and this term s team, Milisoma, will be assisting the U.S. Army, 7th Special Forces Group in assessing the risks posed by their operators digital presence on various social media platforms to reduce the vulnerabilities to personnel and missions. H4D emphasizes the use of the lean start up method which emphasizes experimentation over elaborate planning, customer feedback over intuition, and iterative design over traditional big design up front development. [2] Starting with nothing but the problem, our team, through a series of discovery interviews, experimentation, and testing, is creating a minimum viable product that will be an effective solution to their problem. The Milisoma team consists of 12 students from various backgrounds and majors. Our diversity is our strength as it allows us to view the problem from multiple angles. As the semester has progressed, our problem and solution evolved as we spoke to more people, learned more about social media data collection and put ourselves in the role of an adversary to understand how this information can be used to compromise our client s mission. [1] National Security Innovation Network, https://www.h4d.us/ [2] Harvard Business Review. Why the Lean Start-up Changes Everything. Harvard Business Review , 3 Jan. 2022,

John Chamblee **Information Technology**

Data Analytics for Athlete Safety in Training

Faculty Mentor(s): Lakshmi Prayaga
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #255

Physical fitness training is an important aspect of an athlete's overall performance. Athletic trainers (AT) engage with their clients and educate them on proper techniques to avoid or lessen the risk of injuries while training. The presence of ATs is crucial in training athletes in secondary schools given the levels of adolescents' participation in athletics and associated injuries (Pike et al., 2017). However, it is found that there is a major shortage of ATs, or they are just not being hired, which affects the quality of treatment and training received by the athletes. More than 53% of post-secondary schools in California did not employ ATs (Post et al., 2019). Athletic injuries among young adolescents account for almost 500,000 physician visits and over 50% of these injuries are preventable with proper athletic training (Shanley et al., 2019). For this reason, we are performing ongoing research to find a suitable algorithm to provide immediate feedback and training instructions utilizing smartwatches when an AT isn't available. To produce this research, we've partnered with the Movement Sciences and Health department to collect data from participants (N = 43).

Amrutha Gunuru **Information Technology**

Topic Modeling using social media data

Faculty Mentor(s): Lakshmi Prayaga
Session: Main Oral Presenters
Presentation Time: 12:45
Session Time: 12:30-1:45
Location: Auditorium

Social media provides a rich platform for academic research. We propose to use social media to get a deep understanding of the relationship between individuals and the environment they are living in. Our first research question focuses on the impact that the social environment has on individuals living in society. In this context, we propose to study the impact of covid19 pandemic on individuals by analyzing social media data from Twitter. We plan to implement topic modeling and cluster analysis algorithms to group the most important topics related to the covid19 pandemic. These insights will hopefully identify social, political, economic and other related topics that people have been concerned about during the pandemic. A second research question is to know if these concerns changed over the past two years during the pandemic. Data collected over the past two years will be used to answer the second research question.

John McCrea **Information Technology**

Topic modeling on Covid-19 from social media Twitter data.

Co-Author(s): Sarah Swift

Faculty Mentor(s): Lakshmi Prayaga
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #255.5

The 2020-2021 COVID-19 pandemic over the past few years has forced many people away from direct social contact to the vastly indirect social contact of Internet connected devices such as mobile phones and tablets. Because of this increased socially distant connectivity, the use of the Internet and social media content providers such as Twitter has increased substantially. Socially, people discuss topics that are pertinent to themselves and those around him. Social media content provider platforms, such as Twitter allow people to share short messages and media with their contacts and even larger, distantly connected, social groups. With their explosive use, tweets are a great source of information about the world, trending topics and popular or unpopular events. In this research paper, we utilize an unsupervised topic modeling approach that incorporates Structural Topic Modeling (STM) algorithm method conducted against two Twitter social media data sets. The data sets include more than 113k individual tweets specific to Covid-19 and more than 89k individual tweets specific to the Omicron variant. The purpose is to explore and discover natural groups in social media data, and what latent topics can be identified from their conversations and #hashtags. Understanding the perceived latent topics of social media has benefits that go beyond data science into social science, behavioral science, national and corporate security, human resource, marketing and management. Keywords Topic Modeling, Structural Topic Modeling , Text Mining, Social Media

Rey Saeed **Information Technology**

CollegeConnect Application

Co-Author(s): Micah Bonner, Dale Brown, Chelsea Sullivan, Winston Sweeting

Faculty Mentor(s): Tony Al-Abed
Session: Main Oral Presenters
Presentation Time: 2:45
Session Time: 2:00-3:00
Location: Auditorium

Project: CollegeConnect With CollegeConnect we are developing an application that will be useful for students in remote learning enviroments. The main goal of this project is to provide a single place where students can conduct school-related work and collaborate with each other. There are already many applications that do this for students, but this application is different because it will be developed with the capability to do it all in one place. Students currently need to use many applications such as Canvas, Google Drive, Discord, and Zoom just to work on a single task. With CollegeConnect all these services will be uniformly integrated into a single platform, this will remove the need for constant switching between applications. Students are usually required to verify attendance in some way. One benefit of this project will be that instructors can verify a student s attendance via script-based activity logging. The activity logging features will also allow instructors to gauge student participation by recording the amount of time the students have actively spent on coursework. Other features of this application will include integrating the student s university login credentials to provide ease-of-access and a secure server connection, the incorporation of a secure file storage database so students can share files with each other, and the inclusion of social & collaborative work features so students can communicate and actively collaborate with one another. In summary, CollegeConnect aims to make remote learning more efficient and easier to understand for students everywhere.

Dallas Snider **Information Technology**

High Impact Practices in CTS 4950 Innovative Solutions for Industry

Co-Author(s): Donovan Chau
Session: Main Oral Presenters
Presentation Time: 2:00
Session Time: 2:00-3:00
Location: Auditorium

CTS4950 Innovative Solutions for Industry at UWF is a course that exemplifies High Impact Practices. Students are provided real-world problems to solve via the National Security Innovation Network and local industry contacts. Over the term students create a minimum viable product (MVP) to give to their problem sponsor with the opportunity to seek external funding. Utilizing the lean startup methodology, students are required to conduct customer discovery by interviewing several people per week to gain various perspectives of the sponsor s problem, potential solutions, and to test their current hypothetical solution. These interviews allow the students to talk to people with diverse backgrounds and to synthesize their discussions into ideas for the MVP along with supporting documentation including mission model and value proposition canvases. Students are required to give weekly in-class presentations with the teaching team, peers and problem sponsors in the audience. These weekly presentations allow for frequent and immediate feedback, along with meaningful interactions among peers and faculty as changes to the MVP, the mission model canvas and potential new interviewees are discussed. In the final two weeks of the term, students prepare a public presentation of their final MVP and how it evolved over the term along with a two-minute narrated video. They are also required to write individual essays to reflect on what they learned about themselves, how they overcame challenges, how they stepped out of their comfort zone, how the course was transformative, or how they could apply the course to their major.

Dallas Snider **Information Technology**

High Impact Practices in CTS 4950 Innovative Solutions for Industry

Session: Faculty HIP Showcase
Time: 9:30-9:45
Location: Virtual

CTS4950 Innovative Solutions for Industry at UWF is a course that exemplifies High Impact Practices. Students are provided real-world problems to solve via the National Security Innovation Network and local industry contacts. Over the term students create a minimum viable product (MVP) to give to their problem sponsor with the opportunity to seek external funding. Utilizing the lean startup methodology, students are required to conduct customer discovery by interviewing several people per week to gain various perspectives of the

sponsor's problem, potential solutions, and to test their current hypothetical solution. These interviews allow the students to talk to people with diverse backgrounds and to synthesize their discussions into ideas for the MVP along with supporting documentation including mission model and value proposition canvases. Students are required to give weekly in-class presentations with the teaching team, peers and problem sponsors in the audience. These weekly presentations allow for frequent and immediate feedback, along with meaningful interactions among peers and faculty as changes to the MVP, the mission model canvas and potential new interviewees are discussed. In the final two weeks of the term, students prepare a public presentation of their final MVP and how it evolved over the term along with a two-minute narrated video. They are also required to write individual essays to reflect on what they learned about themselves, how they overcame challenges, how they stepped out of their comfort zone, how the course was transformative, or how they could apply the course to their major.

INTELLIGENT SYSTEMS & ROBOTICS

Daniel Bozeman **Intelligent Systems and Robotics**

Stationary to Moving: Toward Enabling Mobility for Pick-and-Place Robotic Arm

Co-Author(s): Garhett Smith, Sean Bridges, Kim Sanders, Bethany Crow, Thao Duell, Zach Carter, Beatriz Domingues, Brannon Hogue, Stephane Lee-Vizcarra

Faculty Mentor(s): Hakki Erhan Sevil
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The goal of past semesters of the pick and place has been to develop entire systems that can perform "pick and place" tasks. The method entailed creating a robot arm and bringing items to it so that the arm could perform the pick and place tasks. In the fall of 2021, the team decided to include "mobility" to the robotic arm. The overall system includes two subsystems, one for the mobile base and another for the robotic manipulator. The arm is composed of 20 components resulting in 6 degrees of freedom. The full height of the system reaches half a meter from the ground and is designed to grab and move a load of half a kilogram. These reach and weight goals are designed to enable the robotic system to reach higher shelves and carry enough weight to move a larger variety of items. Testing is being done to determine the best design for the end effector. The two leading choices are a mechanical gripper and a suction-type design. The majority of the structure will be made from 3D printed materials to reduce both costs and the weight of the design while maintaining integrity. The base subsystem uses position-controlled motors to navigate. In addition to 3D printed parts, the base subsection uses aluminum 20/20 extrusion and hardware as a solid inner-frame. In summary, our goal is to develop a new robotic platform that can be a model for realistic platforms used in warehouses.

Sean Bridges **Intelligent Systems and Robotics**

BLDC Actuators Revisited: A New Cost-Effective Design and Manufacturing for Robotic Applications

Co-Author(s): Garhett Smith, Rene Preston

Faculty Mentor(s): Hakki Erhan Sevil
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

Brushless Direct Current (BLDC) actuators are recognized for their combined torque capabilities, precision control, and operational versatility, especially in regards to their smaller size. Actuators of this caliber are commonly implemented in high-performance industrial robotic arms, development in exoskeletal technologies, and quadrupedal robotic dogs. Professionally-developed brushless actuators available in the commercial sector deliver in their performance, however at a significant monetary expense. Our aim is to produce cost-efficient robotic actuators which are capable of replicating the design specifications and performance of commercial models. Our research focuses on the understanding and validation of fundamental principles of how brushless motors operate, and how the manipulation of respected variables can be combined to produce an optimized, robotic actuator design. The design and manufacturing process for each actuator prototype for this research revolves around a modular approach, where specific components can be repaired or replaced without compromising the structural integrity or robustness of the system. Each prototype utilizes a unique rotor and embedded planetary gearbox design as a mechanical means for increasing the potential torque output. Design constraints were set in place to properly analyze multi-variable combinations, which would ultimately maximize the electric torque density generated from induced electromagnetic forces. We believe that the results from our project can make cost-effective actuators available to the robotics community for advancing legged-locomotion robotic research.

Sam Kammerer **Intelligent Systems and Robotics**

Engineering Research, Analysis, Workshop, and Refinement (R.A.W.R.) of a Puppet Lion for Theater Play

Faculty Mentor(s): Hakki Erhan Sevil
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The Department of Theatre at the University of West Florida (UWF) is producing the play The Lion, the Witch, and the Wardrobe, and one of the main characters in the play is a lion puppet named ASLAN, which we work on a new design of the lion puppet. There are several examples of similar puppet designs in the literature, however the aim of this study is to create a new design, which includes a head that can be controlled from a neck ball joint and has 1 Degree-of-freedom (DOF) jaw joint, and a body that 2 actors can fit inside it. Our focus is, first, to identify design requirements such as weight, size, materials. Then, we create a prototype model virtually and test the prototype model, and we update the design upon results of analysis of static and dynamic tests. Final design consists of two exoskeleton type leg mechanisms with harnesses for two actors; one at the back of the puppet, and one at the front of the puppet. The leg mechanisms have 3 DOF and located two sides of the actors. The two exoskeleton type mechanisms then are jointed with a light and flexible rib cage that has 2 DOF. The head mechanism is connected to a rod and can be controlled by the actor in the front of the puppet. The designed puppet will be tested and evaluated in terms of (i) ergonomics, and (ii) strength, durability, and robustness.

Declan McGurk **Intelligent Systems and Robotics**

Future is Here: An Undergraduate Research Project on Traffic Modeling with Autonomous Small Rovers

Co-Author(s): Zahria Davis, Ben Ellicott, Dante Gordon, Alexander DeAngelis, Orion Conolly

Faculty Mentor(s): Hakki Erhan Sevil
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

Autonomous cars are becoming more common as companies like Tesla continue to improve autonomous car technology. However, there are some concerns about the safety and reliability of these autonomous cars algorithms. Here we present a proof of concept of testing autonomous car algorithms by simulating traffic with small robotic rovers as cars. The platforms used are commercially available programmable rovers that include onboard microprocessors. Each platform is equipped with a digital camera that streams the video feed to the microprocessor, which analyzes the input to detect lane lines and stop signs, then generates control signals accordingly. The miniature, off-the-shelf street and traffic signs are used in experiments. To simplify the algorithms and reduce the necessary processing power, a traffic scenario with only one-lane, one-way streets is created . The developed model is capable of staying between lanes, stopping at stop signs, and following right-of-way rules at intersections. The overall goal of our project is to develop a model of an autonomous car that can be used for analysis of self-driving algorithms and test their efficiency and safety.

MATHEMATICS & STATISTICS

Peyton Anglin **Mathematics and Statistics**

An Analysis of Fatal Police Shootings in the United States' Mainland

Co-Author(s): Sharaf Anjum

Faculty Mentor(s): Subhash Bagui
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #258

Department of Mathematics and Statistics Abstract In recent years there has been a surge of media attention on the actions of police officers. A majority of this attention highlights topics surrounding violence within the policing field. This presentation focuses on instances of fatal police shootings that have taken place in the period of 2015-2019. A multitude of variables are considered in this analysis. A few key variables that were analyzed, are characteristic traits such as the race, age, and gender of the victim, along with variables that describe the setting of the shooting such as location, date, and the presence of an officer body camera. This presentation uses time series analysis to identify and visualize instances of trends within fatal police shootings, while also discussing the significance of the relationships among the different variables.

Ihsan Buker **Mathematics and Statistics**

Comparison of Missing Data Mechanism Determination Methods: A Monte Carlo Simulation Study

Faculty Mentor(s): Samantha Seals
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #256

Missing data is an issue that plagues statisticians, particularly in the wake of Big Data, where the desire to utilize statistics in the decision-making process is more prominent than ever. It is, however, common for Big Data to present with missing observations. While statistical methods to deal with incomplete data exist, they make strict assumptions about the underlying mechanism of missingness; thus, identifying the underlying mechanism is a crucial step in the incomplete data analysis pipeline. The underlying mechanism of missingness can be classified as missing completely at random (MCAR), missing at random (MAR), or missing not at random (MNAR). Among the various approaches developed to identify the underlying mechanisms of missingness, four, which are Fairclough's logistic regression, Little's MCAR test, the chi-square test of independence, and the Student's t-test, are most commonly utilized. A Monte Carlo simulation study will be conducted to examine the statistical power of the aforestated approaches under varying sample sizes and varying proportions of missingness. In particular, Type II error rates made by these approaches will be examined as they are especially disconcerting in the context of missing data analysis. Failing to recognize MNAR data may allow researchers to proceed with imputation or complete data analysis methods that only produce unbiased estimates for MAR and MCAR data, respectively.

Alireza Taghi **Mathematics and Statistics**

Short-Term Euro-Dollar Exchange Rate Forecasting Using Regression Models

Faculty Mentor(s): Achraf Cohen
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #257

Accurate predictions of the Euro-Dollar exchange rate help international companies who operate in more than one country to manage currency risks. Moreover, as a professional currency trader, one can make money from the market by selling or buying currency at the right time, similar to the stock market. Our goal is to investigate statistical models to forecast the short-term Euro-Dollar exchange rate. We explore different types of regression models. We obtain the data from OANDA through the MetaQuotes, and we use R software for data manipulation and analysis. We consider prediction over dynamic sample sizes and timeframes. In this work, we present the 15 minutes time frame with the dynamic windows of 480 observations which account for one week of trading in each sample over the year of 2020. We are running over 24,000 samples. We obtain the predictions of high, low, open, and close using multiple linear and polynomial regressions, but we couldn't implement the linear regression with interaction for the entire year of 2020 due to its high computation cost. Performance evaluation and visualization are also critical. We use a candlestick chart to visualize the data and the predicted results on selected samples side by side. We present a new method to gauge models' performance and to better fit in our situation.

MECHANICAL ENGINEERING

Trent Booker **Mechanical Engineering**

Spring 2022 SAE "Argonautics" Aero Design

Co-Author(s): Ryan Ebbighausen, Ronnie Guison, Lily Haddock, Skyler Hoskins, Jake Losquadro, Andrew McTamney, Nikolai Miller, Tara Moore, Caleb Opava, Devin Searcy

Faculty Mentor(s): Carolyn Mattick
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

For the Spring Semester of 2022, the SAE Argonautics Aero Design team is focused on designing and constructing two remote-controlled aircraft that meet the requirements set by the SAE Micro-class competition mission. The aircraft was designed with the goal of maximizing earned points through higher speed, heavier cargo plates, and more large cargo boxes, while conforming with heavy restrictions on motor power, wingspan, and takeoff distance. To meet these conflicting objectives, the aircraft was designed as a strong, lightweight, hollow balsa box frame to accommodate the mission restrictions while providing internal space for cargo to earn the most possible points. The team will construct and test the plane in time for the competition at Fort Worth in May.

Sean Bridges **Mechanical Engineering**

Automated Displacing Shelf System

Co-Author(s): Simon Marchetti, Brant Simpson, Joseph Cook, Evan Haser

Faculty Mentor(s): Brad Regez
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The Automated Displacing Shelf System is a solution for heavy-weight, high-altitude shelving storage. With the displacing shelf design, users are able to store heavy objects as high up as the ceiling without the need for a ladder or forklift. The Automated Displacing Shelf System can also be installed and operated inside spaces the size of a walk-in closet. By making each tier platform of the shelf able to be displaced outward onto an elevator system, users can raise or lower objects on that platform down to loading height and then back into the desired storage position.

Alaina Coffield **Mechanical Engineering**

Argo Armada Rocket Team

Co-Author(s): Aaron Edelen, Adam Stephens, Cody Reilmann, Darsh Matiwala, Greg Clark, Hunter Stegall, Jake Randell, Jared Carter, Terry Malinowski

Faculty Mentor(s): Michael Reynolds
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The team's goals for this semester are to build three high powered rockets, two of which are more powerful and of our own design. What makes these rockets more powerful is the size of the motor being used. The rockets that we are designing are dual-deploy rockets. Dual-deploy means that there is a stabilizing chute and a main chute that deploy from the rocket in a timed succession, making a more effective recovery system as opposed to the standard single chute deployment method. The lower-powered rocket will be used to certify a new sophomore member so that the member can prepare to work towards higher level certifications for the benefit of the team s goals. The main goal of the team is to attain proper experience and certifications from these rockets to work towards competing on a national level.

Joshua Coonrod **Mechanical Engineering**

Spring 2022 SAE Baja (Steering and Suspension Systems)

Co-Author(s): Jared Moore, Jake Jenks

Faculty Mentor(s): Christopher Joren
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

This semester's goal is to finish all objectives necessary in completing a fully functional vehicle that will pass technical inspection, allowing the 2022 BAJA team to compete in the events at the 2022 Baja SAE competition. The following deliverables that must be completed to pass technical inspection have been listed below, categorized by their respective sub-groups. Body/Chassis: Finish Chassis (cut, weld, sand, paint) Finish Roll Cage Documentation Package Complete Torsional Rigidity Test Brakes: Reassemble brakes once Suspension and Steering are put back together. Run final testing for brakes. Drivetrain: Complete skid plates Test drivetrain and front CV axles Safety and Ergo: Complete splash guard Assemble seat and harness Assemble headrest Wire kill switch and brake light Suspension/Steering: Reinforce rear trailing arms Purchase and install new radial arms and tie rods Complete new steering column Reassemble front suspension Fundraiser: Sell t-shirts for competition. Hold a raffle at Miller's Ale House for money. Other: Business Presentations Test Functionality

Natalia DeJesus **Mechanical Engineering**

Design Build Fly Aero Team FWB

Co-Author(s): Alexander Parsley, Charles Faulkner, James Mulcahey, Kurt Richter, Valentina Young, Kayla Williams, Connor Goldsworthy

Faculty Mentor(s): Daniel Williams
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

During the Fall/Spring semesters, 2021-2022, the Design Build Fly (DBF) team will design, fabricate, and pilot a radio controlled aircraft that complies with all AIAA guidelines . The goal of this team is to meet the requirements outlined by the 2021-22 DBF competition. Over the course of the Fall 2021 semester, the team designed the aircraft in accordance with the DBF rules which are as follows: The aircraft must be powered by electricity, have a maximum linear dimension of 8 feet, and must not exceed 55 pounds (including cargo). To qualify for scoring, the aircraft must be able to take off within 25 feet of the start/finish line and successfully land after each lap. It must also be able to complete the various missions using a single consistent configuration. These missions include flying with a payload and delivering packages using remote deployment. The duration of the Spring 2022 semester will include fabrication of the aircraft following the design plans created in the Fall as well as numerous flight tests to configure a final aircraft that meets the DBF competition requirements.

Daniel Egberongbe **Mechanical Engineering**

SAE Wing Design

Faculty Mentor(s): Carolyn Mattick
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The aim of the project is to design and build a wing that will be attached to a fuselage made by the SAE Aero Design team. The 2022 SAE Aero Design competition challenges teams to build an aircraft capable of taking off within eight feet while carrying as much weight as possible. This was made possible through the use of 3D printed materials, which provide the ability to use a very high lift Selig S1210 airfoil. The use of 3D printed material also resulted in a reduction of cost for the project compared to using Balsa wood, the typical material used. During the course of the project, a design methodology and process has been developed, which will aid future students in designing aircraft.

Tomas Escobar **Mechanical Engineering**

Process Engineering and Composite Materials

Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #259
HIP Student Showcase Submission

The day-to-day responsibilities and duties as a process engineering intern at a composites manufacturing plant will be described. I will walk the viewers thru my problem solving, and design processes. I will also describe how real-world experiences correlate or differ with those acquired in the classroom, as per my perspective.

Isabella Fonseca **Mechanical Engineering**

Recycled 3D Printing

Co-Author(s): Kimberly Vissepo, Lillie Herbert

Faculty Mentor(s): Bradley Regez
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The purpose of this project is to conduct tensile testing on recycled PET, commercial PET, and commercial PETG filaments to compare material properties, such as strength and ductility. For compatibility with the PET and PETG filaments, the recycled filament made by the team last semester was of material with Society of the Plastics Industry (SPI) resin identification code 1. The current tensile testing load frame fixture slips and is prone to produce erroneous results, therefore, a custom fixturing will need to be designed and fabricated for tensile testing of the filament. The custom fixturing for the tensile testing machine will consist of two pulleys held together by brackets and will be no longer than half a foot. The new design is intended to eliminate the slipping issue. Material properties between the recycled PET, commercial PET, and commercial PETG filaments will be compared using both data from last semester and data obtained using the new load frame fixture.

Santos Garcia **Mechanical Engineering**

Submersible Survey Drone

Co-Author(s): Cole Smith, Kyle Harter, Steven Fulton, Ti'erra Carter

Faculty Mentor(s): Yazan Alqudah
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The UWF Submersible Survey Drone Team was established to build a submersible that will provide live feed video to the operator/s at the surface. The goal was to do this in a cost effective and simple manner. This will allow a broader audience to explore bodies of water in a safe manner especially when conditions are hazardous. The team decided to utilize a steel hull for the submersible as it is a sturdy material that will stay rigid, is easily welded, and when painted rust will be prevented. Keeping cost in mind the team purchased a steel 55-gallon drum and cut the pieces needed from there. The cut drum also serves as a testing tank to check the hull for leaks. Being that the submersible will need to provide live feed video to the user. There will need to be mounting points for the cameras and electronics. For these reasons an endoskeleton is being implemented into the build. Constructed of steel bar and aluminum angle the endoskeleton will not only act as mounting points but will also add to the rigidity of the hull. The endoskeleton will also provide the option to add to the submersible in the future. For example, a robotic arm could be mounted to the endoskeleton through the hull. While the focus of the project will be providing a live video feed, the team will do their best to ensure attachments such as an robotic arm can be easily added in the future.

Lillie Herbert **Mechanical Engineering**

3D Printed Materials

Co-Author(s): Kimberly Vissepo, Isabella Fonseca

Faculty Mentor(s): Bradley Regez
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The purpose of this project is to conduct tensile testing on recycled PET, commercial PET, and commercial PETG filaments to compare material properties, such as strength and ductility. For compatibility with the PET and PETG filaments, the recycled filament made by the team last semester was of material with Society of the Plastics Industry (SPI) resin identification code 1. The current tensile testing load frame fixture slips and is prone to produce erroneous results, therefore, a custom fixturing will need to be designed and fabricated for tensile testing of the filament. The custom fixturing for the tensile testing machine will consist of two pulleys held together by brackets and will be no longer than half a foot. The new design is intended to eliminate the slipping issue. Material properties between the recycled PET, commercial PET, and commercial PETG filaments will be compared using both data from last semester and data obtained using the new load frame fixture.

Kaelan Higgins **Mechanical Engineering**

Household Innovations

Co-Author(s): Alex Burns, Matt Hall, Thomas Morgan, Andres Hamilton

Faculty Mentor(s): Christopher Joren
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The goal of this project is to develop a more robust towel rack and mounting system than what is most commonly available through the use of CAD simulation to evaluate and design a few iterations of prototypes. We will use adjustable mounts to allow for stud mounting in any situation. Our towel rack will be inexpensive, and an upgrade from typical towel racks. Over the course of this Spring semester we intend to evaluate a common model of towel rack by simulation and to use this evaluation to guide the design of a newer model. We will predominantly be designing with SolidWorks and AutoCAD, and plan to use this experience as an introduction to these programs for a few of our members.

Emily Keiffer **Mechanical Engineering**

Tech Art

Co-Author(s): Alexis Hughes, Julia Kondrat'yev, Dylan Allmon, Gustavo Beltra, Henry Bonar-Serpas

Faculty Mentor(s): Michael Reynolds
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

Our goal is to merge art with engineering. We are working towards this goal by using engineering programs like Rhino and Solidworks to model our sculptures and to do structural analysis. Our projects consist of the Tensegrity Butterfly which will be held up with static tension underneath it, and the Maverick Surfer which will use electrical and computer engineering. The Butterfly will be placed at the UWF community garden and the Surfer will be placed at Maverick s surf shop. For these projects, it is important to have an understanding of an object in the three-dimensional space for aesthetic and safety purposes. The current aesthetic of the garden and surf shop directed our decision to use corten steel for the butterfly and an old school pose for the surfer s body. For the Butterfly, there will be a middle structure made of corten steel and it will keep most of the tension out of the cables. The three separate cables, however, will attach the butterfly to the ground for structural and appearance purposes (tensegrity). For the Maverick Surfer, the body will be made of high-density polyethylene foam with a fiberglass-epoxy exterior and stand at approximately seven feet tall. It will be constructed using two-inch layers from the bottom upwards. Using cross sectional views, we will have every section prepared to be formed and cut into sections of high-density polyethylene foam that have greater detail.

Isabelle Sallberg **Mechanical Engineering**

2022 UWF NASA Rover Team

Co-Author(s): Juliana Barchie, Cole Bokowski, Ryan Brooks, Tanner Clifton, Jacob Dunne, Bradley Edgar, Jesus Molina, Frankie Muldowney, Israel Reimer

Faculty Mentor(s): Christopher Joren
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

Last year, Mark I, the first NASA Rover completed by UWF that was well documented and recorded on a social media platform, was completed. The rover was not in good condition, and there were several design flaws that warranted the redesign of the entire rover. This year's plan is to successfully design and build a rover to compete in the NASA Rover competition in April. Last semester was dedicated to designing a model of the rover on SolidWorks that could be used as a reference for fabrication, while the plan this semester is to use the model to build the rover in time to qualify for the competition. The plan for this semester is to complete the fabrication of a competition compliant rover using the design created last semester to compete in the NASA Rover competition in April. The rover must fit inside a 5 ft x 5ft x 5ft cube, weigh less than 150 lbs, and carry two drivers successfully through a course that simulates terrain on the moon and Mars (reference HERC handbook 2022 https://www.nasa.gov/sites/default/files/atoms/files/2022_herc_fnl_mh5.pdf). The total cost of all parts for the rover must be less than $2,750.00. Our objectives for Spring 2022 include: Have the chassis fabrication completed and all remaining parts ordered by February 11, 2022. Have the chairs, suspension, steering, drivetrain, and brakes assembled and functioning by March 3rd, 2022. Perform various safety, performance, and ergonomics tests on the rover by April 28, 2022. Compete in the 2022 NASA Rover Competition online.

Cole Stegall **Mechanical Engineering**

UWF Baja SAE Team

Co-Author(s): Andrew Nguyen, Kolby Roy, Jayden Spiess, Railey Conner

Faculty Mentor(s): Christopher Joren
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

This semester s goal is to finish all objectives necessary in completing a fully functional vehicle that will pass technical inspection, allowing the 2022 BAJA team to compete in the events at the 2022 Baja SAE competition. The following deliverables that must be completed to pass technical inspection have been listed below, categorized by their respective sub-groups. Body/Chassis: 1. Finish Chassis (cut, weld, sand, paint) 2. Finish Roll Cage Documentation Package 3. Complete Torsional Rigidity Test Brakes: 1. Reassemble brakes once Suspension and Steering are put back together. 2. Run final testing for brakes. Drivetrain: 1. Complete skid plates 2. Test drivetrain and front CV axles Safety and Ergo: 1. Complete splash guard 2. Assemble seat and harness 3. Assemble headrest 4. Wire kill switch and brake light Suspension/Steering: 1. Reinforce rear trailing arms 2. Purchase and install new radial arms and tie rods 3. Complete new steering column Enterprise 4. Reassemble front suspension Fundraiser: 1. Sell t-shirts for competition. 2. Hold a raffle at Miller s Ale House for money. Other: 1. Business Presentations 2. Test Functionality

Bradley Taylor **Mechanical Engineering**

Skateboard Team

Co-Author(s): M Levy Siverio, Sam Schelling, Schelling Bohler, Aram Porto, Bradley Taylor, Ethan Besmer, Chris Brown, Blake Bullock, Aric Hansen, Owen Reese, Sean Allen Ros, KJ Torres,

Faculty Mentor(s): Amrita Gautam
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

This semester the Skateboard Manufacturing Team aims to conduct more research than past semesters. We plan to accomplish this by delving into the material properties and finding the correlation between this and the strength of our board. After this is done we plan to research the matrix composition of our board. We really want to understand what is doing the majority of the work whether it be the epoxy or the palm fronds itself. Lastly, we want to complete delamination and three point bend tests to see what the board can withstand.

Noah Tucker **Mechanical Engineering**

UWF Solar Car

Co-Author(s): Stephen Barrs, Chris House, Matt Preston, Amir Rabbani, Brenden Perez, Brandon Long, Noah Haller, Kalim Muhammad, Zack Allen, Landon Lee, Stephen Paul, Jeff Philippe, Fadi Edi

Faculty Mentor(s): Cheng Zhang
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

UWF Solar Car Team Scope: The UWF Solar Car Team will compete in the American Solar Challenge in the Summer of 2022. This semester, the team will focus on making sure that the car is competition ready. This will entail installing the solar panels and testing them with the other electrical and drivetrain components, ensuring that the car meets all required safety specifications, slight alteration of rear shock positioning, and continued fundraising for the trip and associated fees. The vehicle must fall under single occupant classification, rely solely on solar radiation for propulsion through commercially available photovoltaic cells, adhere to strict competition size, safety, and design requirements, and include all required lights and signals to be considered legal for road use, as well as implement a communication system between the vehicle and paddock. Visit https://www.americansolarchallenge.org/regulations/2022-american-solar-challenge-regulations/ for more information. Spring 2022 Objectives: Solar Cell Array Design and Construction Complete Installation of Instrument Panel Motor Installation Brake Pedal Design and Construction Vehicle Design Report

Kimberly Vissepo **Mechanical Engineering**

Recycled 3D Printing

Co-Author(s): Lillie Herbert, Isabella Fonseca

Faculty Mentor(s): Bradley Regez
Session: Engineering Showcase
Time: 10:00-12:00
Location: Cannon Green

The purpose of this project is to conduct tensile testing on recycled PET, commercial PET, and commercial PETG filaments to compare material properties, such as strength and ductility. For compatibility with the PET and PETG filaments, the recycled filament made by the team last semester was of material with Society of the Plastics Industry (SPI) resin identification code 1. The current tensile testing load frame fixture slips and is prone to produce erroneous results, therefore, a custom fixturing will need to be designed and fabricated for tensile testing of the filament. The custom fixturing for the tensile testing machine will consist of two pulleys held together by brackets and will be no longer than half a foot. The new design is intended to eliminate the slipping issue. Material properties between the recycled PET, commercial PET, and commercial PETG filaments will be compared using both data from last semester and data obtained using the new load frame fixture.

Chau Vu **Mechanical Engineering**

Thr Pothole Patching

Co-Author(s): Tyler Lafear, Tyler Adams, Darrell Hall, Mark Soha, Daniel Griffin

Faculty Mentor(s): Danita Marcum
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #198

The goal of this project is to deliver an autonomous rover capable of filling potholes using affordable filling material. The material will be a temporary solution until asphalt can be poured into the pothole. The project also features a basic program capable of sending the rover GPS data for the location of a pothole as well as a kill switch to shut off the rover. Automated functions include dispensing and scraping (cleaning) of the filling material to show the autonomy of the rover. The base of the rover is 2'x4'x0.75'. The front stands 6.75" off the ground and the rear stands 9.5" giving 2° tilt. The containers are 16"x3"x9.5" holding 13.1 ounces, the sika foam bag contains 33 ounces. The four batteries are 12V. The GPS has an accuracy between 50 cm and 2.5 m. The threshold for success is to drive around obstacles, fill a 1'x1'x0.5' pothole, and smooth the excess.

PHYSICS

Grant McClatchey **Physics**

Studying Bessel Beam for Laser Spectroscopy

Faculty Mentor(s): Laszlo Ujj
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #260

Bessel beams were presented by, e.g., Jim Durnin[1] as exact solutions of the Scalar-Wave Equation that resulted in beams with nondiffracting properties. The solutions that Durnin found predicted the properties of a zero-order Bessel beam—finding that the wave will have an almost infinite depth of focus and will contain only five percent of its energy within the central maximum. In this experiment, we will be using axicons to produce different order Bessel beams. By focusing a Gaussian beam onto an axicon, a Bessel beam will be formed from the resulting diffraction pattern. The properties of a Bessel beam allow it to maintain a strong focus laterally on the propagation distance and recover its shape if the beam is obstructed. We will measure the shape of the transversal intensity patterns of Bessel beams and their modified diffraction patterns after passing through an optical lens system at various points along the propagation of the beams. Theoretical understanding and experimental realization of the Bessel beams and their diffraction properties are crucial for spectroscopy and optical applications. For example, the ways Bessel beams interact with optical devices and sample materials allows for the properties of materials to be measured without damaging them in the case of high-energy laser pulses used to excite samples. They are also useful for guiding particles on unique trajectories due to their hollow intensity distributions. Durnin, J. (1987). Exact solutions for nondiffracting beams. I. The scalar theory. Journal of the Optical Society of America , 4 (4), 651–654. https://doi.org/10.1364/JOSAA.4.000651

USHA KUNDU, MD COLLEGE OF HEALTH

MOVEMENT SCIENCES & HEALTH

Kym Atwood **Movement Sciences & Health**

Decontextualized Skill-Cueing: Teaching the Overarm Throw To Music With Counts

Faculty Mentor(s): John Todorovich
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #161

The overarm throw is a difficult multi-limb task because the overarm throw requires synchronized dexterity of the entire body. Research has determined that the inability to throw hinders children s participation in physical activities. The dynamic systems theory, which describes the interactions and processes that manipulate development, framed this quantitative study to investigate the effects of overarm throw instruction without a ball accompanied by verbal, directional cueing set to music with counts (decontextualized skill-cueing). A repeated-measures analysis of variance analyzed the process scores of the overarm throw for accuracy across three periods for 78 girls and boys in kindergarten and first and second grades. Data analysis found the main effect comparing the genders was significant, indicating a difference in the process scores between genders across the three periods. Descriptive statistics indicated the means for both sets of participants gradually increased after the pretest through the posttest and the retention test with the highest mean at retention test; yet, the means for the female participants were not as high on any test as were the means for the male participants. The main effect between the control and treatment groups was also significant. Both groups process scores increased over time from pretest to posttest; however, the control group s scores decreased during the retention test, as evidenced by the means and standard deviations. The study upholds the dynamic systems theory constructs that posit the body s multiple physiological components combine to create over-time skill variability in the body relative to the task, individual, and environment.

Minh Khuyen Tran **Movement Sciences & Health**

Virtual Poverty Simulation

Co-Author(s): Morgan Daily, Roe Guzzetta, Victoria Hennick, Brooke Tyree, Emily Wilson

Faculty Mentor(s): Patricia Barrington
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #164

The Poverty Simulation is a 3-hour interactive workshop that breaks down conceptions about poverty by allowing participants to step into real life roles, situations, and challenges that low-income individuals face every day. The simulation is a profoundly moving experience that encourages participants to think about the harsh realities of poverty and to talk about how communities can address the problem. The project for Honors Core 2 Team is to convert the in-person Poverty Simulation to a virtual platform. We are creating online websites and support materials, developing operational instructions, and conducting practice sessions paired with a faculty member. We will showcase their project by inviting and delivering the virtual poverty simulation experience for about 40 of our Honors Core classmates. We are also developing marketing and social media materials. Specific assignment activities include: Take the lead role in an assigned community agency. Develop a task list for the lead and co-lead for their community agency. Train a faculty member to assist with the duties of the agency. Create a webpage on the Poverty Simulation website to include graphics, text, and links. Construct interactive forms. Conduct practice simulations sessions, provide feedback, and revise the process and materials. Design invitations for students to participate in the simulation. Conduct the virtual poverty simulation for Honor Core 2 students. Participate in a debriefing and reflection for the simulation. Develop marketing and social media materials for future poverty simulation workshops.

Amanda McDonald **Movement Sciences & Health**

The Hypertrophic Effects of Lactate on Skeletal Muscle Hypertrophy

Co-Author(s): Case Jackson

Faculty Mentor(s): Youngil Lee
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #162

Muscular atrophy caused by metabolic distress such as diabetes, obesity, and aging leads to adverse health-related outcomes (e.g., frailty, disability, and heart diseases.) Therefore, preventing muscular atrophy and promoting muscular hypertrophy is essential to improve quality of life and reduce healthcare costs. Lactate, a byproduct of carbohydrate catabolism during resistance exercise, has been known to stimulate muscular hypertrophy through increasing anabolic factors such as growth hormone and testosterone. Moreover, new evidence has emerged that lactate per se contributes to muscular hypertrophy; however, its molecular mechanisms remain poorly understood. The purpose of this study was to examine the molecular signaling nexus of hypertrophy in response to lactate treatment, using a cell culture model. The cells were cultured on collagen-coated culture dishes supplemented with 10% fetal bovine serum, 100 U/ml of penicillin, and 100 mg/ml of streptomycin and divided into three groups: (1) Control (2) Experimental, and (3) Experimental. Upon reaching 80% confluence, the cells were differentiated in a differentiation medium containing 2% heat-inactivated horse serum and 10 mM or 15 mM sodium lactate to mimic a moderate and high-intensity resistance training- induced lactate upsurge, respectively, for three days until they become fully mature myotubes. Our results showed that lactate treatment did not modulate anabolic signaling pathways, intriguingly, however, it interferes in protein degradation signaling and activates satellite cells. In summary, our study suggests that lactate alone may not directly enhance protein synthesis, but instead it mitigates protein degradation and promotes satellite cell activation.

Luisa Montano Santoyo **Movement Sciences & Health**

The Effect of a Pharmacological Exercise Mimetic on Metabolic Distress-induced Cardiac Myocyte Dysfunction

Faculty Mentor(s): Youngil Lee
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #163

Introduction: Regular endurance exercise (EXE) has been demonstrated to confer cardioprotection against metabolic disorders. However, its molecular mechanisms are poorly understood. Purpose: To examine if EXE-induced cardioprotection against metabolic distress is associated with improved lipid catabolism, autophagy, and mitochondrial biogenesis, using a cell culture model of metabolic distress (e.g., palmitic acids) and EXE (e.g., pharmacological EXE mimetics AICAR). Methods: Left ventricular myotubes (rats) were divided into six groups: control (CON, n=4); exercise mimetics (AICAR, n = 4), 30uM palmitic acid (PA30, n = 4), 70uM palmitic acid (PA70, n = 4), PA30+AICAR, and PA70+AICAR group. The myotubes were treated with palmitate for 24 hours, followed by 16 hours of AICAR (100uM) treatment. Then, Western blot analysis was used to examine fat oxidation-related proteins (AMPK, CPT1B, and mitochondrial OXPHOS) and autophagy proteins (mTOR, ULK1, LC3-I/II, and p62). Results: AICAR+PA 30 group improved activation of fat metabolism compared to the PA only groups (PA30 and PA70). AICAR group significantly upregulated mitochondrial fatty acid transporter CPT1B levels compared to other groups except the PA 30+AICAR group. Besides, PA30 significantly reduced autophagy compared to the CON and AICAR group; however, PA30+AICAR treatment restored its levels comparable to the CON group. No significant changes were observed in p62, mTOR, and mitochondrial OXPHOS compared to the CON group. Conclusion: Exercise mimetics increased activation of fat catabolism and restored autophagy against fatty acid administration, suggesting that EXE-induced cardiac protection against hypercaloric diet (i.e., high-fat diet) may stem from improved metabolic and autophagic modulations.

SCHOOL OF NURSING

Leah Delac **Nursing**

Adapted Dance to Improve Physical Function and Agitation in Assisted Living Residents with Dementia

Co-Author(s): Grace Johnson

Faculty Mentor(s): Crystal Bennett
Session: Main Oral Presenters
Presentation Time: 11:30
Session Time: 10:30-12:00
Location: Auditorium

Persons living with dementia commonly experience altered physical function and agitation contributing to poor quality of life. More than 50% of assisted living residents have dementia and need to engage in social stimulating activities. Dance involves social interaction and can be adapted to meet the needs of individuals with differing cognitive and physical abilities. The purpose of this pilot study was to evaluate the effects of adapted dance on agitation and physical function in assisted living residents with dementia from baseline to 12 weeks compared to those who did not receive the intervention. An experimental design was used with randomly assigned assisted living residents to either a 12-week adapted dance or social stimulation group. The convenience sample consisted of 6 participants, ages ranging 65-90. The adapted dance used simple line dancing movements. The adapted dance class was 60 minutes twice a week for 12 weeks. At baseline and 12 weeks, measures of balance, usual gait speed, and agitation were completed. From baseline to posttest, the dance group had greater increased times for maintaining semi-tandem balance (+30%) and faster times for usual gait speed (+19%); compared with the social stimulation group semi-tandem balance (+0.2%) and usual gait speed times (+0.2%). The dance group had lower agitation scores from baseline to posttest (-30%), while the social stimulation group had no change. The small sample size limits generalizability. These findings support the need for continued research on the effectiveness of dance to improve physical function and agitation in persons living with dementia.

Jill Van Der Like **Nursing**

Cultivating a Culture of Competency-Based Education and Enhanced Clinical Judgment through Innovative Teaching Strategies

Co-Author(s): Jake Bush, Tina Taylor, Jennifer Richter, Lindsay Jusino

Session: Faculty HIP Showcase

Time: 1:00-2:00
Location: Conf Center A&B (poster # 20)
This project promotes HIP through interprofessional collaboration with the development of healthcare simulations that focus on cultural competemility i.e., cultural humility within the five components of cultural competence: cultural awareness (through an implicit bias Canvas module), cultural knowledge (with a LGBTQIA+ sim), cultural skill (through a Situation Awareness lecture), cultural encounter (with an ageism sim), and cultural desire (with a social justice sim). Through this practice, students will develop enhanced diversity, equity and inclusion skills that can be transferred from the classroom to clinical practice settings.

Jill Van Der Like **Nursing**
Cultivating a Culture of Competency-Based Education and Enhanced Clinical Judgment through Innovative Teaching Strategies
Co-Author(s): Jake Bush, Tina Taylor, Jennifer Richter, Lindsay Jusino
Session: Faculty HIP Showcase
Time: 10:00-10:15
Location: Virtual
This project promotes HIP through interprofessional collaboration with the development of healthcare simulations that focus on cultural competemility i.e., cultural humility within the five components of cultural competence: cultural awareness (through an implicit bias Canvas module), cultural knowledge (with a LGBTQIA+ sim), cultural skill (through a Situation Awareness lecture), cultural encounter (with an ageism sim), and cultural desire (with a social justice sim). Through this practice, students will develop enhanced diversity, equity and inclusion skills that can be transferred from the classroom to clinical practice settings.

Kalyn Kelso **Nursing**
A Concept Analysis of Trauma-Informed Care in Nursing Practice and Education
Co-Author(s): Daniella Dous
Faculty Mentor(s): Angela Blackburn
Session: Main Poster Session
Time: 11:00-12:00
Location: Virtual Space - Poster #166
The term trauma-informed care has been used frequently in nursing practice and literature, despite not having a universal definition. This concept analysis aims to explain the definition, defining attributes, antecedents, and consequences of trauma-informed care in nursing practice and education. The authors reviewed the existing literature surrounding the concept of 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 'trauma-informed care' in nursing were applied during the literature review phase of this concept analysis. This concept analysis uses the framework proposed by Walker and Avant for analyzing the concept using existing literature to establish clarity and consensus. The authors will share the concepts' attributes, antecedents, and consequences as supported by the literature and provide a case illustrating the concept. The findings of this analysis contribute to the present knowledge of this widely used concept and help nursing faculty and students incorporate this concept into education and practice to improve patient and student care. The current research continues the previous literature review on trauma-informed care in nursing. The researchers summarized their findings and applied this data in the concept analysis.

Kelci Malloy **Nursing**
Prenatal Blood Pressure Monitoring: A qualitative study identifying barriers encountered during the COVID-19 Pandemic
Faculty Mentor(s): Cynthia Smith-Peters
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #167
Hypertensive disorders occur in 10% of all pregnancies in the U.S., and may develop as early as 20 weeks prepartum or as late as 12 weeks postpartum. Although hypertensive disorders increase the risks for poor maternal and fetal outcomes, self-blood pressure monitoring may reduce the risk for complications. This study aimed to identify barriers participants faced to the self-monitoring program over a period of ten weeks. The qualitative study sought data regarding the participants' perceptions before, during, and after the period of self-monitoring. The study recruited women 18 years and older, between 5 and 40 weeks of pregnancy, with a family history of hypertension, hypertension diagnosis, or pregnancy at risk for complications. Participants received literature and instructions from a registered nurse on accurate blood pressure monitoring. Community partners found the program to be beneficial. Most women declined participation, denying the need for regular blood pressure monitoring. One significant barrier to recruitment was the COVID-19 pandemic, which stopped at-home visits where nurses had one-on-one contact to address the importance of blood pressure monitoring during pregnancy. Additional barriers for participants included transportation, internet access, and cell phone availability. Participants also cited not having enough time and being too busy to take their blood pressure. The data concluded that restrictions regarding personal contact during the pandemic, without workaround strategies, may have increased health disparities. This study indicated in-person nursing visits may benefit prenatal health management. Further research is needed to determine effects of the pandemic on socioeconomically disadvantaged pregnant women.

Ashlee Nigro **Nursing**
The Relationship Between Pain and Distress: Complementary, Mutually Exclusive, or Non- Associated?
Faculty Mentor(s): Jack Giddens
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #165
As healthcare seeks higher quality health outcomes, emphasis on treating the whole patient, which includes both physical and metaphysical dimensions, has become paramount. The relationship between pain and distress is often assumed to be positively correlated. If a patient is experiencing high pain levels, distress levels are assumed to be high. However, key questions about the relationship between pain and distress include whether a high distress level always correlates to high pain level and whether it is possible for a patient to experience a high state of distress but not a corresponding high state of pain. These questions

serve to understand whether high distress level can be distinctive from high pain level, furthering the knowledge in healthcare of the relationship between pain and distress. This information is valuable in decreasing the number of opioid prescriptions written by physicians without determining the true root of the pain. The United States faces an opioid crisis where too many patients have been prescribed too many opioids and are now dependent upon them. If the patient s pain stems from metaphysical causes, then an opioid treatment plan may not be the most beneficial course of action. Findings from this study support a looser association between the concept of pain and distress than frequently assumed. Implications of the study emphasize the importance of holistic care in maximizing patient outcome and offering alternatives to opioid prescriptions.

PSYCHOLOGY

Mikaela Aiken **Psychology**

Student Perceptions of Workforce Readiness

Faculty Mentor(s): April Schantz
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #176

Our research seeks to evaluate the psychology capstone courses and their contributions to the workforce readiness of graduating undergraduate students. Our primary goal is to discover if involvement in an internship-based capstone course, which is seen as a high-impact practice, impacts students perceptions of their workforce readiness. Our secondary goal is to determine if there are significant differences in perceptions of workforce readiness when compared to students who complete a thematic capstone course. Our participants will be junior and senior undergraduate students in the psychology program, who will be asked to participate through UWF's psychology research pool. Participants will take a total of three surveys; before they enroll in a capstone, at the beginning of capstone, and at the end of their capstone experience. The survey will help us assess students' perceptions of workforce readiness throughout the semester. We expect that students who are involved in a high-impact practice, like the internship capstone, will report higher ratings of workforce readiness when compared to thematic capstone students. Potential alternative explanations for students perceptions of workforce readiness include job experience, high achievement, leadership training, and volunteer experience. Currently, the project is under IRB review with data collection to begin in April 2022. Future intentions for the study are to observe any changes occurring over time and to assess the effectiveness of the internship capstone.

Mikaela Aiken **Psychology**

Personality Traits of COVID-19 Compliance

Faculty Mentor(s): Steven Kass
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #172

A very relevant topic of research in 2020 is the COVID-19 pandemic, as it has affected mankind on a global scale. When it comes to voluntary compliance to COVID-19 restrictions, several variables are strong influencers in an individual's decision to engage in mitigating behaviors. These variables include the belief in conspiracies, personality and perception, and religiosity. Many, if not all, of the research conducted on these variables, was done toward the beginning of the pandemic (March-June 2020). These variables require further research now that it has been nearly a year since COVID-19 began impacting the world in order to understand how these variables have impacted compliance over time. This study aims to determine what variables are associated with voluntary compliance to COVID-19 restrictions. Based on the research already conducted on this topic, it is expected that the largest impacting factors on compliance will be belief in conspiracy, perception of government suppression of religious freedoms, and personality traits; specifically conscientiousness and neuroticism of the Big Five, as well as narcissism and locus of control. Participants will be recruited via UWF's PRP, where a survey will be utilized to assess the impacting factors listed above.

Lanae Arena **Psychology**

Why do students despise group work? What students want faculty to know

Faculty Mentor(s): April Schantz
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #171

Though many professors acknowledge the importance of skills required in teamwork, they operate under the "comfortable delusion" that merely assigning group projects will teach teamwork skills (Halonen & Dunn, 2021). Many students grumble and sigh when required to perform a group assignment - endearingly termed "grouphate" (Burke, 2011; Halonen & Dunn, 2021). Why is this and what can professors do to mediate these effects? Undergraduate UWF students provided their open responses of group work perceptions as part of a larger research study. Three themes emerged in students' suggestions for improvement: communication, fairness, and autonomy. These themes are consistent with Chickering and Gamson's (1987) seven principles of good practice, which include quality of student-faculty interactions, reciprocity among members, and communication of high expectations. Specific suggestions linked between student perceptions and the literature review will be outlined. This presentation aims to give a voice to students' desires for group work improvement in how professors can flip the student narrative.

Toni Bellino **Psychology**

Investigating the Interaction between Socioeconomic Status and Children's Language Development Through the Home Environment

Faculty Mentor(s): Vanessa Rainey
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #183

Numerous studies have been conducted that show a correlation between socioeconomic status and language development in young children. Research has shown that children residing in lower socioeconomic status households tend to hear fewer words from their caretakers and receive less quality language input than their middle- and high-socioeconomic status peers. Because of this, our study was conducted to investigate how indirect mechanisms such as parental structure, learning opportunities, and acceptance in the home might

be affecting the relationship between socioeconomic status and language development in children. From an ongoing, longitudinal project, Project M.E.D.I.A., we were able to examine and compare families' socioeconomic status to these indirect mechanisms and see how these variables may be affecting language development (n=269). Socioeconomic status was observed through a composite variable created using the average income level and both parents' education levels across all three waves. To measure the quality of the home environment, the investigators used the Infant Toddler Home Observation for Measurement of the Environment (IT-HOME; Caldwell & Bradley, 1984). The language environment and vocal productivity in the home were assessed through the use of the Language Environment Analysis System (LENA Research Foundation, 2012). Preliminary results indicate that the relationship between socioeconomic status and language development is mediated through the environment created in the home with parental behaviors such as acceptance and responsivity. This research sheds more light on the mechanisms that affect language development, which can help with targeted interventions in lower socioeconomic groups.

Emily Bowers **Psychology**

Developing Health Care Scenarios for Situation Awareness Training

Faculty Mentor(s): Steven Kass
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #181

The role of human factors is critical for reducing clinical error in health care environments. This project specifically addresses error prevention through improving the healthcare professional s situation awareness (SA). Good SA is necessary in order to ensure that health care professionals gather all relevant information from their environment, understand what this information means, and anticipate future health status of patients. Recent research has focused on improving SA in nurses by using simulation scenarios provided through a convenient mobile device training application known as MEDUSA (Kass et al., 2020). In the process of developing the MEDUSA (Mobile Environment for Developing User Situation Awareness), realistic health care scenarios are needed to test the usability of the application, as well as its effectiveness for improving SA in nurses. Each scenario will consist of different patient profiles, different illnesses, and assess SA through assessment questions that will address each level of SA (e.g., perception, comprehension, projection). The user of the application will first be provided with a background story of a patient. Various tools within the application are utilized to understand the patient s condition based on patient-family cues (e.g., asking the patient questions, auditory signals), checking vital signs, and symptomology. The processes taken in order to design the current scenarios required reading and reviewing previous clinical case studies, personal interviews with nurses and nursing faculty, and reviewing clinical-specific literature. A total of three to four scenarios will be presented to use for future testing of the MEDUSA application.

Olivia Cutshaw **Psychology**

Temperamental Negative Affectivity as a Moderator of the Association Between Positive Parenting and Child Problem Behavior

Co-Author(s): Norma Guillen
Faculty Mentor(s): Kimberly Day
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #179

Temperament has been described as enduring differences in an individual s reactivity and self-regulation and encompasses negative affectivity, or negative emotions and self-concept (Watson & Clark, 1984). Negative affectivity has been linked to child problem behaviors, including internalizing (i.e., anxious, withdrawn) and externalizing (i.e., hyperactive, aggressive) behaviors (Eisenberg, 2001). Positive parenting describes strategies aimed at avoiding and reducing instances of problem behavior, and consists of setting limits, proactive parenting, and supporting positive behavior (McEachern et al., 2012). As positive parenting has been found to be associated with negative affectivity and externalizing behavior, the present study aimed to investigate children s negative affectivity as a moderator of the association between positive parenting and child problem behavior (Karreman et al., 2009). We expect that the negative association between positive parenting and problem behavior will be stronger for children high in negative affectivity than for children low in negative affectivity, as children who are low in negative affectivity may benefit less from positive parenting because they are already at a lower risk of problem behavior. Participants were 73 mothers of 3-to-5-year-old preschoolers who completed a Qualtrics survey. Participants completed questionnaires reporting on their child s negative affectivity (Putnam & Rothbart, 2006) and problem behaviors (Achenbach & Rescorla, 2001), and their own positive parenting (McEachern et al., 2011). A moderation analysis will be conducted in SPSS. If the model is statistically significant, it would highlight the importance of positive parental strategies for children who may be at risk for problem behavior due to temperamental factors.

Olivia Cutshaw **Psychology**

Secondary Traumatic Stress Symptoms in Individuals Who Work With Survivors of Human Trafficking

Co-Author(s): Veida Byers
Faculty Mentor(s): Erin King
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #178

Secondary traumatic stress is defined as the natural and consequential behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant other [or client] and the stress resulting from helping or wanting to help a traumatized or suffering person [or client] (Figley, 1995, p. 21). These symptoms include those that are commonly present in Post-Traumatic Stress Disorder (PTSD); specifically, intrusion, arousal, and avoidance symptoms (Newell & MacNeil, 2010). This condition is common in practitioners who work with children and adults who have endured sexual violence or abuse (Chouliara, Hutchison, & Karatzias, 2009). Those who have survived human trafficking often experience multiple forms of intense trauma, including but not limited to physical torture, physical and mental abuse, rape, and forced abortion. As such, individuals who work with these survivors may be distinctly and increasingly vulnerable to developing secondary traumatic stress. The current study aims to investigate how working with survivors of human trafficking impacts workers

mental health, with a primary focus on secondary traumatic stress symptoms and coping methods. Participants will include those who work with trafficking survivors in a variety of settings, such as counseling, therapy, education, and recreation. This study will use a phenomenological qualitative approach. Thematic analysis will be used to examine common themes in the experiences of workers. Applications for these findings and future research will be discussed.

Alexa Damiani-Smith **Psychology**

Pump, Pump, My Attitude UP: An intervention for early feeling identification and self-regulation in Preschoolers

Co-Author(s): TeErika Ware, D'iavian Williams

Faculty Mentor(s): Vanessa Rainey
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #177

This intervention was created for use in the preschool classroom to assist the early learners in feeling identification, emotional regulation, self-regulation, and developing healthy emotional responses and coping mechanisms. The preschooler would have a paper taped to their desk that has the student s name, a three-color indicator (green, yellow, and red), 3 sentences that are completed at the start of the day as part of introduction of the day, and a baggie stapled to it with the feelings that the child has available to choose from when completing their sentences. The sentences identify how the child is feelings TODAY, how they hope to feel LATER, and where they plan to be in regard to feelings TOMORROW. By establishing feeling definitions beyond the current moment, it creates expectations that may or may not be met, and help children cope early on with resilience and adapting when things don t always go to plan. The intervention itself involves the display board having an indicator if the child is Yellow the child MIGHT need a break; if the child is Red then the child KNOWS they need a break, and if the indicator is Green the child does not believe they need a break and are feeling well and good for the day. The classroom would be equipped with an isolated corner used for breaks by one student at a time, where they have free-range to choose the coping mechanism of their choice to unload and decompress from whatever the day has brought them.

Sam Dickey **Psychology**

Research and Practice of Canine Emotional Health: Perspectives from Dog Training Professionals

Faculty Mentor(s): April Schantz
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #173

Do our canine best friends have emotions similar to our own? With the popularity of dogs as human companions, there has been the long awaited question regarding their emotional capacity. If dogs do have emotional capacity, shouldn t we strive to give our furry friends the most positive experiences possible? This project is about how the methods of dog training affect canine emotional health, specifically, how positive training methods have a beneficial effect on canine well-being. A literature review articulating the history of the emotional capability of dogs based on the current literature was conducted along with interviews from professional dog trainers. To systematically evaluate our question, current research was synthesized with knowledge from professionals in the dog training field. Interview items focused on professionals method of training and their personal experience with canine emotional health. Positive implications from this study can impact canine health, training, and person-canine relationships, such as by veterinarians in cooperative care, by professional trainers to determine effective training methods, and enabling dog owners to strengthen their bonds with their canine companions.

Norma Guillen **Psychology**

Associations of Parental Stress and Home Chaos with Externalizing Behavior

Co-Author(s): Olivia Cutshaw

Faculty Mentor(s): Kimberly Day
Session: Main Poster Session
Time: 2:00-3:00
Location: Virtual Space - Poster #180

Problem behavior in children has been categorized as either internalizing or externalizing (Achenbach & Rescorla, 2001). Externalizing behavior can be described as outward problem behavior, such as aggressive or rule-breaking behavior, and has been found to be associated with adversity in children's environments (Flouri & Midouhas, 2017). Home chaos has been found to be associated with externalizing problems, including aggression and anger, across families from diverse backgrounds (Dumas et al., 2005; Hardaway et al, 2001). The present study aims to examine the associations between home chaos, parenting stress, and child externalizing behavior. Mothers of preschool-aged children between the ages of 3 and 5 living in the United States were recruited to complete an online survey study. Mothers were compensated with a ten-dollar gift card for their participation. The survey included standardized questionnaires measuring environment, parent stress, and child behavior. The home environment was measured using the Confusion, Hubbub, and Order Scale (Matheny et al., 1995). Parent stress was measured using the Parenting Stress Index-4 (Abidin, 1995). The Child Behavior Checklist was used to measure externalizing behavior (Achenbach & Rescorla, 2001). We expect that higher levels of maternal stress will be positively associated with child externalizing behaviors. Similarly, we expect mothers reporting greater home chaos will also report higher levels of child externalizing behaviors. A bivariate correlation analysis will be run in SPSS. If our hypotheses are supported by the data, it would further highlight the importance of parenting and environment when investigating children's problem behaviors.

Jade Halfacre **Psychology**

Impacts of Secondary Traumatic Exposure on Social Workers

Co-Author(s): Shanequea Harris

Faculty Mentor(s): April Schantz
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #174

Secondary trauma describes the negative impact of bonding with a trauma

survivor and exposure to the survivor s traumatic encounters (Pearlman & Saakvitne, 1995). Secondary Traumatic Stress (STS) occurs in professionals as a reaction to the exposure of trauma through a survivor s story. Social workers are among the many types of responders exposed to traumatic events in the workplace. In order to understand a client s trauma, Social Workers often incorporate the survivor s feelings and experiences in an attempt to empathize with them. In recent revisions of the DSM-5, it has been made clear that repeated exposure to traumatic events through the course of a professional s duties is very similar to how primary traumatic events (e.g., PTSD, Post-Traumatic Stress Disorder) impact individuals. In order to present a topic of research to the Student Scholar Symposium that is relevant to my career field of Social Work, this paper and poster explores how coping strategies for primary trauma can be used in helping secondary trauma exposure and may contribute to professional well being.

Morgan Kelley **Psychology**

Relationship Between Student Achievement and Study Strategies in Online and Traditional Classes

Faculty Mentor(s): Lisa Blalock
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #175

While prior research has examined the metacognitive strategies used by successful students (Hartwig & Dunlosky, 2012; Kornell & Bjork, 2007), comparatively less is known about strategies used in online courses. We set out to replicate prior results from Hartwig and Dunlosky while adding additional questions related to online learning. We were specifically interested in strategy differences between high-achieving and low-achieving students. What habits are high-achieving students adopting that low-achieving students are not? How are students study habits and environments in online classrooms different from those in traditional classes? To examine this, we replicated a 12-question survey created by Hartwig and Dunlosky (2012) and added 16 novel items related to online learning and engagement. We hypothesized that students with higher GPAs would be more likely to engage in self-testing, spacing, and optimal scheduling strategies. We also hypothesized that students with higher GPAs would show better engagement in online courses (e.g., viewing instructor feedback and course content). Our data replicated the findings of Hartwig & Dunlosky (2012), with higher GPA students engaging in more effective study strategies such as self-testing. Among our novel items, we found students with higher GPAs were more likely to have better engagement in online courses by watching lectures and reading chapters as well as viewing instructor feedback regardless of their grade. Our results provide information on how and why students choose to study for their online classes. We hope educators can use these data to recommend better study strategies for their online and face-to-face students.

Erica Kim **Psychology**

OUR Experience WORKing on Quantifying Early Signs of Cognitive Impairment

Co-Author(s): Michael Polazzo

Faculty Mentor(s): James Arruda
Session: Main Oral Presenters
Presentation Time: 11:00
Session Time: 10:30-12:00
Location: Auditorium

The OUR Works! program allows students the opportunity to research and develop professionally on campus with the assistance of a faculty mentor during an awarded timeframe. This experience has allowed students from external departments to gain high impact experiences while conducting psychological and/or other forms of research. Such experiences then become the foundation for students to further prepare themselves for graduate programs in one or more scientific fields. Under the guidance of Dr. James Arruda, students are able to combine their varied skills to work towards the shared goals of better understanding the early identification of Alzheimer's dementia. In Dr. Arruda's lab research explores the brain's response to strobe flashes while measuring the flash visual evoked potential P2 (FVEP-P2). The response of the FVEP-P2 has been demonstrated to be correlated to degradations observed in the cholinergic system of those experiencing either amnestic mild cognitive impairment (aMCI) or AD—a hallmark finding. Finally, the aforementioned research opportunity has provided students with experiences related to the pitfalls of collaborating with non-academic entities, including biotech companies, and the skills to conduct electroencephalographic research within the neurocognitive domain, including electrode placement and literature reviews. This opportunity will continue to improve students' skill sets as the team ventures further into the analysis of quantitative data and their interpretation.

Amanda Morgan **Psychology**

Operation BRAVE

Co-Author(s): Amber Riley, Sam Wilkes

Faculty Mentor(s): Vanessa Rainey
Session: Main Oral Presenters
Presentation Time: 10:45
Session Time: 10:30-12:00
Location: Auditorium

The purpose of this intervention is to create a way for parents and preschool-aged children to bridge that disconnect that occurs on deployment. Deployments can leave damaging emotional effects on the children of military families. This may apply especially to preschoolers, who may not understand why their parent has left. Relationships in their environment can affect the children s understanding of the world, which can be best explained through Bronfenbrenner s Ecological Systems Theory. Parents are usually in their children s microsystem, which is relationships that have direct contact with the child on a daily basis. However, when parents have to leave to go on deployments for an extended amount of time, they become a part of their exosystem. The current intervention will act as a resource, in the form of an activity book, that can help develop the understanding of deployment and the emotions that are associated with it. This book includes preschool-age activities that can connect the child to the parent, such as crafts to send to them. In return, the book will allow the deployed parent to be involved as well through letters sent back. This also allows the parent at home to help explain where their other parent is, and build on the understanding that they won't be gone forever.

Landon Nelson **Psychology**

My First Year Research Experience: A Full Review

Faculty Mentor(s): April Schantz
Session: Main Poster Session
Time: 9:00-10:00
Location: Virtual Space - Poster #182

At the beginning of the school year I enrolled in the Office of Undergraduate Research First Year Research Experience (FYRE) program to gain experience in the real-world applications of the psychology major. My research mentor is Dr. Schantz, who runs the Occupational Health and Stress Lab, and this project is a reflection on my participation in the lab as it pertains to my future in psychology. The breadth of my experiences is evaluated to determine if skills learned in the lab relate to those used in my prospective career path in cognitive psychology research. The Describe, Examine and Articulate Learning (DEAL) model of reflection (Ash et al., 2009) was used to organize this review. Within this model, an experience is objectively described, then examined with regard to the goals of the experience, and finally the lessons of the experience are analyzed and the reflector makes a plan for future learning or expression of what was learned. A review of my lab activities suggests that the high amounts of data collection and management, utilization of statistics softwares, and general lab maintenance conducted are also prominently featured in my prospective career paths. My experiences in the Occupational Health and Stress Lab provide a foundation to my future endeavors. In the short term, I expect my experience to lead me to a lab on campus more suited to my specific interest in cognition. Acquired abilities will aid my performance in future lab experiences and provide a stepping stone into my long term career.

Noelle Richardson **Psychology**

Connect: Connecting the Parents' Piece of the Puzzle

Co-Author(s): Vivian Walsh, Alee Gilley

Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #170
HIP Student Showcase Submission

One major issue in the field of ABA, especially with younger children, is the lack of parent involvement. A lot of times this is due to lack of time or lack of training. Parents are required to have training a certain number of times throughout the month, but parents tend to get busy and not implement the training at home. Generalizing is an important part of ABA, which mean being able to do the skill across multiple settings and with multiple people. To provide a solution to this problem, we propose an app called "Connect." This app will provide a place for parents to see their child's treatment plan and current goals. We will provide a video model of how to implement these goals in the home, as well as a place for parents to access session debriefs and communicate with their child's treatment team.

Amber Riley **Psychology**

Operation BRAVE: Building Relationships And Validating Emotions

Co-Author(s): Amanda Morgan, Sam Wilkes

Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #169
HIP Student Showcase Submission

The purpose of this intervention is to create a way for parents and preschool-aged children to bridge that disconnect that occurs on deployment. Deployments can leave damaging emotional effects on the children of military families. This may apply especially to preschoolers, who may not understand why their parent has left. Relationships in their environment can affect the children's understanding of the world, which can be best explained through Bronfenbrenner's Ecological Systems Theory. Parents are usually in their children's microsystem, which is relationships that have direct contact with the child on a daily basis. However, when parents have to leave to go on deployments for an extended amount of time, they become a part of their exosystem. The current intervention will act as a resource, in the form of an activity book, that can help develop the understanding of deployment and the emotions that are associated with it. This book includes preschool-age activities that can connect the child to the parent, such as crafts to send to them. In return, the book will allow the deployed parent to be involved as well through letters sent back. This also allows the parent at home to help explain where their other parent is, and build on the understanding that they won't be gone forever.

Stephanie Rinehart **Psychology**

Art Therapy: Effective Treatment or Pseudoscience?

Faculty Mentor(s): Jane Halonen
Session: Main Oral Presenters
Presentation Time: 10:30
Session Time: 10:30-12:00
Location: Auditorium

Abstract Art therapy is an approach to psychotherapy that uses expressive arts in conjunction with applied psychological theory to support clients through treatment goals (American Art Therapy Association, 2017). Preliminary research suggests that art therapy is an effective tool for improving mental well-being and awareness. However, a failure to communicate empirical evidence of the effectiveness of the discipline may taint art therapy's reputation within the scientific psychological community (Reynolds et al., 2000). For the practice to become popularized as a valid mental health treatment in psychology, there is a need for further research on art therapy, greater attention to defining what art therapy is, and better communication about art therapy. This literature review analyzes the current scholarship regarding art therapy efficacy. The goals of this review are to evaluate the validity of art therapy as a treatment, identify the factors influencing its public perception, and propose what needs to be done to improve its reputation and impact. References American Art Therapy Association. (2017). About art therapy. https://arttherapy.org/about-art-therapy/ Reynolds, M., Nabors, L., & Quinlan, A. (2000). The effectiveness of art therapy: Does it work? Art Therapy 17 (3), 207-213. https://doi.org/10.1080/07421656.2000.10129706

Vivian Walsh **Psychology**

Connect: Connecting the parents' piece of the puzzle

Faculty Mentor(s): Vanessa Rainey
Session: Main Oral Presenters
Presentation Time: 11:15

Session Time: 10:30-12:00
Location: Auditorium
One major issue in the field of Applied Behavior Analysis (ABA), especially with younger children, is the lack of parent involvement. A lot of times this is due to lack of time or lack of training. Parents are required to recieve training a certain number of times throughout the month, but parents tend to get busy and not implement the training at home. Generalizing is an important part of ABA, which means being able to do the skill across multiple settings and with multiple people. To provide a solution to this problem, we propose an app called Connect. This app will provide a place for parents to see their child s treatment plan and current goals. We will provide a video model of how to implement these goals in the home, as well as a place for parents to access session debriefs and communicate with their child s treatment team.

Jenae Burkart **Psychology**
The Homelessness Project
Session: Faculty HIP Showcase
Time: 10:15-10:30
Location: Virtual
In my PSY2023 Professional Development in Psychology course, my face-to-face and online students are required to utilize library resources, conduct a literature review, and work in groups. During the Fall 2021 semester, I worked closely with Pathways for Change, a Pensacola non-profit organization that works to provide services for the homeless. I tied my assignments in the course to the psychology of homelessness. Students were required to explore careers in psychology and research how those careers can be applied to their community. By the end of the semester, students completed six group literature reviews and researched homelessness services so that they could provide them to the Homelessness Task Force for the City of Pensacola. I was also able to explore collaborative assignments, service learning, and undergraduate research in hybrid and fully online classes. The experience was especially helpful in determining best practices for future hybrid group research work.

OTHER PROGRAMS

KUGELMAN HONORS PROGRAM

Maggie Brown **Kugelman Honors Program**
Oath Keepers Influence in the Gulf Coast
Co-Author(s): Jorge Acosta-Arreguin, Ty Faist, Emily Miller, Ariauna Range, Gennessee Reaves, Alex Tullis
Faculty Mentor(s): Donovan Chau
Session: Main Oral Presenters
Presentation Time: 1:00
Session Time: 12:30-1:15
Location: Auditorium
Since the 6 January 2021 attacks on the U.S. Capitol building, domestic violent extremist (DVE) groups have gained the American public's attention as well as that of U.S. intelligence and law enforcement organizations. This applied research project conducted in-depth research into one DVE group in the Gulf Coast region (from the LA-MS border through the FL Panhandle), in particular, the Oath Keepers. Both qualitative and quantitative approaches were used to identify and understand this group's motivations, intentions, and capabilities. In addition, applied research was conducted to understand the group's usage of information and communications technologies, especially via social media platforms. This project built upon research conducted previously by a team of UWF undergraduate and graduate students. This research addressed three major areas of research: First, it examined the origins of the Oath Keepers, including the social, political, and cultural context of its foundation as well as its evolution. Secondly, we looked at the founding members, leaders, important figures, and the prominent individuals involved with the January 6 insurrection. Thirdly, we investigated the social media presence of the Oath Keepers, specifically how they communicate with each other and how they spread their ideas to others in efforts to recruit more members. The overarching question of this research project was: Why do the Oath Keepers have a noticeable presence in the Gulf Coast area? Our PowerPoint presentation will be given by members of Honors Core 2 that conducted the research.

Kugelman Honors Program
Plagues, Pandemics, and Peoples
Co-Author(s): Katherine Berta, Maggie Boman, Isabella Cameron, Gaige McMillian, Elyse Rose, Elizabeth Royappa, Alexa Schlobohm
Faculty Mentor(s): Meredith Martin
Session: Faculty-led Special Sessions
Time: 2:00-3:00
Location: Great Hall
Digital story-telling project including recorded student "stories" and a live student discussion panel

Dixie Lauderdale **Kugelman Honors Program**
The Biology of Shipwrecks: Identification of Species Found on the Emanuel Point Shipwrecks
Faculty Mentor(s): John Bratten
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #262
The ocean depths are home to the largest collection of objects from maritime history. These objects can be unintentionally or intentionally placed to create thriving marine communities. These communities, termed artificial reefs, pose a unique opportunity to understand the formation of reefs and the organisms that call them home. Shipwrecks are the most common form of artificial reefs. Historical shipwrecks such as those that were sunk through natural disasters, war,

and scuttling are among the least studied sites in terms of biological data from artificial reefs, yet they are a marine environment that cannot be neglected in the biological community. This study aimed to identify and inventory biological specimens found on the shipwreck sites of two of the three ships associated with Trist n de Luna s 1559 colonization fleet found off Emanuel Point in 1996, 2006, and 2016. Samples were taken during the fall of 2021. Previously collected dried samples were also studied and identified as closely as possible to their specific taxonomy using species identification guides and dichotomous keys. While most of the species identified were invertebrates, the most interesting of the species found were of the Phylum Bryozoa. These small invertebrates are considered to be primary reef constructors and can even be used in future research to determine the biological history of the shipwreck. This is the first study to taxonomically identify species on the Emanuel Point shipwrecks; further work is needed to fully understand the taxonomic composition of these ecosystems and their implication to history and biology.

Brianna Nicholson **Kugelman Honors Program**

Pensacola and Perdido Bays Estuary Program– Resilience Readiness Assessment

Co-Author(s): AC Hicks, Alexis Bjornstad, Joel Sexson, Jordan Harris, Theresa Blake, Reeve Roberts, Emma Menson, Emerson Cheney

Faculty Mentor(s): Jocelyn Evans
Session: Main Poster Session
Time: 12:00-1:00
Location: Virtual Space - Poster #261

The Pensacola & Perdido Bays Estuary Program has developed a project with assistance from a team of UWF Honors students enrolled in Honors Core II. Through this project, partners worked together to develop a survey, which was intended to gauge how residents of the City of Pensacola perceive local risk to the effects of climate change. The survey aims to gather responses from at least 30 residents from each Priority Planning Area, outlined in the city's Sea Level Rise Vulnerability Assessment, to reach a total of 150 respondents from five PPAs and survey a total of 250 Pensacola residents. Students helped develop a survey and sketch-mapping strategy to obtain and visualize citizens' perceptions regarding vulnerable and resilient areas in a community. This survey will assess community members' understanding of local risks associated with climate change and the importance of community planning and resilience in the region. The survey assesses three focus areas: perception of climate change, community needs, and perception of preparedness. Survey administration is ongoing. The research team anticipated that the measured vulnerability data can be used to enhance planning measures in the City of Pensacola and build community resilience. Student presenters will discuss their role in the development of this project and share their insights about the role of resilience in local community planning. In addition, presenters will engage with symposium visitors by administering surveys to those people in attendance

Haylie Roberts **Kugelman Honors Program**

Switchin' Scabs: The Women of the 1973 Brookside Strike

Faculty Mentor(s): Jamin Wells
Session: Main Poster Session
Time: 10:00-11:00
Location: Virtual Space - Poster #265

In July of 1973, following the refusal of Eastover Mining Company to acknowledge a union contract for its workers under the United Mine Workers Association, numerous miners and pro-union community members went on strike at the Brookside mine in Harlan County, Kentucky. This region has a long history of labor conflict, having earned the nickname "Bloody Harlan" for the violent early twentieth-century strikes in the county. The 1973 strike rose to national attention, due not only to its duration but also to the crucial roles women played on the picket line, organizing, rallying and maintaining the front lines of the strike. The roles of these women received even more attention due to their portrayal in the 1976 documentary film Harlan County, U.S.A ., which featured direct footage of meetings of the Brookside Women's Club and the women's tense interactions with law enforcement and company strikebreakers. Utilizing oral history interviews conducted in the 1980s, this poster explores the acute and long-term impacts of the strike on the women who participated, as well as themes of mutual aid and the disruption the strike had on gendered social and economic divisions of the time. Expanding on the scholarship of Sally Ward Maggard and Jessica Wilkerson, this project analyzes the historical and current interactions of gender, class, and labor protest in Appalachia, further elaborating on the ways in which these women's gender shaped their experiences on the picket line and their relationship to collective action in the region.

Haley Villareal **Kugelman Honors Program**

"Exposure to Exposure": Digital Natives' Fascination with Vintage Photography

Co-Author(s): Isaiah Waters, Abby Hale, Gray Marier, Jesse Spitsbergen, Zachary Wilson

Faculty Mentor(s): Jim Jipson
Session: Visual Art Exhibit
Time: 11:00-1:00
Location: Conference Room C

In a world full of iPhones and Snapchat filters, my group decided to go back to a simpler time in photography a time where images were captured with just a pinhole in a dark box. Pinhole photography has been around for centuries, but we were nevertheless surprised when we pulled our first few negatives from the developing tray. We began this process by developing our own pinhole cameras from small paint cans, tin foil, and some black paint. Since then, we have experimented with angles, timing, and precision, with one goal in mind to create photographs that are not necessarily technically perfect, but that are imbued with a charm and emotion that is unique to pinhole photography. We, then, took on the process of stitching our individual shots together in order to create a 360-degree pinhole imaging system. Yes, you can take a panorama on your iPhone, but we are interested in putting a vintage twist on this modern capability. Our process appeals to members of our generation, as well as younger ones who crave the more tactile and nostalgic processes of the past. Our presentation reflects the trial and error that is ever-present in the design and development process of any project, as well as the beauty of our team working together and achieving our goal.

Monica Woodruff **Kugelman Honors Program**

Microplastics in Soil: Identifying Their Prevalence in Northwest Florida and Their Effects on the Growth of Kale

Co-Author(s): Kate Harper

Faculty Mentor(s): Johan Liebens
Session: Main Poster Session
Time: 1:00-2:00
Location: Virtual Space - Poster #263

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_2O_2, 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.

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