

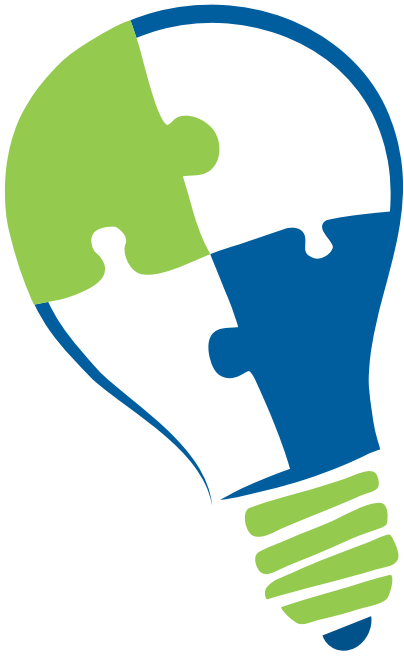
UNIVERSITY *of* WEST FLORIDA

**STUDENT SCHOLARS
SYMPOSIUM**

AND FACULTY RESEARCH SHOWCASE

2021

Event Program



UNIVERSITY *of* WEST FLORIDA

**STUDENT SCHOLARS
SYMPOSIUM**

AND FACULTY RESEARCH SHOWCASE

Programs & Abstracts

April 15, 2021

Allison Beauregard Schwartz, Ph.D.

Director, Office of Undergraduate Research

DESIGNER

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EVENT ORGANIZED BY

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 2021 Symposium:

Due to the Covid-19 pandemic in the Spring 2021 semester, the UWF Student Scholars Symposium and Faculty Research Showcase could not be held on campus on April 15, 2021. Instead, the event was reformatted into a virtual conference on the Gather Town platform. 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, HUMANITIES AND SOCIAL SCIENCES



ANTHROPOLOGY AND ARCHEOLOGY

Marissa Agerton

Anthropology

Conserving and Radiocarbon Dating Emanuel Point I

Faculty Mentor(s): John Bratten, Anthropology

Lead Author Department: Anthropology

Session: Poster Session

The Emanuel Point I ship sank with five other ships in Pensacola Bay from a hurricane in 1559. These ships were part of Don Tristán de Luna y Arellano's Spanish fleet that colonized Pensacola, Florida. This is the earliest known multi-year European settlement in the United States predating Jamestown, VA, and St. Augustine, FL. The wreck was discovered in 1992 by the state of Florida and excavated by University of West Florida archaeology students until 1998. A wood sample collected from the shipwreck underwent radiocarbon dating after being conserved using the freeze-dry method. Freeze-drying without a pretreatment removed all water from the artifact and allowed for a more accurate Carbon-14 result. With the results, we were able to determine if wood that has been waterlogged for over 450 years is datable and what factors may skew results. There was the possibility that organic debris in the bay water may have contaminated the C-14 isotope ratios in the sample. Another issue known as the old wood effect can affect results depending on if the sample is taken from a more interior portion of the tree which would reflect an earlier age before it was used as lumber for the ship. The results revealed that the wood predates the shipwreck by four or more decades. This earlier date can be contributed to the old wood effect as well as the marginal error associated with radiocarbon dating when converting the conventional age to the calibrated date.

Ben Martin

Anthropology

Applying the Ideas of the Carolina Artifact Pattern to Spanish Refugee Missions of the 18th Century

Faculty Mentor(s): Ramie Gougeon, Anthropology

Lead Author Department: Anthropology

Session: Poster Session

This project presents a model similar to that of the Carolina Artifact Pattern, but is built upon the artifact patterns for 18th Century Spanish Mission settlements with a population of Native Americans in the southeastern United States. The development of artifact patterns helps establish typical ranges and expected quantities of specific artifact types and groups for similar archaeological sites of a particular type and time. Patterns and frequencies are derived from the

remnants of artifacts lost or discarded on a site and parts of larger objects, such as structures, which allow for the development of patterned human behaviors. These artifacts are then studied following excavations, placed into groups and categories: kitchen, arms, personal, tobacco, et cetera, which can further establish the patterned human behaviors and help archaeologists infer the site's primary purpose. Mission San Joseph de Escambe and Nuestra Señora del Rosario de la Punta were selected for the presence of both Spanish and Native populations as well as being contemporaneous. Once the artifacts of both sites were correctly categorized, archaeologists may use the model to gain some insight and expectations of sites similar to these and produce similar interpretations if using the same model. Suppose this model, as the Carolina Artifact Pattern, is used for a different culture. In that case, the broad interpretations and understanding of the site may be flawed. It is the hope that this model will support not only future interpretations of 18th Spanish Mission settlements with Natives but also encourage further studies.

Nick Rahman

Anthropology

Shipwrecks and Radiocarbon Dating: A Perfect Match

Faculty Mentor(s): John Bratten, Anthropology

Lead Author Department: Anthropology

Session: Poster Session

The focus of this research is to determine and discuss the effects that saltwater immersion imparts on radiocarbon dating wood from a 16th-century shipwreck, Emanuel Point III. Data from Emanuel Point I and Emanuel Point II which were also part of a Spanish Colonization Fleet that sunk in 1559 will be discussed. The conventional radiocarbon dates align with the date of the shipwrecks. The slight discrepancy between conventional radiocarbon age and the probability date ranges appears to relate to the old wood effect, the ship timbers taken from an older tree or an older part of a tree, as opposed to an effect from saltwater immersion. This research shows us that saltwater immersion has minimal, to no effect on radiocarbon dating, while revealing the certainty of the old wood effect on radiocarbon dating.

Rhiannon Rice

Anthropology

Dating a Spanish Shipwreck by the AMS Carbon-14 Method

Faculty Mentor(s): John Bratten, Anthropology

Lead Author Department: Anthropology

Session: Poster Session

Using Accelerator Mass Spectrometry (AMS) techniques for radiocarbon dating will enable us to determine the age of a piece of wood. In this case, a wood sample taken from the center wheel (sheave) of a pulley recovered from the Santa Rosa Island Shipwreck, a ship presumed to be the Nuestra Señora del Rosario y Santiago Apostol, lost to a hurricane in 1705. Although a date has been assigned to the shipwreck based on an artifact analysis, sending a small wood sample to Beta Analytic, Inc. will allow us to confirm the construction date assigned to the shipwreck by determining if the sheave's age and origin matches what we already know about the ship. Radiocarbon dating will also allow us to gain a better understanding of how decay and possible contamination may affect the dating technique.

Gabriela Rodolfo Marcon**Anthropology****How the Current Structure of Sex Education Classes Affect Brazilians' Perception of Sexuality and Gender**

Faculty Mentor(s): Meredith Marten, Anthropology

Lead Author Department: Anthropology

Session: Poster Session

Having sex education classes since an early age can be a determinant factor in social and public health issues, such as sexual abuse, teen pregnancy, sexist attitudes, genderbased violence, among other forms of prejudices (Barbosa et al. 2019). For this research, I will be exploring what kind of sex education participants had while in school and how has it affected their perceptions of gender and sexuality. My main argument is that Comprehensive Sex Education is key to reduce gender inequality in Brazil and promote well-being and sexual health among young adults and kids; however, as results will show, most students have never had sex education at schools or have only be taught from an absence-only perspective. Sex education in Brazil is not an easy topic of discussion, once it faces political, cultural, and religious adversities that interfere in the clarification of many topics within sex education. Thus, besides looking at one's experience with sex education, I will be also exploring inherent gender stereotypes within family structure (i.e., who is the most influential person in one's family), as children's first contact with definitions of gender and sexuality is at home. The study is being conducted with a Brazilian NGO named Soul Bilingue that gathers young adults (18-26 years old) from the Southeast region of Brazil. Students come from low-income households and most have studied in public schools in Brazil, which represents the country's main educational and socioeconomic background.

Katelyn Rollins**Anthropology****The Emanuel Point II Shipwreck : An Analysis of Radiocarbon Dating**

Faculty Mentor(s): John Bratten, Anthropology

Lead Author Department: Anthropology

Session: Poster Session

The Emanuel Point II shipwreck is one of three shipwrecks found that are believed to have once been part of the Don Tristan de Luna y Arellano settlement and expedition that sank during a violent hurricane in 1559. This research will dive into the analysis of radiocarbon dating that will be conducted on wood samples taken from the hull of the Emanuel Point II shipwreck. The radiocarbon results from E.P. II will be compared to radiocarbon dates from other wrecks recognized as part of the Tristan de Luna fleet, and in turn, a comprehensive dating background will be formed. Additionally, the results of the wood samples themselves will also be aiding in further calibrating radiocarbon dating itself for future archaeological endeavors.

Abby Stone**Anthropology****The Effects of Colonization on Native Textile Traditions in the American Southwest**

Faculty Mentor(s): Erin Stone, History

Lead Author Department: Anthropology

Session: Poster Session

The introduction of the Spanish in the American Southwest changed a lot for

the groups living there. This included the textile tradition of groups like the Hopi or the Navajo. Textiles were important both culturally and economically to indigenous groups in this area. They were traded and a part of cultural rituals. When the Spanish came in, they would demand these textiles as part of their tribute or they would take the people making them and force them into other forms of labor. The Spanish also introduced new ways of making textiles: new materials, dyes, colors, etc. The Spanish influence on the textiles in the southwest was great and the effects on things like religion, population size, and warfare also played a role on textile production. These textiles are now seen as an iconic image representing the American Southwest, but they were greatly influenced by the Spanish colonization. This research focuses on how the tradition changed, the factors that caused the change, and the introduction of colonization and Spanish traditions and customs that influenced textile production. It will also look at textile production pre- Spanish and the different textile traditions in different groups like the Hopi and the Navajo. Textile production is a persistent tradition and an important part of life in the American Southwest.

ART AND DESIGN**Lisa Algee****Art and Design****Women of the World**

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

My proposal is to create four thread paintings with many to follow of different women from around the world. Each woman's portrait will be 9 X 11 inches. This will be an ongoing series. It will be created using different medias such as fibers, threads, paints, dyes, crayons, and a quilting machine. I use a long arm quilting machine and silk threads to create depth in my artwork. I use my own style and experience I have gained from research and watching other Textile/Fiber artist to build on my own techniques. These will be whole cloth compositions created by drawing the figure directly on to the cloth and using the different media to bring the portrait alive. The final product is layered with quilt batting and backing, then comes the thread painting. Each portrait will be matted and framed in a 11X14 frame. I am inspired by strong women and this is why I am creating this series.

Isabella Cameron**Art and Design****Visual Communication in the Mapping the Life and Afterlife of Nicolaus Maniacutius**

Faculty Mentor(s): Thomas Asmuth, Art and Design

Lead Author Department: Biology

Session: Poster Session

This project is a faculty-student research collaboration with Dr. Marie-Thérèse Champagne and mentored by Prof. Thomas Asmuth. The research is a component of Champagne's research of the text, *Ad incorrupta pontificum nomina conservanda* by Nicolaus Maniacutius, a 12th century Cistercian scholar from Rome. The text is devoted to preserving the 'proper' naming and lineage of Catholic popes. *Ad Incorrupta* is an important work by Maniacutius; in other

writings, he condemns the brutalization of texts and history by faulty scribal transcriptions. Champagne has painstakingly spent years locating surviving copies of *Ad incorrupta* revealing that the manuscript is located in multiple sites across Europe. The text was reproduced by hand for many institutions in the later Middle Ages, indicating the significance and popularity of the subject. This project attempts to reflect the sixteen versions of Maniacutius's text through legend symbols and an accurate contour map of Europe to be used on a GIS map by another research team assisting Champagne. Research has focused on medieval architecture and clothing styles, geographical outlines, and drawing styles for map aesthetics. The team seeks to create symbols from historically accurate styles to enhance and connect the period of the subject through graphic communication. The team is additionally investigating a second goal--the development of an ancestry tree-style graphic to visually track the genealogy and movement of the manuscripts based on religious orders, whether or not the texts record Maniacutius's name, and whether texts were copied with other significant texts of the period.

Jason Dorler

Printmaking: Drypoint Series

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

Art and Design

Sarah Edwards

Water Portrait Paintings

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

Art and Design

Rachel Gibbs

Escapism: Connecting Dreams to Reality

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

Escapism, or the tendency to divert the mind into an imaginative environment to remove oneself from reality, is a topic frequently touched on by artists who are interested in the unconscious mind and its hidden messages intended for the conscious mind to someday solve. I am not a troubled child, an individual with a traumatic past, or somebody struggling with a mental illness. Yet with all the positivity that surrounds me, I frequently find myself having vivid daydreams or moments that border close to tendencies found in maladaptive daydreaming. The experiences I have with my daydreams and dreams are never just within my mind but are more of a full-body experience where I may, at times, move my body as if it were reacting to a situation or feel certain sensations typically associated with ASMR. Rather than past ideas revolving around recorded visuals in personal journals, I am more interested in presenting imagery of these sensations teetering between dreams and reality; moments that come about randomly when my mind begins to wander and escape everyday life. In *Escapism: Connecting Dreams to Reality*, each piece discusses the phases of

Art and Design

transitioning from a conscious state to a dream state. A conscious body slowly breaks down into fleeting tingles in *Dissection*, shedding its skin in the Red Room after each dream. Traveling between the conscious and the unconscious occurs by landing on various waves, similar to a television, in *Frequency*.

Ally Haddock

An Experimentation to Visual Development

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

Illustrating stories throughout the ages has been a way to connect with an author's heart. This series of works seeks to display the progressive development of an ongoing passion project of a vigilante hero group that protects their home from a darker force that lurks in the shadows. It is the beginning stage to later development of a graphic novel. This work loosely gains inspiration from Kara Walker who utilizes her visual techniques to respond to her unconscious experiences in her life and her understanding of how she can work through them. This pair with utilizing art as a form of unconscious expression allows me to work towards the final series and understand how the series work together. The compositions of characters' designs, poses, and elements across the page create a connection with the audience. This continues with defining the personality and life they have connected to the story itself. The loose nature of the lines and colors evokes experimentation to a new medium and breaking the stricter bounds of illustrations in structure and format. Ultimately, this series is visual development for me to not only reflect on when progressing with this project but welcome the public eyes to the concept of the "Heartfield Heroes".

Art and Design

Brooke Hull

Threading a Design Dichotomy – A New Take on Tracking and Delivering Information About Plants

Faculty Mentor(s): Shelley Henseler, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

This project, titled, "Threading a Design Dichotomy - A New Take on Tracking and Delivering Information About Plants," is a personal thesis focused on threading a dichotomy that has formed in my design career. In this project, I plan to bridge this dichotomy by creating a series of designs related to plant care for the everyday houseplant owner. This relates to both my interests in my own academic career, as well as my personal interest in houseplants. This project has been in progress since January of 2020, and I have presented my progress thus far at the National Collegiate Honors Conference. Through much personal reflection, I have found that a gap has formed in my design career when it relates to illustration and graphic design. While similar subjects, they have been taught to me separately and I wish to explore this dichotomy and thread it closed by working illustrations into a variety of different designs. These products include a plant care journal with coloring pages, a desk calendar, stickers, and decals to create plant tags. This variety of materials will help me use illustrations in multiple formats while also including type and layout design.

Art and Design

Grace McIntyre-Willis**Organically Composing Microbial Art**

Faculty Mentor(s): Carrie Fonder, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

“Organically Composing Microbial Art” is a research project experimenting with the textures, colors, and growth structures of several molds and bacterias in a Petri dish with the intent of creating a visually appealing composition that will be photographically documented. Through the collection, cultivation, and documentation of these organisms, the outcome of the research will be to reveal 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. It is known that biology is defined as the study of living organisms and art is defined as the study of expression, so it only makes sense that living organisms can be considered art. “Organically Composing Microbial Art” will fall 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. The research completely envelopes that idea, because it is indicative that living organisms can be viewed as a tool to produce art when the proper knowledge is applied. Utilizing a digital binocular compound microscope and a digital camera to capture the specimen will prolong the celebration and appreciation of the subject’s raw forms and colors, as intended by the research

Art and Design**Nicole Morse****Found and Washed: Mixing Found Objects and Watercolor 2021**

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

My name is Nicole Morse, and I am an art student at the University of West Florida. I have been painting with watercolors and exploring different techniques for the last three years. Watercolor combined with a found object (an item not normally used in art) is not seen very often. For this project, I am creating four pieces of artwork (between one and a half to three feet) which focus on the interaction of smaller found objects and watercolors. The item itself will help me determine the tone of the piece, how it should be attached to the Yupo watercolor paper, and when it should be attached (before, during or after painting). The three dimensionality of found objects combined with the flat watercolor should make areas of the painting contrasting and help emphasize layers of meaning. A project of this kind is part responsive and seeing the way the watercolor and objects are cohesive or contrasting is going to dictate the final composition and feel of the project.

Art and Design**Bianca Mutter****Dualities**

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

I ultimately made a more concise version of my original proposal. The finished piece is not about the Ego because that is a singular piece of the human mind that is about how you see yourself. The purpose of this piece is to take my

Art and Design

personal complexes and do a self portrait for other people to see and possibly relate to, as stated in the Carol Hanisch essay, The personal is political. The piece has evolved like I have in the past month because of a lot of personal growth on my part. I am not under the control of my parents anymore which has been freeing and why I decided to cut the dream self/parents version of my future pair of photos. If it feels needed I can add it for the OUR exhibition but I don't think it is necessary. I made this piece mainly on my own, at the advice of Valerie I had a friend help when taking the photos to avoid me looking too posed or awkward. The costumes, makeup, background and lighting choices were my choice and with the advice of Carrie Fonder and Valerie George the piece became what it is now, a visual collective of parts of myself. Link to Photos and Additional Information

Karleebeth Perkins**Block Print Meditations**

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

This was my first attempt at doing anything like block printing. I researched the history of block printing and then made my own designs and prints. I found that carving the designs was a very relaxing and almost meditative activity. It became a very relaxing point in my day that I would look forward to. I didn't have a single overarching theme for the series because I wanted to sit down each day and make a print of one specific theme that interested me that day.

Art and Design**Thatiana Rodriguez****The Final Frontier: An Exploration of the Scientific and Technological Possibilities of the Human Race**

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

The idea behind this project is exploring the changing technologies, social media, and possible future technologies that are within the timeline of humanity's existence. This project researches the idea of these technologies and how they effect our perception of the future and focuses on the possibility of growth. This project contains six traditional and digital compositions of planets which create a duality between what we see and possibilities for growth, ending with an installation piece. Some of these pieces are abstract in style but deep with meaning and interpretation. The constant change and growth of humanity changes our perception of the world on a daily basis. Especially in times like we live in now, with much dependence placed on our technology, we are continuing to be influenced by it. The traditional work explores the “normal” or “accepted” perspectives of these ideas and planetary bodies, while the digital work explores the realm of opportunity and represents it in an eye catching and appealing way. The ideas presented to us in Science Fiction are a part of these possibilities and may not be as far reaching as we think. This project wraps up these ideas in an installation piece which the viewer can enter the realm of these ideas. The viewer can see the large looming mass of opportunity above seeing the swirling mass of it as either to heavy of a responsibility to take on or as something to reach out and grasp. A decision we must all make.

Art and Design

Elerene Walters**Fall 2020 Exploring Cyanotypes on Various Materials**

Faculty Mentor(s): Jim Jipson, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

Art and Design

UWF has a rich history when it comes to students in research. Over the years, many students have made such an impact on UWF. These same students have even taken it a step further to impact our community as a whole as well. Because of this, my team and I decided to document a student researcher. Throughout the process, we filmed and edited a short video profile to bring Rebecca's story to life. Although there were a few bumps in the road, we were able to effectively put a spotlight on Rebecca to showcase how she got started in research, what her research is all about, and how others could also begin the process of doing research of their own.

Jordan Weddington**Exploring a Deconstructive Painting Process**

Faculty Mentor(s): Valerie George, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

Art and Design

Exploring a Deconstructive Painting Process is a body of work that focuses on the human figure and portraiture to display the different elements of "drawing". Through creating this body of work, I document how this process developed and changed through creating pieces and understanding what worked and did not work through the 6-12 pieces that will be displayed. I originally started this process by creating a piece where I drew the subject on canvas with an oil-based paint pen. After that dried, I applied 3-5 layers of gouache paint over the subject. Then I used watercolors to paint over the gouache and the rest of the canvas. Finally, after everything has dried, I used a spray bottle, sponge, towel, or anything that could hold water, and applied the water to the canvas to slowly reveal the underneath subject that I previously covered up, leaving some of the figure underneath all of the layers of paint. This process has developed over the creation of every piece and through this I have gained a better understanding of deconstructing a painting to the point where it enhances the overall composition.

Isabelle Winants**Female Portraits in Bloom**

Faculty Mentor(s): John Markowitz, Art and Design

Lead Author Department: Art and Design

Session: Poster Session

Art and Design

I would like to make a series of paintings featuring female portraiture. I am influenced by Frida Kahlo, with nature-inspired background and surroundings with deep symbolic meaning to her life and traumas. I intend to explore symbolism in nature and life through flora and portraiture. Kahlo's work is surrealist self portraits done in rich colors with animals and flora incorporated into the setting. I would like to experiment with similar subject matter. I am no surrealist, but I want to use women amongst nature because they are empowering and symbolic to many things in my life and identity. In my pieces, I use mixed media, including watercolors, gouache, colored pencil, ink, gold leaf, and copic marker. I hope to learn how to create more visually striking animated images, expand my vocabulary, and especially experiment with new materials.

Nicole Allen**My Story: Discrimination Through the Eyes of a Brown Asian**

Faculty Mentor(s): Carrie Fonder, Art & Design

Lead Author Department: Communication: Strategic Communication & Leadership

Session: My Story Griot Project Session; Poster Session

Communication

Around the age of 30, young adults begin analyzing the underpinning of their success or, in some cases, the lack thereof. It is at this junction we begin to self-reflect on our experiences and the influences of our choices. This event took place in my life only a few short years ago. At 29-years-old, I examined my reflection in the mirror and found myself ruminating on a self-deprecating desire to be white. Living a fruitful life with a remarkable spouse, two healthy children, and high praise from my peers, I questioned why I was consistently falling hostage to this toxic inner monologue. After much soul-searching, I adopted a creative outlet to explore the stories of my subconscious. I began writing speeches over colorism and culturally ingrained discrimination and read books by authors with similar backgrounds. Then, when presented with an invitation to analyze my experiences through the CASSH My Story writing prompt, I seized the opportunity to reflect, mature, and support others who have experienced or are currently experiencing similar difficulties. My story, *Discrimination Through the Eyes of a Brown Asian*, allows you, the reader and listener, to view prejudice through my eyes, the daughter of an immigrant, raised by a white father and Filipino mother, depreciated by stereotypes and racism. Through my words you can observe my struggle with comprehending the world and its dark corners. Ultimately, this story will help you become a willing accessory on my lifelong journey of acceptance one of which I am still traveling.

Catie Boswell**"Morale is Down" - The Understatement of the Century**

Faculty Mentor(s): Carrie Fonder, Art & Design

Lead Author Department: Communications

Session: My Story Griot Project Session; Poster Session

Communication

In the Fall of 2020, my Professional and Technical Writing instructor tasked us with responding to the My Story prompt as a graded assignment. As the white spouse of a white law enforcement officer, talking about race relations during such a volatile time in our nation felt not only intimidating, but borderline inappropriate for me to do. Unable to let a perfectly good GPA go to waste on one uncomfortable writing assignment, I decided to write about the shared experience many law enforcement families are facing right now. To say that "morale is down" across police departments is the understatement of the century. This is my story, my attempt to speak up for the many good police officers and their worried families.

COMMUNICATION

Keirsten Andress**Communication****OUR Video Profile**

Faculty mentor(s): Paul Pilger, Communication

Lead Author Department: Communication

Session: Poster Session

Tionna Brackens**My Story: Acknowledging Differences**

Faculty Mentor(s): Carrie Fonder, Art & Design

Communication

Lead Author Department: Health Sciences

Session: My Story Griot Project Session; Poster Session

Throughout my six years of working, I have been made victim to discrimination and racism. I have gotten rude comments about the way I talk, about the lack of expectations of me, about my hair, and anything that can be thought of. When asked to participate in this project, I had no idea how affected I was about the way I've been treated in the workplace, maybe because I got used to dealing with it. To have a manager that was brave enough, though, to acknowledge that because of my skin color, because we live in an area not very diverse, and because I was the only black person working at our location, that I may experience hateful and negative things due to my race; then to be reassured that I'm not expected to tolerate it and that I have a family of coworkers to back me up really made me feel more like a human being. The recognition of my differences because of my skin color, and the acknowledgment of the issue, of such a subject that holds strong weight in our country today is part of what we need to change society, which is why I chose to use this one positive experience over the hundreds of negative ones for my project. The fact that in my 22 years of living I have never had anyone acknowledge it in a way that didn't alienate me, but made me feel safe, made the weight on my chest go away.

Chloe Cuyler

Communication

OUR Student Video Profiles

Faculty Mentor(s): Paul Pilger, Communication

Lead Author Department: Communication

Session: Poster Session

My team, composed of myself and three other film production students, recorded and edited video profiles for two OUR students. These video profiles gave the OUR students a chance to talk about and show what they work tirelessly to create.

Carrie Fonder

Communication

The MyStory Griot Project

Co-Author(s): Rosalind Fisher, Mamie Hixon, Holly Dixon, Erin Stone, Jay Ayer, Stefica Milor

Lead Author Department: Art & Design

Session: My Story Griot Project Session; Poster Session

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, Diversity, and Belonging. The project invited 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 stories shared are topically broad; some of them address experiences with racism; some address the intersection of race and other forms of discrimination, while others are a celebration of individuals who were allies in challenging times. All are incredibly moving.

Jay Harrison

Communication

My Story

Faculty Mentor(s): Athena Du Pre, Communication

Lead Author Department: Communication

Session: My Story Griot Project Session; Poster Session

Growing up in Alabama has had a profound impact on how I view myself as well as those around me. While Alabama may be known for its beautiful scenery, crisp winters, and scorching summers, I view Alabama from a different point on the mountain of identity. My hometown, Beatrice, is about twenty minutes away from Monroeville, the hometown of renowned author Harper Lee. The population of Beatrice is roughly 200 people. Having the necessities almost always requires its residents to make the drive to Monroeville. Monroeville, a town of roughly 6,000, has a rich cultural history that encompasses the merits of literature as well as the remnants of a seemingly long dead divide amongst its residents. That divide, however, continues to make its presence known in subtle ways. Over the years, a business hub has formed within an area called "The Square". The area is literally a square with mostly white owned businesses on each side and the county courthouse in the middle. There is a rule that subtly plays within the minds of black residents: do not go into those stores. Going into these stores usually means you will be followed around like a dog while the white customers get to shop freely. This is just one of the many instances of racial ignorance that will be presented in my story. I find it hard to not be "pro black" when my white counterparts only view me as a criminal, thug, or threat to the country that "they" built.

Keneice Knowles

Communication

My Story- Racial and Ethical Discrimination

Faculty Mentor(s): Carrie Fonder, Art & Design

Lead Author Department: Clinical Laboratory Sciences

Session: My Story Griot Project Session; Poster Session

This research required me to outline encounters that I may have had with racial or ethical prejudice. My focus during this project was to highlight some of the social issues that exist today regarding discrimination and general assumptions I have encountered in The United States being a black woman from The Caribbean. In answering the question, I shared some of my own personal experiences with racial and ethical discrimination highlighting how I was treated differently. My experiences were in typical social settings from persons of various socioeconomic backgrounds. Through this, I have found that there are many ways in which one can be violated in terms of race or ethnicity and sometimes it is truly not intended. These experiences have made me aware that many persons are out of touch with history, variations among cultures and modernization globally. My story is important in that it provides a direct outlook or highlight of these issues from one who has experienced them firsthand. This can encourage society to treat individuals from different backgrounds with the same respect and to learn about different cultures and races rather than making assumptions that can hurt others. The audience should care about the issues highlighted in my story as they bring forth awareness of the social issues that still exist today regarding race, cultural shock and ethnicity. I think that if persons become more aware of these issues and the impact they have on individuals and society at large, there's hope to combat some of them.

Angela Leon

Communication

LGBT Inclusion and the Roots of Homophobia at UWF

Faculty Mentor(s): Carrie Fonder, Art & Design

Lead Author Department: Philosophy

Session: My Story Griot Project Session; Poster Session

Even the most seemingly unrelated notions, such as college and gender identity, or college and sexuality, can prove to be extremely related. Ask anyone who has suffered from discrimination on the basis of their gender or race in college. School discrimination or when discrimination happens in a group of people who are supposed to be your peer support network can make people aware of critical junctions between college and gender identity of which they previously weren't aware. My story's title "LGBT Inclusion and the Roots of Homophobia at UWF," references the colonialist underpinnings of the discrimination I encountered at UWF. I believe these colonialist underpinnings can be seen in the fact that there is little representation of people like me, nonbinary, indigenous, disabled, in the media and in higher education as well. To recount another white promotion into academia, and saying this is controversial, is to put another drop in the ocean, when people of color need to be in academia like a fish needs the sea. I want to see more people of color, people like me in the media, in higher education, and in positions of leadership in our communities, maybe that would help with our virulent racism and especially our homophobia, because Two-Spirit and Quariwarmi (in Peru) people existed before the Europeans came and committed genocide in the Americas. Maybe remembering our roots, and returning to our true past is what people of color can do, and allies can try their best to support us.

ENGLISH

Shannon Anderson

English

From the Wallet to the Gun: The Connection between Neoliberalism and Terrorism in The Reluctant Fundamentalist

Faculty Mentor(s): Robin Blyn, English

Lead Author Department: English

Session: Dr. Robin Blyn's Session on "Literature and Globalization"

This paper discusses the relationship between America and the rest of the world as seen in *The Reluctant Fundamentalist*. In particular, it focuses on the effect that American neoliberalism has on other countries. Further, it argues that the ambiguity in the book suggests that terrorism and neoliberalism are very closely related.

Kathleen Biache

English

A Very Old Man with Enormous Wings in Tropic of Orange

Faculty Mentor(s): Robin Blyn, English

Lead Author Department: English

Session: Dr. Robin Blyn's Session on "Literature and Globalization"

Tropic of Orange by Karen Tei Yamashita includes a reference to the angel in Gabriel Garcia Marquez's 1955 short story, *A Very Old Man with Enormous Wings*. In this presentation, I will explain the role of the character, the very old man with enormous wings, in Marquez's short story and the character Arcangel in Yamashita's novel. I will discuss the reference and its effect in the novel through a close reading of the text and by examining the literature on this subject. Most of the research discusses how the specific reference to *A Very Old Man with Enormous Wings* reinforces the magical realism in *Tropic of Orange* and supports the development of Arcangel. I will conclude with the hypothesis that the reference strengthens the novel's effort to validate marginalized populations by the way the story is framed.

Nancy Fox Edele

English

This Class Is Not Just a Class. It Really Is a Community: The Discovery of Online Forums As High Impact Practices and Sites of Agile Teaching and Learning
Lead Author Department: English
Session: HIP Faculty Showcase; Poster Session

Austin Neal

English

Cosmopolitanism in Teju Cole's Open City

Faculty Mentor(s): Robin Blyn, English

Lead Author Department: English

Session: Dr. Robin Blyn's Session on "Literature and Globalization"

My paper revolves around Teju Cole's *Open City*. My specific focus is on the main character Julius. Throughout the novel, Julius rides a tightrope between a connection to his cultural identity and a conscious attempt to avoid his own traumatic memories. My paper argues that the trauma displayed in Julius is an integral part of the cosmopolitanism that the novel presents. The form of cosmopolitanism that is created exists within the partial cosmopolitanism of Kwame Anthony Appiah's *Cosmopolitanism: Ethics in a world of Strangers*. The form of cosmopolitanism is incomplete as no matter how interconnected Julius feels to the world around him, his identity as an African keeps him grounded. This back and forth between complete cosmopolitanism and localized cultural identity creates the traumatic form of cosmopolitanism that the novel displays. However, the cosmopolitanism that the novel displays is positive. The cosmopolitanism that the novel displays, while viable, traps Julius between the trauma he hopes to escape and the connections, both forced and chosen, to his fellow cosmopolitans that drag him into the traumatic experiences that he wants no part of.

Adam Williams

English

Machiavellian Marvell: Marvell and Milton on Sovereign Rule during the Protectorate Era

Faculty Mentor(s): Katherine Romack, English

Lead Author Department: English

Session: Oral Presentation

Andrew Marvell and John Milton were contemporary poets that shared similar opinions regarding political matters as they mutually advocated for Charles I's removal from power. Milton consistently denounced all forms of kingship in his prose pieces *The Tenure of Kings and Magistrates* and *The readie and easie way to establish a free Commonwealth*. Marvell, by contrast, is ambiguous in presenting his opinions on sovereign power in his trilogy of poems on Oliver Cromwell. Marvell used contradictory language in his poetry that would denounce monarchies in one stanza and praise Cromwell as a leader that resembled or surpassed a king in another. This thesis attempts to discern why Marvell's poetry is cryptic in comparison to Milton's prose's consistent anti-kingship stance despite their disdain for Charles I's monarchy. Marvell's ambiguity has resulted in some modern critics deeming his rhetorical maneuvers were made for the sake of political security in a politically unstable England. This thesis rejects such critiques and posits that Marvell's Cromwell poetry pairs well with Niccol Machiavelli's republican theory presented in his *Discorsi sopra la prima deca di Tito Livio* ("Discourses on the First Ten of Titus Livy"). Machiavelli navigates the middle ground between a free commonwealth and a monarchy, an

asserts the notion that, while a republic is his preferred form of government, a government needs a strong leader to maintain stability. Reading Marvell's poetry through the lens of Machiavellian republicanism posits that Marvell does not distance himself from Milton's politics as critics previously presumed.

GOVERNMENT

Matthew Dang **Reubin O'D. Askew Department of Government**
Polarized How? Comparing Changes in Different Types of Partisan Polarization

Faculty Mentor(s): Adam Cayton, Reubin O'D. Askew Department of Government
Lead Author Department: Reubin O'D. Askew Department of Government
Session: Oral Presentation

Most view American politics as becoming increasingly polarized, with rising conflict highlighted by events such as the Capitol insurrection, Charlottesville riot and failure to develop a cohesive bipartisan response to the COVID-19 pandemic. Despite the ubiquity of the term, it is less clear what polarization is or what precisely is changing. This paper uses previous research to compare evidence for the increase of three different definitions of polarization: affective polarization, ideological polarization, and partisan identification. This paper investigates which kinds of polarization have increased the most and the least, also having implications for understanding both the causes and consequences of partisan polarization in the U.S.

Spenser Glass **Reubin O'D. Askew Department of Government**
Arctic Stragey through 2035

Faculty Mentor(s): Donovan Chau, Reubin O'D. Askew Department of Government
Session: Dr. Donovan Chau's Session on "Security and Strategy of the Arctic to 2036"

Briley Krouse **Reubin O'D. Askew Department of Government**
Arctic Geopolitics

Faculty Mentor(s): Donovan Chau, Reubin O'D. Askew Department of Government
Lead Author Department: Biology
Session: Dr. Donovan Chau's Session on "Security and Strategy of the Arctic to 2036"

Zack Lovell **Reubin O'D. Askew Department of Government**
Arctic Defence to 2036

Faculty Mentor(s): Donovan Chau, Reubin O'D. Askew Department of Government
Lead Author Department: Kugelman Honors Program
Session: Dr. Donovan Chau's Session on "Security and Strategy of the Arctic to 2036"

Josiah Mayberry **Reubin O'D. Askew Department of Government**
Security and Strategy of the Arctic to 2036

Faculty Mentor(s): Donovan Chau, Reubin O'D. Askew Department of Government
Lead Author Department: Legal Studies
Session: Dr. Donovan Chau's Session on "Security and Strategy of the Arctic to 2036"

Sarafina Mowe **Reubin O'D. Askew Department of Government**
Security and Strategy of the Arctic to 2036
Co-Author(s): Ryan Gustin, Caroline Hornfeck, Jackson Reimer

Faculty Mentor(s): Donovan Chau, Reubin O'D. Askew Department of Government
Lead Author Department: Biology
Session: Dr. Donovan Chau's Session on "Security and Strategy of the Arctic to 2036"

Mariana Negreiros Mariano **Reubin O'D. Askew Department of Government**
Grand Strategy Analysis and Brazil's Changing Ambitions

Faculty Mentor(s): Jacob Shively, Reubin O'D. Askew Department of Government
Lead Author Department: Reubin O'D. Askew Department of Government
Session: Poster Session

Grand Strategy Analysis and Brazil's Changing Ambitions is a case study comparison observing ex-President Luiz Inácio Lula da Silva and current President Jair Messias Bolsonaro. The project analyses each administration utilizing the grand strategy analysis framework developed by my "mentor," Dr. Jacob Shively. This framework includes three dimensions to be analyzed allowing a fair comparison between administrations. The framework enables researchers to observe specific variables in a presidential administration. These variables include geographic extent, ideological substance, and level of aggression displayed in the administration's foreign policy. Few studies have used a "grand strategy" framework to compare Brazil's administrations. The case studies explain in detail each government administration with focus on foreign policy. This work advances our understanding of Brazilian foreign policy and helps guide policymakers in governments around the world.

Stephanie Rinehart **Reubin O'D. Askew Department of Government**
The Operatic Career: Examining Personality Traits and Anxiety During Pandemic
Co-Author(s): Maggie Boman, Chandler Grammer, Amber Roth, Kerrigan McConnell

Faculty Mentor(s): Jocelyn Evans, Reubin O'D. Askew Department of Government; Corey McKern (Theatre)

Lead Author Department: Psychology
Session: Poster Session

The COVID-19 pandemic has caused a major disruption in the profession of musical performance with particularly detrimental effects for freelance musicians. Investigators in this project propose to interview professional opera singers about this disruption, asking them to tell their personal stories to better understand the personality traits and motivations of musical performers and the role of perfectionism, anxiety, mood, and stress in times of deprivation and confinement (Leguizamo et al. 2021). The battery of open-ended questions will ask subjects to talk about their early experiences that initially introduced them to the practice of voice as well as their experiences at various stages of their career that caused them great satisfaction or anxiety. Questions will explore the emotional spectrum of professional performance, including feelings of grandiosity accompanying perceived success and deprivation accompanying perceived failure. They will also explore the tenuous nature of the business and the personality traits required to succeed in the profession. We will ask about periods in which a vocal problem sidelined their performance and contextualize the disruption of COVID within this frame. In what way has the pandemic affected professional identity and personal direction?

Maddy Scott **Reubin O'D. Askew Department of Government**
Capturing the Experience of the Capitol Siege from Members of Congress and Their DC Staff

Co-Author(s): S. Wiktorski, R. Nolan, A. Johnson

Faculty Mentor(s): Jocelyn Evans, Reubin O'D. Askew Department of Government

Lead Author Department: Biology

Session: Poster Session

The proposed project is a trip to Washington, D.C., for the purposes of gathering interview data from current and retired Members of the U.S. Congress and their staff concerning the experience of the Capitol siege on January 6, 2021. The major research objective is to assess the response of offices to the experience and whether or not the event has changed the approach of Member offices to perimeter control and personal safety, constituent communication, and representational politics. Previous research suggests that threats to the physical environment have significantly impacted the culture of Congress (Evans 2011). The practical objective is to develop a manuscript for publication as a book on the subject. Elite interviews would permit clarification of project scope and aims.

Caleb Shafer **Reubin O'D. Askew Department of Government**
Dr. Chau's Arctic Security to 2036

Faculty Mentor(s): Donovan Chau, Reubin O'D. Askew Department of Government

Lead Author Department: Computer Science

Session: Dr. Donovan Chau's Session on "Security and Strategy of the Arctic to 2036"

Peyton Spellings **Reubin O'D. Askew Department of Government**
Security and Strategy of the Arctic to 2036

Faculty Mentor(s): Donovan Chau, Reubin O'D. Askew Department of Government

Lead Author Department: Computer Science

Session: Dr. Donovan Chau's Session on "Security and Strategy of the Arctic to 2036"

HISTORY

Callie Bedenbaugh **History**
Gratian's Decretum: The Living Document of the 12th Century

Co-Author(s): Koen Dunlap, Lyndsey Peebles, Hayden Albarado

Faculty Mentor(s): Marie-Thérèse Champagne, History

Lead Author Department: Reubin O'D. Askew Department of Government

Session: Poster Session

Our team is investigating the circulation of the Decretum across Europe and the subsequent influence it had on Catholic Canon Law from the 11th century to the 13th century, with the goal of gaining a better understanding of its influence on European law during that time. This research is part of a larger research project within UWF's Honors Core II course (IDH 1041). The Decretum was among the first codifications of Canon Law and is recognized today among the most influential documents in Canon Law history. It was published circa 1140 by a man named Gratian, of whom little is known. Despite the obscurity of its author, the Decretum spawned various versions all across Europe. To compile our research, we've gathered scholarly essays, articles, and book chapters about the Decretum. Extensive notes on these sources have been used to craft a timeline of the

document's circulation. Using this method, we have compiled information on some of the Decretum's major influencers, including figures like Rolandus and Bartholomew of Brescia. The differences in the geography and culture of these figures reflects the widespread reach of the Decretum. This information has been helpful in identifying the Decretum's various influences and different circulation points. Finally, this research is important because some versions of the Decretum played a major role in the development of European law, which would later influence historical events and future law systems. For this reason, we believe that it is important to study the Decretum's outsized role in history.

Lainey Binnix **History**
Pensacola's Battle for the Ballot

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

Local history plays a foundational role in interpreting history; histories like Kenneth Johnson's "Florida Women Get the Vote" can be used to teach significant points in history from the bottom up. The centennial of the 19th Amendment to the U.S. Constitution, on-going women's movement, and election of the first woman to the U.S. Vice Presidency has spotlighted women's history and women's suffrage, and political rights. Women's history has expanded and evolved over the past sixty years, and there is still more to do to achieve equal historical representation. Pensacola, Florida, had an active role in the women's suffrage movement in the 1910s, with multiple local leaders, clubs, organizations, and even national speakers recognizing the local activists' effectiveness. The Equal Suffrage League of Pensacola left behind a small collection showing their aims and challenges. The Pensacola News Journal's digital archive preserves the historical developments and provides insight into the local newspaper's advocacy and questionable alliance. The various conventions, including national leaders like Rev. Dr. Anna Howard Shaw, the President of the National American Women's Suffrage Associations from 1904-1915, combine with each of these factors to paint a picture of Pensacola's suffrage movement. Through political and social means, Pensacola's equal suffragists advocated for enfranchisement in the face of opposition, economic downturn, flippant allies, and even World War I. Local history is not a series of isolated events, and the local league's activities, challenges, and victories reflect the national narrative yet are also unique to the conditions and culture of 1910s Pensacola.

Valarie Collins **History**
Hitler's Quest for the Master Race: The American Influence

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

The Eugenics movement of the first decades of the twentieth century was an international sensation. But the onset of World War One divided its most fervent supporters in Germany and the United States, spurring an influential correspondence between American and German eugenicists. This paper examines the decades long correspondence between Charles Davenport and Harry Laughlin, from the United States Eugenics Record Office and Fritz Lens, the first German professor for racial hygiene. To demonstrate the significant

impact that American eugenicists had on the development of German eugenics, particularly Nazi racial thinking in the 1920s and 30s this paper examines diaries, letters, speeches and scholarly writings that supports the decades long correspondence between American and German eugenicists.

Charles Cox

History

Reconstructed Slavery: The Freedmen's Bureau, Labor Contracts and Systemic Racism in the South, 1865-1872

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

On March 3, 1865, President Lincoln signed a bill previously passed by Congress that established The Bureau of Refugees, Freedmen, and Abandoned Lands. The Bureau of Refugees' creation marked a vital step in the "Reconstruction" of the south. The Bureau ultimately hoped to establish social and economic freedoms for African Americans. While the Bureau succeeded in many ways, it failed when it came to the question of African American employment during Reconstruction. This poster will focus on the use of labor contracts by the Bureau and how they helped reaffirm the practice of systematic and institutionalized racism across the south during Reconstruction from 1865-1872. With the loss of their slaves, the south's planter class needed to find a way to recapture their workforce, which is what these contracts did. Drawing on the contracts themselves, correspondence letters, newspapers, and many other primary sources, this poster demonstrates how these contracts affected the social, mobile, and economic stability of the African American community by sending a majority of them back onto the same plantations where they once labored as slaves. Prior scholarship such as Eric Foner and Leon Litwack have discussed at length what these contracts did at the time during Reconstruction. However, this paper examines the lasting damages that these labor contracts have had on African Americans. This poster sheds light on the refiguring of the social injustices of systemic and institutionalized racism towards African Americans that, as a society, we are still fighting to end today.

Matt Denny

History

Unforeseen Consequences: The Great War in the Atlantic

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

During the Great War, the Atlantic theatre was just as complicated as the other theatres of war. On May 7, 1915, the Cunard Line's ocean liner, Lusitania, sunk to the Irish Sea's bottom, a victim of Imperial Germany's unrestricted naval warfare. The sinking of the Lusitania is not only the result of the implementation of unrestricted naval warfare. Indeed, the argument to be made here is that the Lusitania's sinking is instead the unfortunate result of a series of decisions made by several historical actors throughout 1914 and 1915 prior to her loss. Without the aforementioned decisions, likely, the Lusitania or a Lusitanian-like event would not have occurred. The German use of unrestricted naval warfare partly came about in response to British efforts to combat German submarine raiders. The use of Q-Ships, and Churchill's secret orders to merchant captains to disregard Cruiser Rules led in part to an escalation of the war at sea. Meanwhile, Woodrow Wilson's refusal to restrict passenger travel between the U.S. and Europe and

the lackadaisical effort to restrict war materials from being carried on passenger liners like the Lusitania further endangered lives at sea. The loss of the Lusitania was an unintended result of the escalation of the war at sea, complicated political games, and the loss of protections typically afforded to non-combatants at sea.

Daniel Engelgau

History

Pensacola's Klan: A Social History of the 1922 Ku Klux Klan Chapter in Escambia County

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

Through the early 1920s, the KKK was on the rise throughout the United States with rising anti-catholic, anti-immigration, and racial sentiments; Pensacola was no exception to this rise with a revival of their own KKK chapter in 1922, which reached new heights; however, the Pensacola chapter would be in decline only a few short years after their revival. The work of this project covers the social history of the 1922 Pensacola chapter of the KKK examining the joining members of the Klan, found in the membership ledger discovered from the belongings of TT Wentworth Jr. To find the social history of the dues-paying members; this project used the 1922 Pensacola City Directory to gather information on the member's marriage status, occupation, employer, and their home location. Finding the members' home addresses and employer locations gives a wider picture of the members' locations to analyze if the chapter members lived in proximity together and to map the locations of the members on Google maps. Using their occupations gives a wider picture of the Klan members' wealth status to examine the Klan members' social classes. The new information found in these documents uncovers an unknown history of the Pensacola chapter of the KKK.

Sydnee Hammond

History

Blonde Builds Suburbia: Ouida Baggett Regan and the Alternate Construction of Femininity

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

Ouida Baggett Regan (1927-2017) was a female entrepreneur, developer, and active citizen of Pensacola, FL. But how did Ms. Regan, described by one male contemporary as the petite blonde with gray-green eyes, navigate gender norms of the mid-twentieth century? Through her business, the Baggett Construction Company, Regan built thousands of homes in Pensacola's suburbs along with what would be the tallest building in the Florida panhandle for decades. She became a self-made millionaire, all of which challenged the cult of domesticity of the time. Traditionally, during the 1950s, a middle-class, white woman's place was in the home not building it. She resisted traditional historical conditions by developing throughout Florida and Puerto Rico and chairing the National Home Builder's Association and Florida's Council on Economic Development. Her attachment to femininity fuels this agency as she did not lose sight of what made her a woman. She attended debutante balls, hosted lavish parties, and wore extravagant apparel all of which were regular highlights in the papers. Measuring Regan's success is challenging because today, there is no

local memory of Regan's effect on Pensacola nor the developing industry. By exploring Regan's ability to strategically use traditional female stereotypes to break the standard of the stay-at-home, married middle-class ideal, historians can learn that agency and tradition were considerably achievable even in the 1950s deep south. Newspapers portrayed Regan as the single mom with a honey-soft voice and who wears good clothes well; however, she built a lucrative empire that transcended gender and appearance.

Alli Hays

El Niño and the Anchovies

Faculty Mentor(s): Erin Stone, History

Lead Author Department: History

Session: Poster Session

Significant upheavals, revolutions, and economic transformations can result from unforeseen natural disasters. The effects of the event and the community's reaction can create a reevaluation of society's demands and expectations. Unfortunately, most natural disasters come entirely without warning, such as South America's El Niño. This phenomenon has occurred off the Pacific coast of the Andean region for centuries. Its most significant threat for the ancient civilizations and the population today is that it occurs in intervals of two to eleven years without any warning sign of activity. The unpredictability of El Niño has caused damaging effects on the environment, infrastructure, and economy of any community in its path. Worldwide documentation of these occurrences has only become apparent in the last two centuries. While researching the revolutionary effects of El Niño in the Peruvian area, it becomes evident that the nineteenth-century Anchovy fishing industry experienced the most significant impacts of the phenomena. Due to the influx of mass communication through the media, universal corporations that conducted business through the Peruvian anchovy industry immediately saw the effects of El Niño on their partner's production. Scientific evidence will describe the environmental damage of El Niño. Newspaper articles from the United States border region will provide an outlook of those who did not experience the occurrence itself but its repercussions. Secondary sources, such as those discussing ancient Andean civilizations, will contribute to the history of how past populations lived and survived through the natural disaster.

History

Alli Hays

Antonio Rodríguez

Faculty Mentor(s): Erin Stone, History

Lead Author Department: History

Session: Poster Session

Tensions were thick during the aftermath of the United States' Emancipation Proclamation in 1863. Even though slavery was no longer legal, racial prejudices dominated the segregated south. African Americans were the predominant group to face discrimination, except along the border of Texas and Mexico. At the beginning of the twentieth century, Mexico was enduring a national revolution, with American interference as one of the defining causes. The country's natives started growing tired of foreign entrepreneurs taking over their land and industry. Protestors throughout the uprising proceeded to preach an anti-American sentiment that took over the border region. Texas citizens began to use

History

Jim Crow Laws to discriminate against Mexican Americans, eventually creating Juan Crow laws. Unfortunately, the actions of these patriots only furthered tensions between the two nations. The 1910 unjust lynching of Antonio Rodríguez in Texas facilitated the anti-Mexican and anti-American sentiments of the opposing countries.

Casey Heffron

Seasick: Medieval Maritime Health and Wellness

Faculty Mentor(s): Marie-Thérèse Champagne, History

Lead Author Department: Anthropology

Session: Poster Session

In the middle ages, death and disease were common facts of shipboard life. Health and wellness measures for crews and travelers at sea were necessary. Like on land, people of the Middle Ages practiced medicine and took preventive measures to avoid illness and death. Even though a human on land is physically the same as a human at sea, life on a ship with limited resources and abilities of crews and passengers posed additional threats and needs for adaptation to hazards. The medical practices of ships were not far off from those practiced in armies. Hippocratic medicine mixed with Christian doctrine and prayer was standard for medieval Europe and relevant to crews, merchants, sailors, and all other seagoing individuals who lived then. Injury and disease prevention was not limited to shipboard responsibilities. Other measures had to be taken on land and in ports. Sources and research on voyages, trade, battles, and ports expose what afflicted people at sea and what they did to overcome afflictions in the Middle Ages. Hazards and diseases were abundant, but the people of the middle ages were not helpless against the maladies that plagued human civilization.

History

Casey Heffron

Marshallse Population and Migration Move

Faculty Mentor(s): Erin Stone, History

Lead Author Department: Anthropology

Session: Poster Session

The Marshallse people have undergone many population and migration changes since they first encountered colonization from external powers. Easily overlooked, the Marshall Islands are small islands in the Pacific. Even though they are small, the transitions and changes the people of these islands have endured and adapted to throughout history up until the present day is nothing minuscule. The Marshallse people have gone from tropical Pacific islands to the middle of the United States in Arkansas. With all the transitions this group has made, certain aspects of their culture change, but some parts remained. The influence of change is unavoidable for any society. The people of the Marshall Islands remain in a borderland that continuously transforms and is influenced by many external factors. This borderland is not necessarily subject to the islands, but it is with the Marshallse people creating new lives such as those in Northwest Arkansas, USA. From initial colonization to nuclear testing to poultry plants, the Marshallse people's physical and cultural journey has been anything but simple and straightforward. Looking at the chronological events of and influences on the Marshall Islands, the necessity for change and movement is understood. The forces that resulted in change were at times hostile while some were not. The Marshallse people have endured and maintained an identity regardless of where they are.

History

Casey Heffron**Creating the American Masterpiece: Abilities in Disability in Early Nineteenth-Century America**

Faculty Mentor(s): John Jensen, History

Lead Author Department: Anthropology

Session: Poster Session

Early nineteenth-century America saw Andrew Jackson's political activity rally supporters all over America in support of white supremacy and westward expansion. Based on such ideas, Americans believed at the time that they contributed to a greater good: God's divine will to spread white Christian civilization from the Atlantic Coast to the Pacific. While Jacksonianism spread, so did the push for moral reform led by movements such as The Great Awakening and a widespread belief that Jesus Christ was returning any day. People were preparing themselves spiritually to go up with Jesus into heaven in those last days of judgment. Both of these ideological directions Americans took led to a culture of philanthropy, benevolence, and paternalism. From this culture came a sense of duty to help those less fortunate. American citizens paid more attention to the issues of the disabled, and solutions were sought. People like Dorthea Dix led movements to improve opportunities and living conditions for people with mental illnesses. Asylums built in all different parts of the country gave hopes for cures and improvements for this group. The early nineteenth century saw much change in the medical and social treatment of the mentally and physically disabled.

History

Historians began documenting the American acquisition of Florida not long after the ink dried on the Adams-On's Treaty. While we know the larger story well, few historians have recognized how Jackson's successful strategy that led to American victories in the Battle of Negro Fort and the First Seminole War. Drawing on The Papers of Andrew Jackson, 1816-1820, David S. Heidler and Jeanne T. Heidler's Old Hickory's War: Andrew Jackson and his Quest for Empire, Joe Knetsch's Florida Seminole Wars. 1817-1858, and Matthew J. Calvin's The Battle of Negro Fort: The Rise and Fall of a Fugitive Slave Community, this paper examines president James Monroe's intentions regarding an American pursuit of Florida, Jackson's intentions about the same topic, and how Jackson strategically conquered Florida with the Battle of Negro Fort and The First Seminole War. In this paper, I argue that Jackson had many strategic successes that made the American pursuit of Florida a success with the Battle of Negro Fort and the First Seminole War.

Ean Lundy**A Christ of Two Bodies: Alabama Baptists and Civil Rights, 1954-1968**

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

Religious institutions have played an integral role in upholding systems of oppression in the American South in the Civil Rights era. Historians including Jemar Tisby and Robert P. Jones have demonstrated how southern Protestant Christians used their faith to justify segregation and mistreatment of Black people. However, there seems to be far less scholarship devoted towards highlighting southern Protestants' actions to fight against racism and white supremacy. This research argues that southern Christians fought both for and against civil rights, but other than a few exceptions, these ideological schisms were roughly divided along racial lines. This project examines Baptists in Alabama and their interactions with the Civil Rights movement from 1954 to 1968, using them as a case study to assess the complex dialogue that developed among southern Protestant groups over segregation and white supremacy. The research uses scholarly secondary sources, as well as local newspapers, public statements, and other primary documents to demonstrate the nuanced ways that religion and racism were intertwined in Alabama during the Civil Rights era.

History**Andrew Morgan****How "Clip Joints" Became Part of the Romanticized Crime Culture of the 1930s**

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

During the prohibition in the 1920s and 1930s, it was hard to find places to enjoy a drink. Usually, in bigger cities, people would roam around in the night looking for speakeasies to quench their thirst for socializing and alcohol. However, because of this, shady businesses opened up and took advantage of the situation. These places overcharged the drinks and used women as their main advertisement. These places were called "clip joints" and soon became apart of romanticized crime. The history of "clip joints" is predominantly in big cities such as New York. Scholar Burton W. Peretti discusses this in his book Nightclub City: Politics and Amusement in Manhattan. He provides information on these "clip joints," such as how they operated in more detail than just alcohol and scamming customers. Also, he provides the type of people who operated these establishments and added realism to the "clip joints" as a whole. I will be looking at the 1920s and the 1930s newspapers, also using popular media to describe the effects of "clip joints" and how people saw them in New York. I argue that "clip joints" had a significant impact on society in America, causing a romanticization of their dangers during the 1920s and the 1930s. This impact being people discussing the crimes throughout the United States in newspapers, movies, and other media. This romanization still exists in the culture when crime seems to excite people's interests, such as with bootleggers and mobsters of the time.

History**Gene McGuire****Jackson's Florida: Andrew Jackson's Successes in the American acquisition of Florida**

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

History**Alexandria Nash****Policing the 1917 Shutdown of Pensacola's Red-Light District**

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

Prostitution is one of the oldest professions in the world, and it has shaped the societal landscape of countless cities. Pensacola is no exception to this, and prostitution within the city has a unique history built through social and governmental actions. Pensacola was an industrial city that attracted male laborers throughout the 19th and 20th centuries, which drove a demand for

History

female companionship in the form of prostitution. Pensacola's restricted district was unique in its regulation by law enforcement, as it was an illegal business that was allowed to operate under the close supervision of law enforcement. However, in 1917 as the United States entered the First World War, the Federal government set out proclamations ordering the red-light districts' shutdown. This order led to the temporary end of brothel operations within the city and caused dozens of arrests of prostitutes and madams. However, Pensacola was also facing issues with its police department and law enforcement's politics, making the policing of this period notable. During the shutdown period, Pensacola saw various shifts that would permanently alter the district's future and its relationship with law enforcement. The shutdown of 1917 had various impacts on society, culture, and government which lasted for decades.

Alexandria Nash

New Orleans as a European Borderland

Faculty Mentor(s): Erin Stone, History

Lead Author Department: History

Session: Poster Session

New Orleans pre-European Contact was a rich indigenous city whose culture seeped into the city's colonial structures. Throughout New Orleans's time as a borderland city, its diversity impacted everyday life, contributing to power dynamics that defined the city for centuries. Various groups such as women, African Americans, and indigenous tribes such as the Choctaw, Houma, and Natchez all interacted with the French and Spanish colonizers. Throughout New Orleans' time as a borderland, there was a rich middle ground allowing Indigenous culture to flourish for a more extended period than in other European borderlands. The diverse minority groups aforementioned played a critical role in creating the unique culture in New Orleans today, all while navigating an intricate system that involved colonial powers.

History

Ryan Obray

The Bolivian War of Independence

Faculty Mentor(s): Erin Stone, History

Lead Author Department: History

Session: Poster Session

The multiple wars fought in Bolivia that would lead to freeing Bolivia from Spanish control and lead to the establishment of the Republic of Bolivia feature many unique and interesting key players. One of the most important and remembered leaders of these wars is Simon Bolivar. Also known as El Libertador, Bolivar helped multiple countries gain independence from the Spanish Empire. He would later serve as the first president of Bolivia and Gran Colombia and president of Peru and Venezuela. He will be a fascinating person to study in this project because of his accomplishments and influence. The second interesting character in the Bolivian war of independence is the Padilla couple. Manuel Ascencio Padilla and Juana Azurduy de Padilla were husband and wife that served in the guerrilla military that fought for the independence of Bolivia. Juana Azurduy is an interesting character in this story because she was a female who was an important military member. She is one example of the unique roles that women played in gaining independence from Spanish rule. Studying this couple will shed more light on the intrigued history of the independence of Bolivia.

History

River Page

The Weather Underground and the Origins of Race Reductionism

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

Senator Bernie Sanders' two presidential campaigns in 2016 and 2020 ignited a debate over whether race or class should be given primacy in discussions of inequality, with some of the Senator's critics arguing that Sanders focused too much on class and did not sufficiently account for race, and utilized the term class reductionist against him. An array of writings by Sanders supporters proliferated in response, which countered that the Senator's detractors were besought with reductive thinking in terms of race and that this "race reductionism" had become dominant in left-liberal politics. This paper argues that the debate over class reductionism versus race reductionism has its roots in the factional disputes which arose during the 1969 convention of the Students for a Democratic Society (SDS), a once-large socialist, anti-war group based on college campuses. In 1969, a faction called Second Revolutionary Movement (RYM II) took over the organization and kicked another faction, the Progressive Labor Party (PL), out for what the former believed were undue attacks on the Black Panthers and class reductive thinking. The leaders of RYM II, who were white and came from mostly wealthy backgrounds, would later form the Weather Underground, which, in addition to its notorious bombing campaigns, adopted an exceedingly race reductive analysis that minimized the role of class and was hostile to the white working class to a degree unique among Marxist organizations at the time.

History

JP Peters

Life Was Never the Same - Arrival of the Iron Horse on American Farms: 1900-1960

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

Focusing on the experiential, lived-history of farmers, their families and communities, this poster argues that the affordable internal combustion tractor represented the arrival of the industrial revolution and the end of an idealized way of life for farmers in central NY and PA from 1900 through 1960. Foundational works by Davis and Hinshaw, Fitzgerald and McClelland address the impacts that technological and organizational innovation had on American agriculture. They serve as examples of the traditional focus of agricultural history. This poster will continue this line of inquiry by arguing that the arrival of affordable tractors on the small family farm, specifically in central New York and Pennsylvania, represented a shift in societal fabric as much as it represented changing production and economic figures. It explores the impact of that machinery on the practice of farming and the dynamics of rural society by analyzing contemporary photographs from the Henry Ford Archives, the Lewis P. Hine collection at the Library of Congress, and the Standard Oil of New Jersey collections, among others. In conjunction with photographic analysis, original contributions by farmers to publications such as Scientific American in the early 1900s, addressing the personal aspect of the impact of the tractor, are used to overcome the lack of personal accounts which characterizes traditional agricultural history scholarship. This poster demonstrates that the tractor arriving on the farm was to agriculture

History

as the internet was to modern society, in that it was so transformative that the divide pre-arrival and post-arrival is distinct and unmistakable.

Steve Rogers

History

The Sickly City: Comparing Responses to Two Different Outbreaks in Early Twentieth-Century Pensacola

Faculty Mentor(s): John Jensen, History

Lead Author Department: History

Session: Poster Session

When modern historians write about the history of disease, they often focus on countries, regions, or large cities. The issue with this fixation is it leaves out smaller cities from the broader historiography. This is a particularly distressing trend within the larger field of the history of public health because there are more smaller communities within the United States than there are large cities and by ignoring the majority, a historian cannot accurately grasp the severity how a pandemic affected the country. Pensacola, Florida was an important small port city in the Early Twentieth Century United States. While the city was not as large as other port cities such as New York City or San Francisco, Pensacola was almost as important as the mentioned cities because of the amount of naval traffic that frequented the area, and yet the area is often ignored. Drawing on personal letters and documents as well as published newspapers and reports, this poster explores how the city's citizens responded differently to emergency health policies and announcements than large cities during the Spanish influenza outbreak of 1918 and the bubonic plague outbreak of 1920. It argues that the responses differed in part due the levels of government, ranging from local to federal, handled the two outbreaks. By closely analyzing and the positive and negative responses to the two outbreaks in Pensacola, this poster will demonstrate the idea that there is much to learn about the societies of smaller cities during pandemics and endemics.

Jessica Rudo

History

Opium and the Origins of Mexican Drug Cartels

Faculty Mentor(s): Erin Stone, History

Lead Author Department: History

Session: Poster Session

Fifty years ago, President Richard Nixon declared a War on Drugs, vowing to stop illegal narcotics from getting to the country from Mexico. But the fight against drugs started a half-century earlier when intricate opium smuggling lines weaved together the borderlands along the dividing line. But it was not Mexican cartels moving black market products to needy consumers in the United States. In fact, the first smuggling routes were created and run by Chinese immigrants in Mexico and the United States. The Chinese opium rings were sophisticated and transnational in nature and a product of American anti-drug policies. Those borderland ties were tightened when the United States began its prohibition of alcohol. Thirsty Americans crossed the border to indulge at Mexican cantinas, and Mexican gangs created their own smuggling lines, separate from the opium ring, to bring alcohol into American bootlegging operations. When prohibition ended in 1933, these Mexican gangs lost their revenue stream and eyed the thriving Chinese opium trade, eventually taking it over by force. My paper will look at conditions that led to the creation of a black market for opium, the creation of

the Chinese opium smuggling rings, and how the Mexican gangs violently took them over. My paper will also examine how this takeover laid the foundation for current drug cartels, those cartel techniques and procedures, and even their current smuggling routes.

Jessica Rudo

History

Your Avocado Toast is Funding Drug Cartels: How US Policies and Procedures Made Avocados Conflict Commodities

Faculty Mentor(s): Erin Stone, History

Lead Author Department: History

Session: Poster Session

Perhaps it was because they grew in pairs. Maybe it was the distinctive shape of the fruit. Either way, when the Aztecs first saw avocados, they named them huacatl , meaning testicles. That is what the inspection team was after in October of 2019. Officially, the report stated that the USDA avocado inspectors were directly threatened when traveling through the Mexican state of Michoac n. Unofficially, local authorities report the group of sixty was robbed at gunpoint by a local drug cartel, Las Viagras, whose name comes from the massive amount of gel used to stick their hair straight up. While it should not have been surprising that a group named the Viagras were associated with fruit named after testicles, this incident brought international attention to cartel violence in the avocado market. However, avocado farmers have been living with a constant fear of being robbed, extorted, or kidnapped for several years. The avocado has picked up several nicknames, but its most recent nickname is Green Gold. The avocado has blossomed into a multi-billion dollar a year industry, with 77 percent of the world's avocados imported into the US. Michoac n exports 2.3 billion pounds per year, increasing farmer's profit from two and a half pesos to 80 pesos per pound. Not surprisingly, the increased revenue attracted the attention of the local drug cartels. But why would successful drug cartels need to encroach into other markets? The short answer is cartel involvement in the avocado industry is an unintended consequence of the fight against drugs.

Marissa Triola

History

Bodies on the Move: Secondary Internment of French and British Royalty in Saint-Denis Cathedral and Westminster Abbey

Faculty Mentor(s): Marie-Thérèse Champagne, History

Lead Author Department: Anthropology

Session: Poster Session

I am investigating the burial practices of royalty and major dynastic houses during the Middle Ages. I am comparing several royal families across emerging Europe or how the burial of royalty varied from commoners during that time (c.200-c.1450 AD). I focused on the churches of Saint-Denis and Westminster Abbey as they are two of the most prominent internment sites for European royalty. Each of the churches has become a highly visited site for tourists to visit the tombs of past royals and other famous historical figures. The church of Saint-Denis has been the final resting place for the kings of France for centuries and contains the remains of every king of France except three in addition to other royal family members such as spouses and siblings of the king. Westminster Abbey is the final resting place of the remains of past and historic rulers in addition to poets and other famous British individuals. I also took an interest

with the burial practices and memorialization of the dead during the provided time frame.

Marissa Triola

History

Before the Gold Standard: Alternative Currencies in West Africa During the Colonial Era

Faculty Mentor(s): Erin Stone, History

Lead Author Department: Anthropology

Session: Poster Session

I am interested in studying non-traditional forms of currency used in West Africa from the colonial period onward (1500-1900) and how these alternative forms of currency played a role in trade from Europe to Africa as a part of the larger trans-Atlantic slave trade. My goal is to explore if there were any alternative currencies that were given preference over another or if any regional alternative currency was localized or widespread. I intend to focus my paper on cowrie shells and manillas as the primary non-traditional currencies, but I am not excluding the possibility of including other non-traditional currencies from the region as research progresses. What these items have in common is that they were frequently used as currency in West Africa and were traded for slaves as well as European goods during the trans-Atlantic slave trade. I am also curious as to what the effect of the European gold standard had on the usage of currencies not backed by gold that were used in daily commerce and its effect on international trade with West Africa. Manillas were exchanged by European traders for slaves on the coast of West Africa and their makeup varied based on where the brass or bronze originated so could it be tracked back to where it originated from. Also cowrie shells were popular just as a regional currency and did not also have a larger role as a form of payment in the trans-Atlantic slave trade like manillas.

Joe Vinson

History

The 1875 Pensacola Lynchings and the “Right Way” to Protest Racial Injustice

Faculty Mentor(s): Jamin Wells, History

Lead Author Department: History

Session: Poster Session

In August 1875, two Black men suspected of raping a white woman in Escambia County, Florida were pulled from their jail cell in the middle of the night and hanged near Pensacola’s Seville Square. The 100-person mob then riddled their bodies with bullets. In the following days, racial tensions nearly boiled over as a local Black militia was met by armed white residents called into service by Pensacola’s mayor, a former Confederate colonel. Despite a rich historiography covering racial violence during and after Reconstruction, research into this particular chapter of Pensacola’s history has been limited by scant documentary evidence. I intend to contextualize the racial dynamics and politics at play during this period, when Black citizens made up nearly half of the city’s population and coexisted uneasily with former enslavers who still held most positions of power. I will identify how widespread resentment towards the “carpet bagger” circuit court judge in charge of the case, W.W. Van Ness, played a role in both this event and another double lynching that occurred a month earlier in nearby Milton. I will examine the available evidence, as presented by contemporaneous newspaper accounts, regarding the possible innocence of the murdered men and the rumors

of a conspiracy against them by white officials. Lastly, I will compare this event both to later episodes of racial violence in Pensacola and to the modern Black Lives Matter movement, showing that for many white people, there has never been a “right way” to protest racial injustice.

Ian Westlake

History

A Tale of Three Cities: Miami, Sarasota, and Pensacola in the 1920s Florida Land Bubble

Faculty Mentor(s): John Jensen, History

Lead Author Department: History

Session: Poster Session

During the 1920s, South Florida’s land valuation grew astronomically, centered around Miami. Other cities, like Sarasota, also saw large price movements in land valuation. To many, this rise in the price of real estate harkened the growth of the state. For example, Sarasota expanded its city limits in preparation for population growth and prosperity. However, confidence in the real estate market waned when a hurricane devastated Miami in 1926, destroying multiple homes. The real estate bubble popped. In the end, multiple banks in Florida and Georgia went under. Many investors sold or held onto their investments at a loss. Sarasota, which had initially expanded its limits to 69 square miles, decided to expand to a more conservative 12 miles. During this financial fallout, Pensacola remained untouched. Throughout the 1920s, they were isolated from the financial pandemonium that had taken hold of Florida. Pensacola didn’t see the massive growth in prices or population. Real estate prices were not inflated in Pensacola, so a correction in prices didn’t occur.

Sienna Williams

History

‘Heathens’ from the North; Reconsidering Viking Culture and Agency

Faculty Mentor(s): Marie-Thérèse Champagne, History

Lead Author Department: History

Session: Poster Session

From about the middle of the 8th century to the latter half of the 11th (793-1066 AD), the Vikings were known to depart their countries on vessels and embark on raiding expeditions to various European countries further south. This era was called the Viking Age. It was during this time that the Vikings obtained an image of shaggy, unkempt scoundrels who aimlessly raped, killed, and plundered their way through Europe with no thought of morals or consideration of ethics. They have been blamed for the decline of education in Europe as they disrupted monasteries. It is commonly understood that Vikings would commit heinous acts in various towns to collect loot and then return to their countries. Far less attention was given to the Vikings once they returned home. Consequently, Viking’s true culture remained in the dark for some time. Ultimately, the popular image of a Viking is often that of a harsh male with fierce intentions of military expansion. Despite this popular image of Viking warrior society, archeological and historical sources can reveal a more accurate assessment of their agency and culture.

Sienna Williams

History

Early Settlements in the New World; Determining the Conditions of Success

Faculty Mentor(s): Erin Stone, History

Lead Author Department: History

Session: Poster Session

If asked what the first European settlement in the nation is today, most would say St. Augustine in Florida. Most would not know of Tristan De Luna's expedition in 1559, the hardships it faced, or how it was almost the first continuous settlement in North America. I am researching both the Tristan de Luna expedition to Pensacola as well as the expedition of Pedro Menendez de Avil's that resulted in the founding and establishment of St. Augustine. Through my research I will discover hardships that both men faced in their journeys. These hardships can include external forces such as natural disasters and the environment as well as the indigenous population and other European colonists. Other hardships include internal factors as well. Once I have gathered all of the necessary data on both expeditions of Tristan de Luna and Pedro Menendez de Avil's, I can then compare what factors might have contributed to the imminent decline and failure of the Luna settlement and the ultimate success of St. Augustine in the context of the Florida borderland. This will serve to make the Luna expedition and settlement more known and to finally settle exactly why and how St. Augustine came to be the first European settlement in North America.

MUSIC

Alisha Hernandez

Music

Concerto in f minor, BWV 1056, I. Allegro maestoso II. Largo III. Presto - J.S. Bach (1685-1750)

Instrument: Harpsichord

Accompanist: Hedi Salanki

Lead Author Department: Music

Session: Musical Concerto

Isabelle Areola

Music

Concerto in d minor, K 446, I. Allegro - W.A. Mozart (1756-1791)

Instrument: Piano

Accompanist: Blake Riley

Lead Author Department: Music

Session: Musical Concerto

Andrew Gregg

Music

Concerto No. 4 in G major, Op. 58, I. Allegro moderato - Ludwig van Beethoven (1770-1827)

Instrument: Piano

Accompanist: Hedi Salanki

Lead Author Department: Music

Session: Musical Concerto

Daniel Perkins

Music

Concerto No. 2 in f minor, Op. 21, Maestoso - Frederic Chopin (1810-1849)

Instrument: Piano

Accompanist: Hedi Salanki

Lead Author Department: Music

Session: Musical Concerto

Liz McConnell

Music

Cello Concerto No. 1, Allegro non troppo, Camille Saint-Saëns (1835-1921)

Instrument: Cello

Accompanist: Blake Riley

Lead Author Department: Music

Session: Musical Concerto

Katie Smith

Music

"Signore ascolta" and "Tu che di gel sei cinta"

Instrument: Soprano

Accompanist: Blake Riley

Lead Author Department: Music

Session: Musical Concerto

Kameron Horak

Music

Tableaux de Provence for Alto Saxophone and Piano, V. Lou Cabridan, Paule Maurice (1910-1967)

Instrument: Alto Saxophone

Accompanist: Blake Riley

Lead Author Department: Music

Session: Musical Concerto

Caroline Bruns

Music

Viola Concerto in G minor, I. Apassionato-Moderato, Cecil Forsyth (1870-1941)

Instrument: Viola

Accompanist: Blake Riley

Lead Author Department: Music

Session: Musical Concerto

Duncan Miller

Music

Jacques Ibert (1890-1962) Concertino da Camera for Saxophone et Onze Instruments (1935) Allegro con moto Larghetto - Animato molto

Instrument: Alto Saxophone

Accompanist: Blake Riley

Lead Author Department: Music

Session: Musical Concerto

Izzy Schrack

Music

Richard Strauss (1864-1949) Einerlei, Schlagende Herzen, Der Stern

Instrument: Soprano

Accompanist: Blake Riley

Lead Author Department: Music

Session: Musical Concerto

Gabby Schrack

Music

Amy Beach (1867-1944) Three Browning Songs Op. 44 The Year's at the Spring, Ah, Love, But a Day!, I Send My Heart Up to Thee!

Instrument: Soprano

Lead Author Department: Music

Session: Musical Concerto

Maximilian Levesque**Double Bass Concerto, Op.3 I. Allegro - Serge Koussevitzky (1874-1951)**

Instrument: Double Bass

Accompanist: Andrew Gregg

Lead Author Department: Music

Session: Musical Concerto

Music

Emilie Woltering**Creating Anxiety in Big Band Musical Theatre by Doing a Harmonic Comparison of Rose's Turn and Don't Rain On My Parade**

Lead Author Department: Music

Session: Lecture Recital

Music

Katie E. Smith**The Taboo of the Feminine: How silence on reproductive health affects female musicians**

Lead Author Department: Music

Session: Lecture Recital

Music

PHILOSOPHY**Ihsan Buker****A Quantitative Approach to Spiritual Care: Assessing Patient Distress in Healthcare Settings Utilizing the SCI Platform**

Faculty Mentor(s): Jack Giddens, Philosophy

Lead Author Department: Biology

Session: Oral Presentation

Distress is a common phenomenon experienced not only by those who suffer physically due to illness but also by those who are faced with widespread social and cultural conflicts, including the devastation brought on by COVID-19 and other recent healthcare challenges. A collection of evidence obtained, particularly within the last 30 years, draws a strong connection between distress and poor health outcomes. As such, modern medical modalities have begun to address distress in a three-fold approach, where patient distress, health outcomes, and cost containment are managed simultaneously. Per modern medical modalities, Giddens, and Koenig, have established the Spiritual Comfort Index (SCI), which aims to systematically assess patient distress levels and to develop appropriate interventions to manage distress. Currently, the SCI platform is being implemented at three hospital systems. Based on data from these three locations, aims for this project include the development and implementation of two additional SCI platforms which are aimed towards registered nurses (SCI-II) and physicians (SCI-III), respectively. The goal of the study is to determine whether distress level decreased for patients treated with interventions, and by how much. Secondary objectives involve determining whether distress level decreases for patients not receiving spiritual or mind-care interventions compared to those who do, and by how much; whether RNs increase in resiliency because of direct involvement in mind-care or spiritual treatment; and whether overall work satisfaction increases because of increased task integration between RNs and chaplains.

Philosophy

THEATRE**Brittney Barton****Clybourne Park Backdrop**

Faculty Mentor(s): Holly Dixon, Theatre

Lead Author Department: Theatre

Session: Poster Session

My project has to do with a special effect in the theatre. I am trying to recreate a translucent backdrop on the stage where it will be opaque in one act and see through in another simply by changing the lighting on the backdrop itself. To do this, we need to use a specific material and painting method in order to allow the light to shine through from the back of the drop when we want it. I feel this effect is very important to the feeling of the show. I am trying to give off a ghostly feel to the house as if the characters are being haunted by the ghost of the house. In the show, "Clybourne Park," the family is haunted by their own past and are trying to move away in the first act. In the second act, all the characters are effected by the decisions the first family made. This is why it is so important to have that ever present haunted feeling in the second act. The director wants the two acts to be a stark contrast to one another and this translucent drop will really help to drive that concept home.

Theatre

**COLLEGE OF
BUSINESS****ACCOUNTING AND FINANCE****Cole (John) Hollifield****Virtual Poverty Simulation**

Co-Author(s): Olivia Duvall, Jack Monger-Hammersmith, Alexa Schlobohm, Azmi Atkinson, Eli Mayo

Faculty Mentor(s): Patricia Barrington, Movement Sciences and Health

Lead Author Department: Accounting and Finance

Session: Poster Session

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 10 a group of 6 students 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.

Accounting and Finance

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 using Google forms. Conduct practice simulations sessions, provide feedback, and revise the process and materials. Design invitations for the Core 2 students to participate in the simulation. Conduct the virtual poverty simulation for 40 Honor Core 2 students. Participate in a debriefing and reflection for the simulation. Develop marketing and social media materials for future poverty simulation workshops.

GLOBAL HOSPITALITY AND TOURISM MANAGEMENT

Xuan Tran **Global Hospitality and Tourism Management**
Impacts of Research on Student Learning Experience

Lead Author Department: Global Hospitality & Tourism Management
Session: HIP Faculty Showcase; Poster Session

Ata Atadil **Global Hospitality and Tourism Management**
Event Design Project

Lead Author Department: Global Hospitality & Tourism Management
Session: HIP Faculty Showcase; Poster Session

MARKETING, SUPPLY CHAIN LOGISTICS AND ECONOMICS

Kevin Dulion **Marketing, Economics and Supply Chain Logistics**
Measuring Brand Equity From Student Perceptions Concerning Local Businesses
Co-Author(s): Nicole Walker, Trenten Kawas, Sydney Alger

Faculty Mentor(s): James Mead, Marketing, Economics, & Supply Chain Logistics
Lead Author Department: Marketing, Economics, & Supply Chain Logistics
Session: Poster Session

In today's marketplace successful brands must develop and maintain distinctive images in order to sustain their competitive advantage (Cifci et al, 2016). By applying the concept of Consumer-Based Brand Equity (CBBE) it is presumed that an answer to each of the following questions can be found: Will an increased engagement between local businesses and University students have an affect on the businesses CBBE over a period of time? and What roles do Geography, social media presence, online reviews, and incentivized marketing play when students attempt to define a given company's overall Brand Equity? There have been many new developments within the area of CBBE over the last ten years (Cifci et al, 2016). How businesses land in the mind of various consumers can be susceptible to a host of different influencers. By creating an ongoing and

recurring measure of these influences and their effect on a brand's equity, we hope to gain a better incite into the vulnerabilities and strengths of that equity within the local business market. Further, we believe that by conducting and supporting this bilateral engagement between consumer and business, it may be possible to encourage better decision making both in consumption and production. It's theorized that by creating a database of mutually agreed upon standards, it is also possible to increase the amount of students who are well informed on the local area while increasing the overall utility for producers and consumers alike.

Scott Keller **Marketing, Supply Chain Logistics and Economics**
One Year & 36 Zoom Sessions: Students and Faculty Learn from Alumni who are Managing Supply Chains through the Pandemic

Lead Author Department: Marketing, Economics, & Supply Chain Logistics
Session: HIP Faculty Showcase; Poster Session

MBA PROGRAM

Melissa Brode **MBA Program**
Apply their learning in real-world contexts, Are expected to perform at high levels, Are provided timely and frequent feedback, Devote considerable time and effort, Reflect on their learning

Co-Author(s): Amy Brewer, Amy Miller, Amy Sinkus
Lead Author Department: MBA Program
Session: HIP Faculty Showcase; Poster Session

COLLEGE OF EDUCATION AND PROFESSIONAL STUDIES



ADMINISTRATION AND LAW

Jenn Brinkley **Administration and Law**
Sanctuary Cities and Counties for the Unborn: The Use of Resolutions and Ordinances to Restrict Abortion Access

Lead Author Department: Administration and Law
Session: HIP Faculty Showcase

Santa Rosa County, located outside of Pensacola, recently attempted to become Florida's first pro-life sanctuary county. Voters answered the following question on the fall 2020 ballot: Shall citizens of Santa Rosa County declare that Santa Rosa County is a Sanctuary for Life? Voters approved the sanctuary for life

referendum with 57% of the vote. Currently, Santa Rosa County does not have an abortion clinic. Though Santa Rosa County is the first county in Florida to establish this designation, it is not the first county to obtain sanctuary status in the United States. In fact, resolutions and ordinances have been presented to local governments from North Carolina to New Mexico. City councils and county commissions are being asked to pass resolutions and ordinances that designate its specific locality a sanctuary for the unborn. Some declare life begins at conception, ban abortion services (including access to emergency contraception like Plan B), classify abortion as murder with malice aforethought, label pro-choice organizations as criminal enterprises, and create civil causes of action against abortion providers and those who assist women in obtaining an abortion. This article examines the movement pushing local governments to create sanctuary status across the country. Most of the localities that have enacted the ordinances and resolutions have small populations and do not have abortion clinics.

CRIMINOLOGY AND CRIMINAL JUSTICE

Bailey Bullion **Criminology and Criminal Justice** ***Gun-Carrying to School: The Characteristics of Children Who Bring a Gun to School***

Faculty Mentor(s): Hasan Buker, Criminology and Criminal Justice
Lead Author Department: Criminology and Criminal Justice
Session: Oral Presentation

Events of school gun violence are of great concern in the United States. Previous studies examined the characteristics of gun violence on school grounds, but the research on students who bring a gun to school grounds is at best limited but certainly improving. The current study aims to systematically review the findings of the previous studies on the factors that characterize students most likely to carry guns on school grounds. Systematic reviews are useful to inform policymakers and researchers alike to determine consistent patterns in the existing research as well as informing future directions in developing strategies and further research needs on the subject matter. This systematic review points out that feeling unsafe in school, victimization, drug use, depression, anti-social behavior, other delinquent activities, attachment to school, bullying, and gang presence are identified as important predictors of carrying a gun to school among adolescents in the literature. How each of these variables are conceptualized, measured, and included in the analyses is also presented in this study. Finally, this study discusses the limitations of the past research studies and concludes with presenting commonly offered solutions or prevention policies, and the directions for future research on the subject matter.

Nicole Niebuhr **Criminology and Criminal Justice** ***Pathways For Change: Who is successful, and What Best Practices are in Place?***

Lead Author Department: Criminology and Criminal Justice
Session: HIP Faculty Showcase; Poster Session

Kayla Reid **Criminology and Criminal Justice** ***Pathways for Change: Who is Successful, and What Best Practices Are In Place?***

Faculty Mentor(s): Nicole Niebuhr, Criminology and Criminal Justice
Lead Author Department: Criminology and Criminal Justice
Session: HIP Student Showcase, Poster Session

Therapeutic communities offer an alternative to traditional incarceration while providing substance abuse treatment to individuals in a community atmosphere. The current study utilizes client data provided by the Pathways for Change therapeutic community program to determine variables that could impact successful completion of the program, while establishing the use of best practices. Factors such as age of first arrest, alcohol use, marijuana use, entering educational level, prior felony conviction, prior homelessness, and prior treatment experience were all found to be related to completion of the program. Determining variables related to client success is important, as those that stay in the program are more likely to be positively impacted and have lower recidivism rates post-treatment. The results of this study will be used to inform future research and policy.

LEGAL STUDIES

Emily Turner **Legal Studies** ***Pets and COVID-19: Why Florida Should Consider Pet Custody Statutes***

Faculty Mentor(s): Jennifer Brinkley, Legal Studies
Lead Author Department: Legal Studies
Session: Oral Presentation

The state of Florida still regards pets as property within the eyes of the law. This classification does not reflect the current outlook of American culture. Florida courts have already begun to see a rise in pet custody disputes within dissolutions of marriage. Additionally, the COVID-19 pandemic led to a rise in pet adoptions across the country. Florida was no different, with many shelters being completely cleared of adoptable pets for the first time, ever. The purpose of the article *Pets and COVID-19: Why Florida Should Consider Pet Custody Statutes* and accompanying presentation are to encourage consideration of a pet custody statute to guide the Florida courts. The article and presentation examine case law and statutes from across the U.S. as well as Florida, specifically. Statistical data was researched to show pet adoption rates before and during the pandemic. The likely effects of quarantine upon relationships were also explored. Studies performed upon those who endured past global pandemics, such as the SARS outbreak of 2002-03, were used to make inferences as to the way today's pandemic may affect citizens, psychologically and emotionally. These studies have shown the stress and isolation which often accompany quarantine typically have negative impacts upon a couple's relationship. As today's pets are truly considered family, it would do well for Florida courts to have guiding legislation which would apply across all jurisdictions in the future.

SOCIAL WORK

Maggie Nelson

Social Work

The 2nd Alarm Project: Program Overview and Initial Findings

Faculty Mentor(s): Dana Dillard, Social Work

Lead Author Department: Social Work

Session: Poster Session

First responders are at an elevated risk of developing trauma-related behavioral and mental health disorders. Various studies have shed light on the limited amount of mental health support resources for firefighters experiencing trauma. One study incorporated the research methods of using self-report questionnaires, the Post Traumatic Stress Disorder (PTSD) Checklist from the DSM 5, and Kessler Psychological Distress Scale to determine the severity of the psychiatric distress firefighters experienced from traumatic incidents and the importance of having advocates and social workers in this field. The study determined that there is a significant increase of mental mortality among first responders, increased risk of firefighters developing PTSD from trauma related incidents. These events can substantially increase exposure to first responders into developing mental disorders. Based on the results of this study, giving firefighters an outlet to allow them to express and release the trauma experienced from the line of duty can be a critical and often neglected part of the first responder profession. The 2nd Alarm Project addresses behavioral and mental health needs for firefighters by providing free telehealth counseling, peer support, mental health literacy, and leadership development to firefighters in the Florida Panhandle. This poster will detail the four areas of the program and present initial findings from survey data as well as implications for practice, policy, and research within the social work profession. Research activities that informed this presentation include reviewing scholarly articles and initial statistical findings from the survey data, as well as attending biweekly research team meetings.

TEACHER EDUCATION AND EDUCATIONAL LEADERSHIP

Elisabeth Ballew

Teacher Education and Educational Leadership

A Phenomenological Study of Lived Experiences of Female Elementary Mathematics Teachers

Faculty Mentor(s): Giang-Nguyen Nguyen, Teacher Education and Educational Leadership

Lead Author Department: Teacher Education and Educational Leadership

Session: HIP Student Showcase, Poster Session

The lived experiences of female educators teaching math will be the focus of the study to explore the relationship of perceived self-efficacy with mathematics instruction. The connections made with educators about teaching mathematics have identified relationships to student performance and influencing math perceptions. The purpose of the qualitative phenomenological study will be to explore the lived experiences of female elementary teachers self-efficacy beliefs about teaching math. Bandura's social learning theory is the theoretical

framework for the study and is based on the cognitive processes and how self-regulation and motivation factor into the personal progress of the development of beliefs. Personal, environmental, and behavioral factors will be used from the constructs of Bandura's social learning theory. Participants will answer interview questions to explore past experiences related to beliefs about teaching mathematics. The qualitative data will be processed and described by generating theme analysis of significant statements for essential invariant structure. The use of audio recording and digital transcription devices will be used to provide detailed and reliable data collection from participants for NVivo qualitative analysis software processing. The study of the lived experience will be supported through the use of the proposed qualitative research to understand the essence of the of female teachers self-efficacy of mathematics instruction.

Michelle Huff

Teacher Education and Educational Leadership

Results From an Evidence-Based Review of Experimental Research Examining the Effectiveness of Simultaneous Prompting With Students With Autism

Faculty Mentor(s): Timothy Morse, Teacher Education and Educational Leadership

Lead Author Department: Teacher Education and Educational Leadership

Session: Poster Session

Federal legislation pertaining to the design and provision of public-school programs on behalf of students with disabilities states that their teachers are, to the extent practical, use instructional strategies that have been shown to be effective through scientifically-based research. These strategies have come to be referred to as evidence-based practices. In their recent evidence-based review of 20 experimental studies, Tekin-Iftar et al. (2019) concluded that simultaneous prompting meets the criteria established for an evidence-based practice. Tekin-Iftar et al. remarked that this instructional strategy was effective across students with a wide range of disabilities, but that more work needed to be conducted to determine its effectiveness with students who exhibit certain types of disabilities, such as autism. Consequently, the focus of this presentation is an evidence-based review of 28 experimental studies that were conducted to learn about the application of simultaneous prompting with students with autism. Four topics will be addressed in this presentation. The procedures that were followed to conduct the evidence-based review (i.e., the protocol for locating relevant articles, variables examined, and the data analysis procedures applied). The trends that were identified across the variables examined. The seven procedural guidelines for teachers' use of simultaneous prompting with students with autism that were identified from the review. A new line of inquiry - instructional density and its relationship to trial-based instruction - that has emerged from the review.

Jennifer Stark

Teacher Education and Educational Leadership

Trauma & Resilience Webinar for UWF Students/Faculty

Lead Author Department: Teacher Education and Educational Leadership

Session: HIP Faculty Showcase; Poster Session

Aneta Walker

Teacher Education and Educational Leadership

Immersion of HIPs in Developing Leadership Practices

Lead Author Department: Teacher Education and Educational Leadership

Session: HIP Faculty Showcase

HAL MARCUS COLLEGE OF SCIENCE AND ENGINEERING



BIOLOGY

Andrew Brown

Biology

Exploring Marine Phage Hunting in the Pensacola Beach Area Using a Host-Specific

Faculty Mentor(s): Hui-Min Chung, Biology

Lead Author Department: Biology

Session: Poster Session

Bacteriophages (referred to as phages) are viruses that infect a specific bacterial host. They can either carry out a lytic life cycle, in which they replicate rapidly within the host and burst the cell wall, or a temperate life cycle, remaining dormant in the host DNA until environmental conditions trigger phage replication. Phages exist everywhere around the planet and are extremely diverse; up to 10 million phages can be present in a single drop of ocean water. However, the effect of phage diversity on our oceans has not been explored. Host-specific phage hunting techniques can enable deeper analysis for phages of interest. Using the host bacteria strain *Psychrobacter nivimaris*, I have isolated two marine phages, Apsu and Oceanus, from Pensacola beach sand samples. Apsu and Oceanus are currently awaiting genome sequencing, which will allow me to perform comparative genomic analysis between these two novel phages and online databases of sequenced marine and terrestrial phages. Despite this, host-dependent phage hunting methods are inefficient for assessing the spectrum of marine phage diversity. Host-independent metagenomic techniques allow a greater quantity of phages to be analyzed and are efficient for assessing phage diversity. In the future, I intend to carry out a metagenomic phage hunting protocol to sequence a greater number of phages from seawater than would be theoretically capable using a host-specific approach.

Josh Cook

Biology

Endurance Exercise Prevents Metabolic Distress-Mediated Hepatic Senescence Via Enhancing Lipid Oxidation and Inhibiting Lipogenesis

Co-Author(s): Madeline Wei, Benny Segovia-Ruiz

Faculty Mentor(s): Youngil Lee, Movement Sciences and Health; Ludmila Cosio-Lima, Movement Sciences and Health

Lead Author Department: Biology

Session: Poster Session

Non-Alcoholic Fatty Liver Disease (NAFLD) is one of the most common diseases in the United States and is associated with increased metabolic distress, however

recent evidence has suggested that endurance exercise can protect the liver against NAFLD. This study investigated if endurance exercise-mediated lipolysis and lipogenesis modulation prevents metabolic distress in the liver of mice. Female mice (n=33) were randomly divided into three groups: control group (CON, n=11), high-fat + high fructose group (HFD+HF, n=11), and high-fat + high fructose + exercise group (HFD+HF+EXE, n=11). The mice assigned to HFD+HF and HFD+HF+EXE groups were fed with HFD/HF for 12 weeks. Afterward, the mice assigned to the exercise group began started treadmill running exercise for 13 weeks (60 min/day, five days/week), while a diet in HFD/HF continued. Our study showed that EXE decreased the size of hepatic lipid droplets, restored lipolysis by upregulating lipolysis-related proteins (e.g., ATGL, ABHD5, HSL, and FABPI) and downregulating a lipogenesis protein DGAT1. Also, EXE increased mitochondrial biogenesis and fatty-acid transport proteins to the mitochondria (e.g., mitochondrial ACSL1 and carnitine palmitoyl transferases). Furthermore, EXE prevented hepatic senescence evidenced by suppression of senescence-related proteins (e.g., p53, p22, and p16), improved cell turnover via apoptosis (e.g., Caspase-3) along with decreased inflammation levels (e.g., TNF-alpha, IL-1 beta) and prevention of an oxygen free radical generator NADPH oxidase 2 (NOX2) expression. This study suggests that exercise-mediated multilateral cellular signaling modulations is necessary to provide hepatic protection, and thus EXE is a strong nonpharmacological therapy to attenuate NAFLD.

Selina Detzel

Biology

The University of West Florida Campus Ecosystem Study: Effects of Chronic Fire Exclusion on Remnant Longleaf Pine Stands

Co-Author(s): Katelyn D. Bray, Emily A. Major

Faculty Mentor(s): Frank S. Gilliam, Biology

Lead Author Department: Biology

Session: Poster Session

Property used to establish the University of West Florida contained numerous ecological features, including natural areas with remnant longleaf pine stands that had undergone recovery from extensive regional logging. The two most prominent of these were studied to quantify the effects of chronic fire exclusion on longleaf pine stands. We addressed these questions: (1) how does composition and structure vary between areas? (2) how do soil characteristics vary between areas and change under fire exclusion? (3) what is the size structure of longleaf pine on the UWF campus? Fifteen 0.04 ha circular plots were established in each area to assess composition and structure and sample mineral soil. All live stems \geq 2.5cm diameter at breast height (DBH) in each plot were identified to species and measured for DBH to the nearest 0.1 cm. Mineral soil was taken to a 5-cm depth, air dried, and analyzed for pH, organic matter, cation exchange capacity, extractable macro- and micronutrients, and extractable aluminum. Basal area and density were closely similar between the natural areas, as was canopy dominance (live oak and longleaf pine), but with contrasting sub-dominant species. Soil analyses revealed no significant differences between natural areas, but suggested that fire exclusion decreased soil organic matter and fertility with establishment of hardwood species. Diameter structure of longleaf pine contrasted sharply between natural areas and with the main campus, suggesting different land-use history.

Alexia Figueroa**Phytoplankton Production in Pensacola's Urban Bayous**

Faculty Mentor(s): Jane Caffrey, Biology

Lead Author Department: Biology

Session: Poster Session

Phytoplankton thrive off of the naturally occurring nutrients that enter every body of water. Eutrophication, specifically phytoplankton production, can indicate nutrient levels in different bodies of water. Phytoplankton play a key role in the ecosystem as the ocean's main food source, and they create nearly 50% of the atmosphere's oxygen. My research will examine the correlation between the nutrient levels in the three urban estuaries Bayou Texar, Chico, and Grande exploring their resulting eutrophication of phytoplankton. Through the use of light attenuation and measurement of water depth, it was found that the increased level of nutrients in the urban estuaries of Bayou Chico and Texar cause them to have a higher phytoplankton production. The resulting calculations are an estimate of phytoplankton production and those values are used to indicate how eutrophic a body of water is ranging from hypereutrophic to oligotrophic. Bayou Grande is a shallow bayou that is surrounded by Pensacola Naval Air Station and residential housing. The other two bayous are surrounded by urban land uses, which causes nutrient-rich runoff to enter the groundwater and filtrates into the bayous. Time of year was an important factor with higher concentrations of phytoplankton and higher phytoplankton production during the summer than in the winter.

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and color as well as, location and if they came from the surface or the benthos in the water column.

Chandler Grammer**Isolation and Annotation of a Bacteriophage****Co-Author(s): Daniel Neidigk**

Faculty Mentor(s): Kari Clifton, Biology

Lead Author Department: Biology

Session: Poster Session

Bacteriophage, also known as phage, are viruses that infect and destroy bacteria in order to reproduce. They hold promise for combatting increasingly antibiotic resistant bacteria. These viruses also play an important role in controlling the growth of bacteria in the natural environment. In this project, a phage that was named Jabba was grown and isolated so that its genes could be annotated. Jabba was grown using the host bacterium *Microbacterium foliorum*. It was purified and amplified using techniques such as serial dilutions, spot plates, and webbed plates. The final titer was 6.9×10^9 pfu/ml. The concentration of DNA was 70.9 ng/L which was not enough for sequencing, so work was begun on sequencing a phage named MrGreen, which had been discovered by another researcher. Both Jabba and MrGreen were found to be from the phage family Siphoviridae, and MrGreen was found to be from the cluster EE. The genes of MrGreen were annotated in order to determine their functions. MrGreen was found to have a total of 25 genes. The end result of annotation was to determine which proteins are encoded by which genes. This was done using several different software programs used to find genes of known function.

Biology**Tristyn Garza****Quantifying Microplastic Pollution in the Western Antarctic Peninsula****Co-Author(s): Justine Whitaker (Nicholls State University)**

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Oral Presentation

Across the world's oceans, one thing is consistent, marine pollution. A major type of marine pollution is plastics, which have been documented in both marine and freshwater systems, from the Arctic to the Antarctic. Unfortunately, plastic pollution cannot easily be broken down in natural ways, however, plastics can be physically broken down. When plastics are broken into pieces less than 5 millimeters in size, they are termed microplastics. Microplastics can be manufactured for items such as face wash or toothpaste, or be components of larger plastics that have broken off due to physical degradation. Microplastics can be transported across the globe through ocean currents, even to secluded areas such as the Southern Ocean, specifically in the Antarctic Peninsula. The Antarctic Peninsula is home to several scientific bases, is a tourist destination, and is the most rapidly warming region on earth. Antarctica is isolated through both the Antarctic Circumpolar Current and the Polar Front but remains connected to the world's oceans through global circulation. Microplastics have been documented as far south as 67°S but studies have yet to look at the concentration of microplastics in fjord systems along the Western Antarctic Peninsula. This project aimed to quantify and characterize microplastic presence in three fjords over a three-year period from 2017 to 2020 through seawater samples from the surface and the benthos. Microplastics were quantified and characterized by size, type,

Biology**Ryan Gustin****Continuation of Time Series Database for Pensacola Beach Microbial Ecology****Co-Author(s): Jackson Reimer, Caroline Hornfeck, Sarafina Mowe, Hope Ebert, Erika Headrick**

Faculty Mentor(s): Wade Jeffery, Center for Environmental Diagnostics and Bioremediation

Lead Author Department: Biology

Session: Poster Session

Establishing baseline parameters for a given environment is important when trying to understand how anthropogenic or natural disturbance events affect an ecosystem. Microbes are important to the overall health of marine ecosystems; they are important in both nutrient cycling and the greater marine food web. By collecting data including dissolved nutrients, bacterial production, primary production, temperature, salinity, and microbial diversity over long stretches of time, researchers can understand temporal trends. Ultimately, a long term time series database can be used to evaluate the overall 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

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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.

Elizabeth Hargis

Biology

The Collection, Amplification, and Genome Sequencing of Bacteriophage Bernadetta

Co-Author(s): Allison Linkous

Faculty Mentor(s): Kari Clifton, Biology

Lead Author Department: Biology

Session: Poster Session

Bacteriophage (phage) are the most abundant microorganisms in the world and although we know little about them, they have the potential for countless applications in the medical field, farming industry, and even animal health. Our research goal is to identify phage in soil samples and isolate in order to annotate its genome; through these tasks we can expand the worldwide phage database. A soil sample was collected, processed, and a phage was successfully located. Using *Microbacterium foliorum* as a host, the phage was then purified, amplified to a titer of 4.0×10^{10} , and the DNA was extracted with a concentration of 237.4 ng/l. The DNA was sent for sequencing and had an almost identical sequence to a previously annotated phage in the cluster EE, so we annotated our secondary sample MrGreen who was also in cluster EE. Cluster EE typically has 25-28 genes and there are typically 3-4 reverse genes in the genome. Based on transmission electron microscope (TEM) images Bernadetta was placed in the family Siphoviridae. MrGreen also had a TEM image that placed it in the family Siphoviridae. Finally, Mr Green's annotated genome was added to Sea Phages Database to add to the growing knowledge of phage genomics.

Shay Harvin

Biology

Water Quality Sampling at Washerwomen Creek, Bruce Beach, and Mitigation Wetland

Faculty Mentor(s): Jane Caffrey, Biology

Lead Author Department: Biology

Session: Poster Session

Water quality sampling taken at washerwomen creek, bruce beach, and mitigation wetland in Pensacola, FL. This project is important because it allows us to monitor the water quality after events such as hurricanes or rainstorms. This site has especially been impacted by strong storm surges. Samples are analyzed for bacteria total counts, chlorophyll a, dissolved inorganic nutrients, and total suspended solids. Environmental parameters such as secchi depth, water temperature, conductivity, DO%, and pH are taken as well. So far we have found low bacteria counts and have begun total suspended solid measurements. We hope to continue sampling for an entire year and build based of our data.

Molly Hayne

Biology

Exploring Lab Techniques and Methods for Measuring Cutaneous Resistance to Water Loss (CWL) in Anurans

Faculty Mentor(s): Wayne Bennett, Biology

Lead Author Department: Biology

Session: Poster Session

Within order Anura, a group that includes frogs and toads, it has been observed that their highly permeable skin plays an important role in avoiding desiccation, or dehydration. This is referred to as their cutaneous resistance to evaporative water loss (CWL) and it varies based on whether the anuran is aquatic, semi-aquatic, terrestrial, or arboreal. The primary goal of this project was to investigate the most common laboratory techniques used to quantify CWL in frogs and toads. This involved building a literature review of past CWL studies and replicating the critical laboratory techniques done in these selected studies. A small sample size of White's tree frogs (*Litoria caerulea*) was used for this project, and rapid dehydration was simulated by dosing the frogs with a temporary anesthetic, positioning them into their natural water-conserving pose, placing each in a wind tunnel, and then taking internal temperatures as cutaneous water evaporated. The resulting CWL was determined gravimetrically in tandem with an established surface area measurement and vapor density difference (VDD), which is water vapor density at the frog's body temperature versus the water vapor density at air temperature. This investigation of lab techniques resulted in an assessment of how these methods may actually impact the data in an unprecedented way. As such, these methods can be further improved upon in order to gain a greater understanding of the physiological mechanisms that allow these organisms to retain water in metabolically demanding environments.

Caroline Hornfeck

Biology

Surveying Pensacola Beach for Elasmobranchs using Environmental DNA and Metabarcoding

Co-Author(s): Melissa Schreiner

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Oral Presentation

Elasmobranchs (sharks, skates, and rays) play important ecological roles within ecosystem communities due to their influence over lower level organisms. Over the years, many elasmobranchs have experienced a decline in population size due to anthropogenic activity and are listed on the IUCN Red List of Threatened Species. Due to their size and high mobility, monitoring the distribution and abundance of elasmobranchs in marine ecosystems remains challenging. Conventional survey methods, such as longlines, can be harmful and often invasive to the target organism. The aim of this study was to characterize elasmobranch presence and diversity at Pensacola Beach using cost-effective and non-invasive environmental DNA (eDNA) metabarcoding techniques. Specifically, coastal water samples were collected at seven beach locations from June 2020 to March of 2021; abiotic factors such as temperature and salinity were measured. DNA was extracted from preserved samples and amplified using

universal PCR primers. Detected elasmobranch species will be grouped based on season, and endangered species will be further investigated. This study aims to impact conservation efforts by providing information about when endangered elasmobranchs are present along Pensacola Beach.

Jordan Kleinschmidt

Biology

Microplastics in Florida, USA: A Case Study of Quantification and Characterization with Intertidal Snails

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Poster Session

Microplastics are small particles of plastic that are five millimeters or less in size. These microscopic particles come from a variety of sources including beauty products, fishing gear, clothing, and from the degradation of plastic products. Microplastics can cause damage to intertidal organisms, as well as causing issues up the food chain with biomagnification and seafood consumers, such as humans. These factors make Florida a special case to review considering the state is affected heavily by hurricanes and tourism, which can contribute to microplastic concentrations in the Gulf of Mexico. The focus of this study was to quantify microplastics contamination in two marine snail species from intertidal habitats in Florida. The Red-mouth rock shell (*Stramonita haemastoma*) and Crown conch (*Melongena corona*) are gastropod molluscs that can be found in intertidal habitats in the Gulf of Mexico. Both predatory snails, Red-mouth rock shells feed on bivalves, gastropods and barnacles, while Crown conchs consume filter feeding bivalves and other snails. Marine snails serve as sustenance for other organisms in the ecosystem, such as whelks, murex, and stone crabs. Seawater samples and marine snails were collected from intertidal beach habitats in Northwest Panhandle and Central Florida, and gastropod tissue was digested for microplastic quantification. After tissue digestion was complete, seawater and tissue samples were filtered and microplastics were quantified and measured using microscopy. Marine intertidal snails may be good organisms for biomonitoring of microplastics in intertidal sandy habitats.

Rachel Lackaye

Biology

Isolating MrGreen

Faculty Mentor(s): Kari Clifton, Biology

Lead Author Department: Biology

Session: Poster Session

Bacteriophage are viruses that parasitize bacteria and use the body to replicate itself. They are also the most abundant microorganisms in the world and hold great influence over the Earth's ecosystems. The purpose of this project was to isolate a unique bacteriophage from an environmental soil sample. An environmental sample from a flower bed was filtered and a phage was successfully isolated and named MrGreen. The phage was cultured using the host bacterium *Microbacterium foliorum*. Using a series of serial dilutions the phage was passaged until it was a pure sample. MrGreen's plaques were found to be small, had an average diameter of 1mm, and were clear without halos. This showed that MrGreen was a lytic phage that cleared all bacteria in each plaque. After several rounds of amplification a final titer of 2.3×10^9 plaque forming units per mL was achieved. MrGreen was determined to be the family

Siphoviridae and cluster EE, based on T.E.M.. Cluster EE phages typically have between 23 and 28 genes and MrGreen was no different. Its genome had 25 genes, three of which (20,21,22) were in the reverse direction.

Kayla Mabry

Biology

Determining Mask Efficacy Using *Streptococcus mutans* as a Surrogate for the SARS-CoV-2 (COVID-19) Virus

Co-Author(s): Sandhya Prayaga, Jamie Martinez

Faculty Mentor(s): Joe Lepo, Biology

Lead Author Department: Biology

Session: Oral Presentation

Since the beginning of the COVID-19 pandemic, mask efficacy has been debated, and research on mask size, fit, and material has been contradictory. SARS CoV-2, the virus that causes COVID-19, is spread by aerosol droplets from the mouth or nose. Since assessing the spread of SARS CoV-2 raises safety and containment concerns, we used *Streptococcus mutans*, a non-pathogenic bacterium as a surrogate for the virus. *S. mutans* resides in the human buccal cavity like the virus and is expelled by similar mechanisms. Though the bacterium is larger than SARS CoV-2, the spread is the same. *S. mutans* will be collected and monitored on a selective medium (TYCSB agar). Three common mask materials, N95 mask (A), a surgical grade "blue" mask (B), and an over-the-counter mask (C) will be tested in an "artificial airway test system" (AATS). To increase AATS reliability and performance, confer heat resistance and optical transparency, we changed the original polyvinylchloride design to 2" polycarbonate (PC) pipe with 2.25" silicone couplers between the PC segments. This system is completely heat-sterilizable and can be hermetically sealed. All experiments will be conducted in a certified laminar flow hood, in the Lepo Lab, to prevent contamination. A vacuum pump coupled to one end of the AATS draws air through mask media between the PC AATS segments, and a "Spirometer" quantifies air flow. Nasal spray bottles are used to simulate cough and sneeze aerosols in 100 L bursts within the AATS. Bacterial suspensions have been standardized, and collection protocols are in development

Eli Mayo

Biology

Professor Plum, in the Lab, with the Pipette

Faculty Mentor(s): Kari Clifton, Biology

Lead Author Department: Biology

Session: Poster Session

Bacteriophage (phage), viruses that are parasites to bacteria, are the most abundant organism on Earth; there are about 10^{31} singular phage organisms in the world. It is believed that they could be used as enhancements or replacements to antibiotics, especially for superbugs that are heavily mutated, because phage are able to adapt and mutate at the same rate as, if not faster than, bacteria. The purpose of this project was to isolate and amplify bacteriophage, extract and analyze their DNA, and annotate their genome. Phage were collected from soil samples, isolated, and amplified through a process of lysate collection and concentration. The phage were grown using a bacterial host of *Microbacterium foliorum*. This phage was named ProfPlum and was found to be part of the family Siphoviridae from Transmission Electron Microscopy (TEM). Once the phage reached a high titer lysate of at least 5×10^9 pfu/mL (a

high titer lysate of 1.38×10^{10} pfu/mL was achieved), the DNA was extracted. The DNA concentration was found to be 49.7 ng/mL. Because this particular phage did not have the most abundant amount of DNA out of the group, its DNA was not sequenced; however, the bacteriophage MrGreen was sequenced, and that sequence was annotated. It was found that MrGreen is a member of the EE cluster and holds very similar traits to previously discovered bacteriophage. It has 25 genes, 3 of which (20, 21, 22) are reverse genes.

Adrienne Moreno

Biology

Investigating the Microbial Variants in Kombucha and Its Effect on

Reproduction and Motor Activity in *Drosophila Melanogaster*

Faculty Mentor(s): Hui-Min Chung, Biology

Lead Author Department: Biology

Session: Poster Session

Investigating the Microbial Variants in Kombucha and Its Effect on Reproduction and Motor Activity in *Drosophila Melanogaster* The past two decades scientists have found that bacteria benefit human health. *Drosophila melanogaster* is a model genetic organism, with many similarities to humans. The similarity relevant to this project is the gut and digestive tract of the *Drosophila melanogaster*. Kombucha is a fermented drink, with a high content of probiotics. I hypothesized that the microbes from the kombucha will have benefits on fruit fly's health, such as: longer lifespan, higher levels of reproduction, and higher motor activity. In this experiment, the goals were to identify the effects of kombucha on the *m. Drosophila* throughout its life cycle. The experiment started with three groups as follows: Group A: Control group (no kombucha). Group B: 1:1 dilution, Group C: 1:3 dilution of kombucha to water. The flies were passed every 5 days into a tube of the same food. I then recorded the number of adult flies, larva, and pupae after 13 days. The data shows that the number of adult flies, pupae and larva was highest in group A, however group C was close to Group A. Group B had a much lower count in these categories. This suggests that there may be a connection between concentration of kombucha and the number of flies that survive to become adults. I am currently repeating the same experiments with adding another dilution factor. I will discuss results from these experiments during the symposium.

Sarafina Mowe

Biology

Molecular Diversity Time Series Database for Northern Gulf of Mexico

Faculty Mentor(s): Wade Jeffrey, Biology

Lead Author Department: Biology

Session: Poster Session

While microorganisms are rather small, they encompass a large percentage of the diversity seen in marine environments. They are also important in cycling nutrients and as the base of marine food webs (Azam et al. 1983). We are working to establish a seasonal baseline of coastal microbial dynamics to understand changes due to disturbance events similar to works by Simmering (2020), and Murrell et al. (2003, 2008). Metadata already collected includes chlorophyll-a concentrations, primary production, bacterial production, cell counts, dissolved nutrients, and total nutrients. Currently, we aim to catalog the microbial community off the coast of Pensacola Beach by extracting DNA from samples. Bacterioplankton were collected by filtering one liter of coastal seawater onto a 0.2 micron filter. DNA was

then extracted from each filter and subject to Illumina sequencing on the Miseq platform using universal 16s rRNA gene primers 515F-926R (Walters et al., 2015). Relative abundances of amplicon sequence variants (ASVs) will be determined, and statistical differences between sampling times will be observed using an analysis of similarities (ANOSIM) and multi-dimensional scaling (MDS). Patterns in microbial communities and diversity metrics will be compared to season and metadata mentioned above. While we plan to have our fifth year of this seasonal study analyzed by the end of summer, this ongoing seasonal time series will continue to be analyzed over the coming years.

Hailee Nigro

Biology

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

Co-Author(s): Rebecca Varney (University of Alabama)

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Poster Session

Microplastics are plastic debris particles that are 5mm in size or less, which can be taken up by marine organisms as they filter water, filter feed, or consume other organisms. Microplastics originate from the breakdown of larger plastics, or are directly manufactured, and have recently been connected to physiological harm and reduced survival rates among marine organisms. This research aims to understand whether presence of microplastics in regenerated tissue of the echinoderm, *Luidia clathrata*, will affect elongation of telomeres. Linear chromosomes all contain telomeres as they protect genetic coding stored on chromosomes from being lost. Shortening telomere length occurs with age but can be influenced by environment and lifestyle. When telomeres reach a critical length, apoptosis initiates. Sea stars have been observed to elongate telomeres after regeneration. It is hypothesized that microplastics in the tissue of the echinoderm after consumption or uptake by the water vascular system will instead decrease telomere length. Sea stars will be treated with low and high concentrations of microplastics and allowed to regenerate. DNA is extracted from tissue samples of regenerated arms and used to measure lengths of telomeres, which will be compared with lengths measured before microplastic introduction. Sea stars are extremely durable to their environment, demonstrated by their ability to survive predation and harsh conditions through regeneration. Decreasing telomere length through microplastic intake exposes critical threats to this organism and all linear chromosome species that elongate telomeres in gonads for reproduction. Reduced length could speed the process of cell aging and cell death.

Ethan Nunley

Biology

State of the Review of Developing Research in Creutzfeldt-Jakob Disease Regarding Genetics and COVID-19

Faculty Mentor(s): Tiffany Jackman, Health Sciences and Administration

Lead Author Department: Biology

Session: Poster Session

Creutzfeldt-Jakob disease (CJD) is the most common form of human transmissible spongiform encephalopathy, occurring at a rate of 1-1.5 per million. This disease is caused by the misfolding of the prion protein from its natural state (PrP^c)

into a pathogenic state of the protein (PrP^{sc}). The disease causes aggregation of amyloids in the brain that lead to symptoms akin to that of Alzheimer's disease and, in all cases, death. It has been found that the occurrence of this disease is associated with mutations in regions of PRNP gene that codes for the prion protein, as well as changes in the genetic expression of many other genes. This state of the art review compiles and analyzes the most recent research with genetic and epigenetic variation associated with CJD, with hopes of finding similarities in the research to inform and direct further research and possibly motivate increased financing of research in this field. Lastly, it explores the recent complications relating to CJD caused by Covid-19.

Khadaja Nurse

Biology

DNA Barcoding from Artificial Reef Organisms in the Gulf of Mexico

Co-authors: Khadaja K. Nurse, Victoria E. Bogantes

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Oral Presentation

Biodiversity is a biological concept that helps us understand individual species, patterns, and habitats. In marine environments, a complete understanding of biodiversity of all species is lacking however, in some habitats, such as coral reefs, dramatic loss of biodiversity has been documented. In attempts to help curb loss of diversity, artificial reefs have been employed. Artificial reefs are human-made underwater structures meant to promote marine life, control erosion, block ship passage, reduce the use of trawling nets, and improve surfing. In this study, we used Autonomous Reef Monitoring Systems (ARMS) in order to monitor life and biodiversity on artificial reefs. Specifically, we documented taxa collected from ARMS deployed in the Gulf of Mexico in 2017 and focused on annelids to understand the structure of natural reef habitats and which species are primary, secondary, or tertiary settlers. Annelids will be identified to species level using a fragment of the mitochondrial cytochrome c oxidase I (COI) gene sequence as the barcode. Knowing what and when species settle is essential to prioritize species for preservation and conservation. This research provides a crucial baseline to aid in conservation of marine biodiversity in the Gulf of Mexico.

Dhanvi Patel

Biology

Using the PHD 7 mer Library to Analyze CSF Tau Concentrations in Alzheimer's Disease and Control Patients

Faculty Mentor(s): Rodney Gutmann, Biology

Lead Author Department: Biology

Session: Poster Session

Alzheimer's disease (AD) is the 6th leading cause of death. It is usually seen among the older generations, the prevalence of which is only expected to increase as populations age. Those who are clinically diagnosed with Alzheimer's disease have a decrease in cognitive function. At this point in diagnosis, brain damage typically is impossible to repair. However, the importance of potential biomarkers associated with changes in the brain and AD have caused a shift in focus within the field. A biomarker is the tau protein as it functions in microtubule formation and stabilization. However, the absence or presence of post-translational modifications (PTMs) in Tau may be indicative of the progression of AD in patients through the "gain of toxic function". PTMs may

or may not be responsible for the development of these toxic functions that are passed on to normal Tau molecules that gives rise to improper placement of cells. Using these biomarkers allows for an early diagnosis in advance to the beginning of symptoms commonly related with Alzheimer's disease. The purpose of this project is to establish a biomarker-based screening assay to recognize Alzheimer's disease. To test the array of phage biomarkers, I will use human blood and CSF samples. I want to first identify phage biomarkers to create an inexpensive solution. Although there is no known cure for the disease, I want to conduct studies that will help us find new interventions and diagnose the disease earlier.

Megan Rasmussen

Biology

The Effects of the Microbiome on the Epigenetics of the Drosophila melanogaster

Faculty Mentor(s): Hui-Min Chung, Biology

Lead Author Department: Biology

Session: Poster Session

This study focuses on investigating the effect of microbiome on the epigenetic changes in the fruit fly *Drosophila melanogaster*. Studies have shown taking probiotics could change gut microbiome which is correlated with health improvement. We hypothesize that the change in the microbiome will lead to epigenetic changes that result in variations of gene expression. These changes in gene expression could provide several beneficial physiological outcomes for *Drosophila*. We intend to test this hypothesis by examining the DNA methylation patterns of flies fed with- and without probiotics. The control group is incubated in an axenic environment, where the flies are fed with sterile food. The experimental group will be incubated in an monoxenic environment, where flies are fed with sterile food and a bacterial strain of *Lactobacillus plantarum*. The microbiome composition of the axenic and monoxenic groups will be determined by 16S rRNA analysis. DNA methylation patterns of both groups will be compared using the Nanopore sequencing technique. The hypothesis predicts that after ingesting the probiotics, the fly will experience the benefit of adding *Lactobacillus plantarum*, measured by lifespan and developmental rate. We have established the methodology for incubating flies and creating the axenic environment. We observed that the axenic flies seem to have a slower developmental rate and are in the process of comparing the developmental rate between the axenic and monoxenic flies fed with *Lactobacillus plantarum*. In addition, we are establishing the operational conditions of Nanopore sequencing for our samples. We will discuss our progress in the conference.

Jackson Reimer

Biology

Does Fishing Pier Environmental Footprint Influence Sea Turtle Occupancy and Bycatch?

Faculty Mentor(s): Susan Piacenza, Biology

Lead Author Department: Biology

Session: Poster Session

Recreational bycatch is a much smaller proportion of overall sea turtle bycatch; however, it is possible that as sea turtle populations of the Gulf of Mexico continue to grow, recreational hook and line bycatch will become more common. Florida's piers play an important role in the development of juvenile sea turtle

populations. However, in Florida, fishing piers are serving not only as an artificial habitat, but also as a source of bycatch for sea turtles. These accidental hooking events do not occur equally across Florida's gulf coast. This study examines Florida fishing piers and their important role as artificial habitats for sea turtles as well as factors possibly influencing sea turtle occupancy and bycatch. We used georeferenced data on bathymetry and distance to important types of habitat coupled with in situ collected data on macroalgal composition of pier pilings to investigate factors that may influence occupancy and species abundance of sea turtles at fishing piers. Using stereo-video cameras, we estimate body sizes of turtles observed at the fishing piers. These results can be used to make recommendations about bycatch mitigation measures for fishing piers in the Gulf of Mexico, and to guide the design and site selection for future fishing piers and artificial reefs.

Hunter Rider

Biology

A Race Against Time: Using Environmental DNA to Detect Specimens of the River Redhorse in the Escambia River

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Poster Session

Environmental DNA (eDNA) is a molecular tool that can be used to detect threatened and endangered organisms, as well as those that are elusive when conventional field sampling is too costly and/or ineffective. Collected fecal matter, mucus, and/or scales of the target species left behind in the water can be used to determine presence in a sampled area. Environmental DNA is utilized in this project to detect the presence of the River redhorse (*Moxostoma carinatum*) in the Escambia River, a "species of greatest conservation need" in the state of Florida. Populations of the River redhorse in Florida are spatially isolated, and specimens have been collected three times in the past 60 years. Thus, the River redhorse species is an ideal candidate for the process of the eDNA technique. Surface water samples were collected at specific sites in the Escambia River and lower Conecuh River. Collected water samples were preserved in sodium acetate and ethanol for the process of DNA extraction. Detection of River redhorse DNA will provide evidence that this species is still extant in Florida, as well as temporal information on the general locations of specimens before, during, and after spawning migrations. Positive detections can be used to indicate ideal locations and times for conventional field sampling, and habitat and potential spawning migration routes of the River redhorse in the Escambia River can be managed for the restoration and preservation of the population. Environmental DNA is the beginning of providing efficient conservation for the River redhorse.

Emily Robbs

Biology

Assessing the Effects of Atypical Antipsychotics on Neutrophil Viability

Faculty Mentor(s): Peter Cavnar, Biology

Lead Author Department: Biology

Session: Poster Session

Neutropenia is a syndrome where an individual's absolute neutrophil count (ANC) drops to low levels, impairing immune function and response and ultimately leading to an increased risk of infection. This syndrome can be induced by a class of drugs known as atypical antipsychotics (AAPs), which are used to treat

mental disorders like schizophrenia and bipolar disorder. How these drugs act on neutrophils remains unknown. Our study aims to determine if four of these AAPs clozapine, olanzapine, aripiprazole and quetiapine decrease cell viability in neutrophils using a model neutrophil cell line, PLB-985. Results indicate that aripiprazole significantly reduces neutrophil viability at 20uM and 50uM concentrations after cells have been exposed to the drug for 48 hours.

Kristina Samborski

Biology

Sea Turtle Behavior in the Gulf: Measuring Wariness

Co-Author(s): Chris Noren, Tabitha Siegfried, Emma Roberto

Faculty Mentor(s): Susan Piacenza, Biology

Lead Author Department: Biology

Session: Poster Session

Studying variations in behavior with a human presence can be an important supplement in assessing animal sensitivity to humans. Observing the behaviors of threatened and endangered species is essential for effective conservation strategies. With limited research on under-water behaviors of sea turtles, this study observes the behaviors of three species; *Carreta carreta*, *Chelonia mydas*, and *Lepidochelys kempii* using diver operated stereo-video around the Gulf of Mexico. With stereo-video analysis, animals were measured and video data was analyzed to obtain a Wariness Index. The Wariness Index includes startle response time, intensity, and minimum approach distance. The aim of this study was to obtain empirical evidence on variations of behavior in response to human proximity. We hypothesized that smaller turtles would exhibit more wariness behavior than larger turtles because of their size-induced vulnerability, and rarer turtle species would exhibit more wariness than other species. Statistical analyses in progress.

Naomi Semaan

Biology

Investigating the Effects of Light and Alcohol on the Behavior and Genetics of *Donax variabilis*

Faculty Mentor(s): Hui-Min Chung, Biology

Lead Author Department: Biology

Session: Poster Session

Donax variabilis, or coquina clams, are an abundantly distributed marine species that serves as a bioindicator for their ecosystem. While their importance is apparent, very little is known regarding their biology. Our research goal is to determine whether the external factors of light and alcohol concentration have an effect on the coquina clam's behavior and gene expression. Our experimental design involves observing the coquina clam's burrowing behavior to analyze their stress level when exposed to different colors of light and concentrations of alcohol, while also isolating the genes that perceive light (opsin gene) and process alcohol in the body (ALDH). In previous OUR research, the coquina clam's ALDH and opsin gene RNA was sequenced, however, the genomic DNA is needed to determine gene expression. Therefore, by determining the stress response of coquina clams and sequencing the DNA of the ALDH and opsin genes, this will allow future research into the possible changes in gene expression when clams are placed under these stresses. We predict that exposure to higher concentrations of alcohol and non-natural light will cause high levels of stress and lead to unnatural burrowing patterns and changes in speed. Currently, we

are performing the behavioral assays with light changes and are in the process of extracting DNA from the coquina clams to run PCR experiments to amplify the desired genes. The completed results for behavioral response and gene sequencing will be discussed during the OUR Symposium in April.

Peyton Sims

Biology

The Utilization of PHD 7mer Libraries to Assess Human Cerebrospinal fluid of Non-Demented and Alzheimer's Disease Subjects

Faculty Mentor(s): Rodney Guttman, Biology

Lead Author Department: Biology

Session: Poster Session

Despite advancements in the field, Alzheimer's Disease (AD) remains mostly undiagnosed in the earlier stages of the disease, resulting in a significant delay in the provision of care. Clinical observation of AD occurs after damage to the brain is thought to be too severe to be reversible. Recent data have shown that hyperphosphorylation of the tau protein is an important neurotoxic developmental hallmark in AD. These post-translational modifications (PTM) are hypothesized to lead to the development of neurofibrillary tangles, which are thought to precede clinical observation of AD by decades. Therefore, a method to detect these changes would allow for earlier diagnosis before significant and potentially irreversible neuronal damage has occurred. The main objective of this study is to develop a biomarker-based screening assay for the identification of PTM modified forms of tau that are related to AD. The hypothesis being tested is that there is a significant difference in phage binding patterns of cerebral spinal fluid between demented and non-demented subjects based upon AD-relevant PTMs of tau.

Bailey Walkinshaw

Biology

Optimizing Environmental DNA Storage: Comparing DNA Detections Between Low Binding and Standard Polypropylene Storage Tubes Using Quantitative PCR

Co-Author(s): Jenna King

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Poster Session

Environmental DNA (eDNA) is a molecular tool that utilizes tiny fragments of organismal material, which are continuously shed into the environment as skin cells, scales, slime, and excretions. A water sample can then be collected to determine the presence or absence of a particular species in that habitat. Advantages of eDNA include being a minimally invasive technique due to requiring no direct contact with the target organism and it is less labor intensive compared to conventional methods, such as dip netting and trapping. A major limitation of eDNA is that detections are dependent on the methodologies being used for sample collection, storage, and analyses. The purpose of this study was to compare positive DNA detections between two different types of polypropylene tubes for storing aqueous eDNA samples. A low binding polypropylene tube, which is designed to prevent DNA from binding to the plastic, could reduce false-negatives by increasing the amount of detectable target DNA. The detections from the low binding stored samples were compared to samples stored in standard polypropylene tubes using quantitative PCR.

The target DNA will be from *Ambystoma bishopi*, the Reticulated Flatwoods Salamander (RFS), which is an ideal organism due to an already established eDNA protocol in place. The anticipated outcomes for this study are to determine if there is a significant difference in positive RFS detections between low binding and standard stored samples, contribute to optimizing eDNA protocols, and aid with conservation management of RFS by revealing positive detections that may have otherwise been missed.

Angelina Walling

Biology

Determining Microbial Communities effects on Living Matter Through Metagenomics

Co-Author(s): Aliyah Sylvetser

Faculty Mentor(s): Jeanetta Floyd, Biology

Lead Author Department: Psychology

Session: Poster Session

Public health is a priority when it comes to investigating the types of bacteria present in high traffic environments. There are a variety of harmful and beneficial bacteria that were discovered through the use of metagenomics. Metagenomics is what will be used to analyze soil samples from beaches and bays in order to determine what communities of microorganisms are present at different depths and distances. The samples that will be obtained are not pure samples, but through metagenomics and DNA purification, the DNA will be analyzed through a collection of genomes in a mixed community of organisms. The purified DNA collected demonstrates how harmful bacteria affect the public negatively. Bacteria found indicated the presence of harmful bacteria possibly linked to fecal bacteria exposure or flesh eating bacteria. The discovery of the harmful bacteria through the use of metagenomics was used to show how each community of microorganisms affects public health.

Cara Womacks

Biology

DNA Barcoding of Crustacea from Artificial Reefs in the Gulf of Mexico

Faculty Mentor(s): Alexis Janosik, Biology

Lead Author Department: Biology

Session: Poster Session

Artificial reefs serve an important ecological role by providing a hard surface for sessile organisms to attach to, thereby drawing in predators of these organisms and establishing a diverse ecosystem. Many of the invertebrates that live on reefs are poorly studied due to their small size and relative obscurity. This study aimed to help ameliorate understanding of invertebrate communities by using molecular techniques to investigate the biodiversity of brachyuran decapods living on and among artificial reefs in the northern Gulf of Mexico. Specimens (n=1230) were collected from six different reefs across three seasons (spring, summer, and fall) using Autonomous Reef Monitoring Structures (ARMS) and were initially sorted into groups based on morphology. DNA barcoding was used to identify specimens. The COI mitochondrial sequence was amplified through PCR and the DNA sequences obtained through this process were compared to the BLASTn database to determine species classifications. A total of 201 specimens were barcoded, yielding a species richness of 10. Of these species, two were dominant and comprised 94% of the sample. *Pseudomedeus agassizii* alone accounted for 63% of specimens, while *Hexapanopeus paulensis* made up 31%

of the sample. As the study concludes, analyses will be run to detect spatial and temporal shifts in community structure. As invertebrates are an integral part of the lower trophic levels of the food chain, our findings will ultimately contribute to a better understanding of the whole artificial reef ecosystem.

CENTER FOR ENVIRONMENTAL DIAGNOSTICS AND BIOREMEDIATION

Jane Caffrey **Center for Environmental Diagnostics and Bioremediation** **HIP Practices in Biology Undergraduate & Graduate Level Courses: Examples from Aquatic Botany and Coastal Marine Ecology**

Lead Author Department: Center for Environmental Diagnostics and Bioremediation

Session: HIP Faculty Showcase; Poster Session

Students become more engaged and motivated when exposed to research and applications of that research. Two classes emphasizing research and writing are Aquatic Botany, required for Marine Biology undergraduates and Coastal Marine Ecology, primarily a graduate level course. In both courses, students collect samples from the field, analyze them in the laboratory and write up their results as a scientific paper. For Aquatic Botany, this is the first time for many to write a scientific paper. In the first paper, only materials & methods and results section are included. The second paper includes all sections of a scientific paper, while third paper is a group assignment. Students reflect on their previous papers and learn to integrate the scientific literature more fully into introduction and discussion sections. Coastal Marine Ecology is interdisciplinary, examining how geology, chemistry and physics of estuaries influence organisms within coastal environments. One goal is teaching synthesis of different kinds of information. In 2019, Santa Rosa Sound was used as our study area for field research, sample collection and for the synthesis paper required for graduate students. Each graduate student picked a topic area and wrote a chapter about Santa Rosa Sound. They included peer reviewed literature as well as results from their field trips and laboratory analyses. The first draft of the graduate student paper was evaluated by me and another graduate student. This taught them how to revise and respond to reviewer comments as well as how to review papers.

Carrie Daniel **Center for Environmental Diagnostics and Bioremediation** **Testing the Effects of Grazing on Photoheterotrophic Bacteria in the Pensacola Bay System**

Faculty Mentor(s): Lisa Waidner, Center for Environmental Diagnostics and Bioremediation

Lead Author Department: Biology and CEDB

Session: Poster Session

A group of photoheterotrophic bacteria, the aerobic anoxygenic photoheterotrophic bacteria (AAPB) can use energy from light and other organic molecules. As a whole, we hypothesize AAPB are important in cycling organic matter (OM), since their ability to use energy from light can increase the rate of OM cycling, increasing their relative contribution to the aquatic microbial loop. Specific groups of AAPB, the Rhodobacters and Roseobacters, are thought to

comprise a large percent of the total AAPB community. We know that grazing is a biological factor that influences the abundance of all AAPB. However, grazing impacts on subgroups such as the Rhodobacter and Roseobacter AAPB is not yet known. My thesis work will determine the grazing susceptibility of each of these sub-groups of AAPB. In Fall 2020 and Spring 2021, I sampled surface water from Shoreline Park and performed manipulation experiments in which I removed grazers and compared re-growth of Roseobacters and Rhodobacters over 48 hours under controlled conditions. The relative rate of re-growth of the two subgroups are compared to 48-hour control bottles, in which grazers were not removed. For all replicates of grazer-reduced and control samples, I extract DNA and measure the abundance of these and other subgroups of AAPB using group-specific DNA primers. Ultimately, these data will inform which subgroups of AAPB are most susceptible to grazing, which will provide information regarding which groups are contributing more significantly to the microbial loop and which groups may be impacted by climate-change-related alterations to the ecosystem.

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, Center for Environmental Diagnostics and Bioremediation

Lead Author Department: Biology

Session: Poster Session

Submerged aquatic macrophytes are important because they are the beginning of the ecological food chain and help maintain the balance of the ecosystem. Freshwater plants are a source of food for wildlife and are home to many invertebrate and microbial communities. Since submerged plants are so important if they themselves are not in the correct balance it could throw off the entire ecosystem. Having too many submerged plants could create an issue of competition especially when invasive species are involved. There have been previous studies about root release of oxygen for a variety of other species; However, the three species we will be using have not been extensively studied. This research will provide more insight about how these plants affect the freshwater habitat they live in. Our goal was to observe how much dissolved oxygen is released from the roots of these freshwater plants to see how they potentially affect the sediment Thompson's Bayou where these plants live in Pensacola. The basic setup for our experiment consists of one control and three replicates of the same species. Currently two species have been tested: Cabomba caroliniana and Bacopa caroliniana. Future experiments will be conducted with other species of submerged plants and may even include replicates of the first two species tested along with procedure modifications.

Brook Olin **Center for Environmental Diagnostics and Bioremediation** **Macroalgae as a Bioindicator of Water Quality on Artificial Reefs in the Northern Gulf of Mexico**

Faculty Mentor(s): Jane Caffrey, Center for Environmental Diagnostics and Bioremediation

Lead Author Department: Biology

Session: Poster Session

This study will examine the importance of primary producers on artificial reefs,

as well as how macroalgae may be bioindicators of water quality. In Escambia county, artificial reefs are being installed to enhance productivity through fish abundance and biodiversity, which improves the fishing opportunities of local and commercial fisheries. It is important to understand the influence of bioindicators, such as macroalgae, on artificial reefs as these species can provide an insight into the overall health and success of the reef. This study will examine species of macroalgae colonizing shallow water artificial reefs while assessing the ambient water quality in the Northern Gulf of Mexico, specifically, Pensacola Park West and Navarre Artificial Reef. To accomplish this, the spatial distribution of macroalgae attached or free-floating on the reefs will be examined by measuring the chlorophyll-a concentrations. It is a concern if artificial reefs serve to increase resource abundance and diversity, or simply aggregate the existing biomass. However, artificial reefs provide avenues for nutrient availability in a nutrient sparse environment. This is evident through fish populations creating waste thereby increasing the available nitrogen and phosphorus (Babcock et al., 2020). It is key to understand the role of macroalgae on shallow artificial reefs as the amount of primary productivity is substantially significant from high light levels and possible increased nutrient inputs as these artificial reefs are closer inshore, as compared to Pensacola's deeper artificial reefs, such as the Oriskany or the Joe Patti's Memorial Reef.

Trupti Potdukhe Center for Environmental Diagnostics and Bioremediation
Viable *Vibrio vulnificus* and *V. parahaemolyticus* in the Pensacola and Perdido Bays: Water Column, Sediments, and Invertebrate Biofilms
Co-Author(s): Mackenzie Rothfus, Carrie Daniel, Michael Swords, Barbara Albrecht (Bream Fisherman Association)

Faculty Mentor(s): Lisa Waidner, Biology, CEDB; Jane Caffrey, CEDB; Wade Jeffrey, CEDB
 Lead Author Department: Biology, CEDB

Session: Poster Session

Vibrio vulnificus (Vv) and *parahaemolyticus* (Vp) are problematic waterborne pathogens that have yet to be enumerated in northwest Florida coastal estuaries. To determine their baseline abundances, we surveyed 43 locations in two subtropical estuaries, Perdido and Pensacola Bays, in winter 2020, and included three substrate types: surface waters, sediments, and invertebrate biofilms, using a chromogenic medium agar assay. Vv were detected in 37 out of 43 water samples, with maximum levels of 3,556 CFU/mL. Vp were only detected in 15 water samples, with a maximum concentration of 8,919 CFU/mL. Sediments contained Vv in all but one sample, with concentrations ranging from 121 to 607,222 CFU/mL. Conversely, Vp were only detected in 33 of the sediment samples, where concentrations ranged from 28 to 77,333 CFU/mL. Biofilms, collected from either oyster or barnacle shells found in sediment samples, contained on average 7,735 and 1,490 CFU/mL, of Vv and Vp , respectively. Surface Vv covaried with bottom pH, maximum prior cumulative wind speeds (wind), and tidal coefficient. Surface Vp correlated negatively with surface salinity, surface pH, and bottom pH and positively with surface dissolved inorganic and Kjeldahl nitrogen concentrations, and wind. This short-term study was designed to assess baseline levels in local waters; thus, temperature was not a major factor. Spatially, there was large variation in surface *Vibrio* densities, but both species' abundances correlated strongly with wind, suggesting resuspension was important. This study was not designed to enumerate these pathogens, but rather to establish the first baseline abundances of *Vibrio* for this region.

Mackenzie Rothfus Center for Environmental Diagnostics and Bioremediation
***Halodule wrightii* and Sediment Biogeochemistry Response to Stingray Bioturbation**

Faculty Mentor(s): Jane Caffrey, Center for Environmental Diagnostics and Bioremediation

Lead Author Department: Center for Environmental Diagnostics and Bioremediation

Session: Poster Session

Seagrasses are one of the most productive ecosystems in the world performing important ecological functions and providing nursery habitats for many marine organisms. Seagrass productivity and sustainable growth depend on sediment porewaters as a primary nutrient source. In nutrient-limited conditions, microbial processes taking place within seagrass sediments can provide an additional nutrient source. Nutrient availability, seagrass structure, and beneficial microbes present within vegetated sediments are susceptible to change as sediments become disturbed. Large bioturbators such as stingrays use seagrass nurseries as prime foraging locations. They excavate sediments forming pits both in and outside seagrass beds. We examine how organic matter, porewater nutrients, and microbial presence in *H. wrightii* beds in the Pensacola Bay System are impacted by stingray bioturbation. As rhizomes, roots, and sediments are excavated or exposed, we anticipated that ray pits would have lower nutrient concentrations than the surrounding bed. However, preliminary results have shown higher NH_4^+ concentrations in ray pits than surrounding seagrass beds. Future sampling will examine seasonal differences between ray pits and the surrounding bed.

CHEMISTRY

Rebecca Boutwell Chemistry
Solid-Phase Microextraction Gas-Chromatography Mass Spectrometry of Hand Sanitizer

Co-Author(s): Lauren Carnley, Summer Mando, Kate Harper

Faculty Mentor(s): Karen Barnes, Chemistry

Lead Author Department: Biology

Session: Poster Session

Hand sanitizers are used daily to sanitize the hands of healthcare workers and essential workers, as well as the general population. After the COVID-19 pandemic was declared in 2020, sanitization has become more important than ever and is used to clean hands and kill bacteria. A common ingredient in hand sanitizers is ethanol, which is effective at killing bacteria. However, due to its close relation, methanol, which is poisonous to consume and be absorbed into the skin, can sometimes be found in these products. This project focuses on analyzing hand sanitizer with the technique solid phase microextraction (SPME) with an Agilent Intuvo Single Quadruple 5977B Gas Chromatograph Mass Spectrometer. SPME is an extraction technique that uses a polymer coated fiber to absorb volatile organic compounds which are then injected into a gas chromatograph mass spectrometer (GC-MS). This allows for the accurate analysis of small volatile organic compounds as in hand sanitizers and for the separation of methanol and ethanol to be documented. This project will be used to determine whether

these hand sanitizer products contain any substances that may be harmful to the population, including methanol.

Rebecca Boutwell

Chemistry

Liquid Extraction Gas-Chromatography Mass Spectrometry of Glow Sticks

Co-Author(s): Lauren Carnley, Summer Mando, Kate Harper

Faculty Mentor(s): Karen Barnes, Chemistry

Lead Author Department: Biology

Session: Poster Session

Glow sticks are a common item used in several different ways. They can serve as alternative light sources in homes, underwater diving, and in emergencies. They also are a common toy for children, coming in different shapes and sizes. To allow the bright luminescent glow, glow sticks utilize chemistry by including two substances that interact to create the glowing fluorescence. Due to this nature, glow sticks include many chemicals that can be harmful or toxic. In the hands of children, the accidental ingestion or release of these chemicals onto the skin can be dangerous. This project focuses on analyzing glow sticks with the technique liquid extraction with an Agilent Technologies 7693A Automatic Liquid Sampler and Intuvo Single Quadruple 5977B Gas Chromatograph Mass Spectrometer. Liquid extraction is a technique that extracts liquid from a sample and injects it into a gas chromatograph mass spectrometer (GC-MS). The automatic liquid sampler (ALS) allows for reliable, accurate analysis of the organic compounds found in glow sticks. This project will be used to determine whether these glow sticks contain any substances that may be harmful to the population, despite the non-toxic label claims.

Lauren Carnley

Chemistry

Solid-Phase Microextraction Gas-Chromatography Mass Spectrometry of Furan in Ground Coffee

Co-Author(s): Rebecca Boutwell

Faculty Mentor(s): Karen Barnes, Chemistry

Lead Author Department: Biology

Session: Poster Session

Coffee is one of the most popular drinks in the world. Around 400 million cups of coffee are consumed daily in the United States. Furan is a heteroaromatic compound that is used as an intermediate in the production of many chemical compounds. Being a very volatile compound, furan has been found to form in certain foods that are in sealed containers. Furan is known to be toxic and carcinogenic, which leads this project to focus on the analysis of furan contents in K cups. For analysis of furan contents, the solid phase microextraction (SPME) technique is used with the 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 the gas chromatograph mass spectrometer (GCMS). This allows the contents on the fiber to be read and analyzed and documented. This project will be used to determine which coffee types have the most potent sources of furan.

Leia Fannin

Chemistry

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

Co-Author(s): Taylor Best, Victoria Drake, Rosemary Nguyen

Faculty Mentor(s): Karen Molek, Chemistry

Lead Author Department: Chemistry

Session: Poster Session

Quinine is a small biomolecule, historically used to treat malaria. Due to its low molecular weight, quinine has been difficult to detect a strong, clear spectra using more traditional mass spectrometry methods. Surface Assisted Laser Desorption/Ionization Time of Flight Mass Spectrometry (SALDI TOF-MS) utilizes inorganic nanoparticle surfaces to improve intensity and reduce noise of a sample. SALDI TOF MS proves to be a promising method for analysis of quinine due to its excellent detection in the low mass region by use of inorganic nanoparticle bases. Specifically, transition metal oxide (TMO) nanoparticles were used due to many of their favorable characteristics. TMO's high surface area-to-volume ratios eliminate detection of surface in the analysis of samples. Their low porosity allows greater coverage of analyte across the surface, increasing sample intensity, and the low heat capacity of TMO's requires less laser energy to ionize the target sample. Cobalt (II/III) oxide and iron (II/III) oxide were compared as a TMO species comparison. In addition, small and large iron (II/III) oxide were compared as an iron TMO species comparison. Pure quinine, tonic water and tonic water spiked with quinine were all studied using the TMO SALDI method. It was found that in all cases, samples were detected at a higher signal to noise ratio than normal LDI trials. Specifically, small and large iron (II/III) oxide showing the greatest signal to noise ratio. Preliminary results validate SALDI MS as a means of analytical detection and analysis of lower mass compounds.

Lali Gutierrez

Chemistry

Optimized Synthesis of the Trifluoromethylator, 1,10-Phenanthroline Trifluoromethyl Copper(I)

Co-Author(s): Amanda Johnson

Faculty Mentor(s): Timothy Royappa, Chemistry

Lead Author Department: Chemistry

Session: Poster Session

Copper-based trifluoromethylating agents have many pharmaceutical and industrial applications such as in the synthesis of blockbuster drugs, e.g., Celebrex, Prozac. An important example of a trifluoromethylating agent is 1,10-phenanthroline trifluoromethylcopper(I) (phenCuCF₃) dubbed the Trifluoromethylator. Our overarching research goal is to develop an easier method for synthesizing the Trifluoromethylator. Particularly, the most tedious part of the original procedure was the synthesis of air-, moisture-, and temperature-sensitive copper(I) t-butoxide (CuOtBu), a hard-to-purify, commercially unavailable compound needed for the first step, namely the synthesis of the intermediate 1,10-phenanthroline copper(I) t-butoxide (phenCuOtBu). The simplification and streamlining of this step was the main focus of our project, which was (a) the in-situ generation of CuOtBu and (b) its direct transformation to phenCuOtBu. Our synthesis of CuOtBu for part (a) used sodium t-butoxide (NaOtBu) instead of potassium t-butoxide as in some published procedures, as the NaOtBu delivered higher purity CuOtBu. The reaction also benefited from

pretreatment of the NaOtBu solution with sodium hydride (NaH) to remove adventitious water and to convert any t-butanol impurities to NaOtBu. It was important to remove impurities such as unreacted NaOtBu, NaH, and CuCl and also any NaCl byproduct for part (b) of our method to proceed cleanly. Our procedure has a high yield of 91% overall for phenCuOtBu, which we are currently recrystallizing to characterize by X-ray diffraction. The ease of our in-situ synthesis method can greatly improve production of the Trifluoromethylator in high yield and purity.

Kate Harper

Chemistry

Orange You Glad It's Volatile? An Analysis of Volatiles in Florida-Grown Citrus Using SPME (Solid-phase Micro-extraction) and GCMS (Gas Chromatography-Mass Spectrometry)

Co-Author(s): Summer Mando, Rebecca Boutwell, Lauren Carnley

Faculty Mentor(s): Karen Barnes, Chemistry

Lead Author Department: Chemistry

Session: Poster Session

Florida is well-known for its hot weather, beaches and of course its oranges. For this experiment Florida-grown oranges were analyzed due to their unique aroma and compared with volatiles from other citrus fruit, i.e. grapefruit and lemons. Since the oranges had a strong aroma (without being sliced) it was determined the volatile molecules responsible for the aroma were in its skin. The technologies used to determine the volatile compounds, and their concentrations, in the oranges were SPME and GCMS. Solid-phase micro-extraction (SPME) was used to isolate a sample of the volatile molecules by suspending a fiber in the headspace of an orange peel sample (while on heat). This method allows for easy transfer of a sample of the volatile molecules into an Agilent Intuvo Single Quadrupole 5977B Gas Chromatograph Mass Spectrometer (GCMS). It is hypothesized that cross-pollination of another herb or fruit bearing plant with an orange tree could be the culprit of the unique aroma. By utilizing SPME, and GCMS, it should be possible to determine the volatile compound(s) responsible for this unique orange. The data collected for this experiment will be useful in future research on citrus perfumes and to study the impact of citrus greening.

Kian Muldoon

Chemistry

Synthesis of Copper(I) Phenylacetylde

Faculty Mentor(s): Timothy Royappa, Chemistry

Lead Author Department: Chemistry

Session: Poster Session

The focus of this research is perfecting a new method of synthesis for copper(I) acetylides, specifically copper(I) phenylacetylde. The copper(I) acetylides are a family of chemical compounds useful in medicinal chemistry. The end goal is to be able to consistently produce this product with a high yield (preferable above 90%) and high purity (within acceptable elemental analysis parameters). Our efforts over the past several months have focus largely on improving yield and reproducibility. In summer 2020, for the first time, copper(I) phenylacetylde of acceptable purity was synthesized. At present, our goal is to produce copper(I) phenylacetylde in high yield by: (1) changing the method of washing the product, (2) testing the purity of starting material, and (3) altering the volume of solvent used in the synthesis. Our results from these efforts will be presented.

Vanessa Nguyen

Chemistry

Synthesis of Aryl Sulfonium Salts from Aryl Nitro Compounds

Co-Author(s): Matthew Hardman

Faculty Mentor(s): Thomas Moore, Chemistry

Lead Author Department: Chemistry

Session: Poster Session

Incorporation of fluorine-18 into aromatic compounds is generally accomplished by nucleophilic aromatic substitution reactions. These reactions employ halides, nitro groups, iodonium salts, stannanes, and sulfonium salts as leaving groups since high radiolabeling yields are desirable for PET tracers. Sulfonium salts are known to exhibit excellent reactivity in cases other leaving groups do not. Most sulfonium salts are currently produced by the reaction of aryl halides. This work proposes an alternative route to sulfonium salt PET tracer precursors using nitroaryl compounds, which are commercially available and stable. More efficient synthesis of sulfonium salt precursors offers benefits in imaging and drug discovery with PET. The sulfonium salts produced in this study may be utilized in future radiolabeling studies.

Ian Parker

Chemistry

Photochemical Hydroxy Radical Production in Petroleum Water Accommodated Fractions

Co-Author(s): Lauren Heidenreich, Anne Harper

Faculty Mentor(s): Pamela Benz, Chemistry; Wade Jeffrey, CEDB

Lead Author Department: Chemistry

Session: Poster Session

As a growing amount of petroleum products are introduced into the environment, there has been renewed interest in the effects these compounds have on biological systems. To help assess the overall impact of petroleum on the ecosystem, photochemical reactions must be considered to better understand environmental toxicity. Water accommodated fractions (WAFs) made of water and motor oil are commonly used to mimic environmental conditions when an oil species is introduced into an ecosystem. Over time, water soluble species from the oil fraction partition into the water phase of the WAF. The photochemical reactivity of the resulting water-soluble species can then be examined. This study examined photochemically produced hydroxy radical (OH) from motor oil derived, water soluble species using UV-HPLC detection and toxicity when measured by bacterial growth using ³H-leucine incorporation. For example, a 10W-30 motor oil synthetic blend had greater OH production of 0.97 nM/s and higher toxicity compared to other non-detergent single viscosity blend motor oils (0.61 + 0.08 nM/s). By expanding our examination to other motor oils, a better understanding of photochemically induced toxicity can be achieved.

Emen Sukhera

Chemistry

Substrate Dependence and Catalytic Efficiency of a Metalloenzyme Mimic

Co-Author(s): Megan Gulsby

Faculty Mentor(s): Ajay Lajmi, Chemistry

Lead Author Department: Biology

Session: Poster Session

A dinuclear macrocyclic amine ligand with a proximal cyclodextrin ring was synthesized for demonstrating cooperative hydrolysis of an activated ester

mimicking the active site of carboxypeptidase A. The macrocyclic polyamine presented a tetrahedral coordination site for the catalytic Zn(II) ions whereas a proximal beta-cyclodextrin moiety afforded binding site for alkaline earth metal ions through the hydroxyl groups around the cyclodextrin ring. This presentation will focus on the kinetics of the hydrolysis of an activated ester at the pH corresponding to the pKa of the Zn(II) bound water that upon deprotonation serves as a nucleophile during the hydrolysis. Rate enhancement for the hydrolysis of p-nitrophenyl phosphate (PNPA) with the Zn(II) complex in presence of Ba(II) ion bound to beta-cyclodextrin over that of the complex in its absence will be presented. The Lewis acid activation of the activated ester substrate by the beta-cyclodextrin-bound Ba(II) ions will be discussed. The effect of substrate concentration on the catalytic reaction will be examined to determine the catalytic turnover number.

Liz Teets

Synthesis of Methoxyaryl Sulfonium Salts

Co-Author(s): Emilie Woltering

Faculty Mentor(s): Thomas Moore, Chemistry

Lead Author Department: Biology

Session: Poster Session

Positron Emission Tomography (PET) scans are non-invasive body-imaging procedures that utilize compounds radiolabeled with fluorine-18 in order to detect diseases and their extent. These tracer compounds are often formed through nucleophilic aromatic substitution reactions using a variety of leaving groups. Sulfonium salts, in particular, have been shown to exhibit a high reactivity in comparison to other leaving groups. Microfluidic labeling of sulfonium salts has not yet been done. However, in the past, other similar reactions involving halides and nitros saw improved yields. For this project, a variety of sulfonium salt compounds are being synthesized in order to develop a methodology for the microfluidic labeling of sulfonium salts. The sulfonium salts formed during this experiment may provide greater selectivity in radiolabeling, which may expand possibilities for PET and future radiotracer use.

Chemistry

transferred through the private tunnel. The FileVector client software guarantees simplicity and security by providing a user-friendly graphical interface for sending files that are first encrypted locally using keys that only users have access to, not the FileVector server. FileVector utilizes industry standard cryptography libraries and basic distributed software architecture to solve the problems created by both other types of file sharing methods, while introducing only minimal drawbacks, such as both the sender and recipient of the file having to be online and connected to the FileVector server simultaneously. Lastly, FileVector is completely cross-platform, as it is able to run on Windows, Mac, Linux, and Android, as well as multiple processor architectures.

Terrilynn Hale

Computer Science

Researching the Preventive and Mitigating Cybersecurity Policies Used by the United States and Canadian Governments to Address Election Vulnerabilities

Faculty Mentor(s): Jacob Shively, Reubin O'D. Askew Department of Government

Lead Author Department: Computer Science

Session: Poster Session

Cybersecurity is a new challenge for governments, several of which have experienced disruptions or interference in their elections. There has been very little research done analyzing how different countries mitigate and prevent cyber attacks on their electoral processes. This research paper will compare and analyze how the United States and Canada have responded to cybersecurity threats against their elections. Throughout my research, I analyzed the prevention and mitigation tactics each country uses when faced with cyber adversity. After reading and analyzing reports published by both governments, peer reviewed articles, and policy documents, I have determined that the United States and Canada respond to cyber elector threats in different ways. In this paper, I will discuss how the United States responds to cyber threats in a more technical way; as opposed to Canada's more legislative response.

Kevin Teague

Computer Science

Computing Correlations between Six Versions of Ad Incorrumpia (c. 1145-1153) copied with Gratian's Decretum (c. 1139)

Co-Author(s): Erika Secrist, Marissa Barber, Nicholas Brown-Duncan, Bre Caudle, Bradley Love

Faculty Mentor(s): Marie-Thérèse Champagne, History

Lead Author Department: Computer Science

Session: Poster Session

The text Ad incorrupta pontificum nomina conservanda was produced by Nicholas Maniacutius, a medieval Roman scholar. The text was copied throughout Europe from around c. 1145 until c. 1400, and illustrates the history of the popes. This project focuses on the six manuscripts containing Ad incorrupta that were bound with Gratian's Decretum, a new codification of Canon Laws c. 1139 that had tremendous influence on developing European and Church laws. This research project assesses the differences between six copies of Ad incorrupta bound with the Decretum, determines the connections between copies of the text, and uses those connections to relate the origin of each manuscript to one another. Each manuscript containing Ad incorrupta bound with the Decretum was compared to a base manuscript believed to be an early copy. After comparing the manuscripts to the base manuscript, any variance between them was documented according to the type of

COMPUTER SCIENCE

Hayden Aiken

Computer Science

FileVector: Private, Secure, Non-persistent File Transfer

Co-Author(s): Levi Shaffer, Aaron Wattenphul

Faculty Mentor(s): Bernd Owsnicki-Klewe, Computer Science

Lead Author Department: Computer Science

Session: Poster Session

FileVector is a client/server software service that provides a simple, secure, and privacy-focused method of sharing digital files with colleagues anywhere in the world over the open internet. Other file sharing solutions compromise on simplicity and privacy, such as with FTP servers, or compromise on security and non-persistence, such as with Cloud Storage Providers (e.g. Dropbox, Google Drive). The FileVector server software guarantees privacy and non-persistence by allowing users to add other pseudo-anonymous users as contacts, via their usernames, and by not retaining (i.e. storing a copy of) any data that is

variance, ranging from differences in abbreviation to entire missing lines. Further analysis of these variables enabled additional information about the connections between manuscripts to be gathered. Comparing copies of the Ad in corrupta to the original text has made differences more noticeable such as spelling differences or entire lines being missing. Using the data obtained, known connections between manuscripts were strengthened, and new connections were found. While this project assesses the differences between an early copy of Ad in corrupta and various copies of it, more analysis is needed to evaluate the possible connections between copies of these texts and how they were transcribed.

EARTH AND ENVIRONMENTAL SCIENCES

John Morgan

Earth and Environmental Science

The Time Geography of Beach Access

Co-Author(s): Jayden Spiess, Marcus Ingram, Aric Hansen, Sophia Cohen, Nikolas Rodriguez, Sara Evans (Kennesaw State University)

Lead Author Department: Earth and Environmental Science

Session: Faculty Submission, Poster Session

After introducing the time geographic framework, students will each be assigned five public beaches in different parts of Florida. With each beach, the student will utilize Google Earth and other web-based information to estimate the time it takes to park and walk to the desired beach access location. The student cartographer will be given a specific time budget to work within. The student will use the Add Path function in Google Earth to record and save their respective beach trip paths. The student will make notes related to the time-geographic constraints they can uncover for each respective beach trip. Each beach trip path will be saved into a KMZ file along with the constraint notes. Next, students will use trip views from Google and TripAdvisor, along with local news media coverage, to give/discover any additional context to the time geographic constraints for each respective beach access location.

Cody Goins

Earth and Environmental Sciences

Comparison of the Urban Landscape and Socioeconomic Effects of Hurricanes Ivan and Sally in Escambia County, Florida

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Poster Session

Hurricanes present substantial threats to coastal communities around the globe. However, most of the damage caused by hurricanes comes from flooding and/or storm surge. The area of focus for this study is Escambia County, Florida. The focus of this research is two-fold: (1) to compare and contrast the urban landscape of the City of Pensacola and/or Escambia County before and after the two hurricanes, Ivan (2004) and Sally (2020), and (2) to examine the socioeconomic and demographic data for the areas before and after each storm and determine what groups of people were affected the most. For research objective number one, satellite imagery will be collected and analyzed to determine change in impervious surface and tree cover between Ivan and Sally. A classification of both impervious surface and tree cover could be used when a tree is over a road/sidewalk. Flood and storm surge data will also be collected

and analyzed. These analyses will then be used to assess the possible correlation between changes in impervious surface and damage from flooding for each storm. For research objective number two, socioeconomic and demographic data will be collected from the US Census and the American Community Survey (ACS). The findings of this study will be useful to city managers and residents in the area, as they would be able to better predict where the most vulnerable areas will be during future storms.

Emily Keiffer

Earth and Environmental Science

Argos' Edible Campus

Co-Author(s): Cody Morton, Rylee Buzbee

Faculty Mentor(s): Chasidy Hobbs, Earth and Environmental Sciences

Lead Author Department: Mechanical Engineering

Session: HIP Student Showcase, Poster Session

Food Insecurity is an ongoing issue faced by the student body at the University of West Florida. Nearly 30% of undergraduate students at UWF consider themselves food insecure while a quarter of students nationally are at risk of being food insecure. Locally, 13.6% of Escambia County is food insecure. Argos Edible Campus aims to help address this problem through increasing awareness of the issue of food insecurity while also planting more edible plants throughout the UWF campus. This is being done through researching suitable plants and permaculture techniques to ensure the native ecosystem is preserved and enhanced when these plants are added to the campus. Geographical Information System (GIS) mapping is used to document all of the edible plants on campus and will be published online for students and the greater campus community to find and easily track these resources. While anyone within the campus community will be welcome to harvest, Argos Edible Campus will partner with the Argo Pantry to help distribute harvests to students. The experience of creating and launching this program on campus is presented.

Kelly Dunn

Earth and Environmental Science

Visualizing Anthropogenic Impacts on the Coastal Dune Lakes of Florida's Panhandle

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Oral Presentation

Coastal communities have experienced a steady growth in population and resource use. Coastal tourism has become the top tourist industry globally and coastal community populations continue to grow. Despite this increase in residential and tourist traffic, there is a gap of knowledge on what pressures could be affecting coastal regions. For Florida's panhandle, tourism is the leading economic stimulator and as tourism continues to grow, it is important to understand the carrying capacity of coastal dune lakes (CDLs) in South Walton county. CDLs are found in 5 countries around the world and Florida's Panhandle is home to 18 CDLs. Due to the rarity of CDL formation, at least 5 CDLs in Northwest Florida have been ranked globally as G2 (imperiled globally because of rarity) and S1 (critically imperiled in Florida because of extreme rarity or extreme vulnerability to extinction due to natural or man-made factors) at the state level as defined by the 2010 Florida Natural Areas Inventory (Butera & Butts, 2004; VanTassel & Janosik, 2018). Due to the proximity of the CDLs to the beaches

on Florida's Panhandle, camping and boating access, and a few that reside in state parks, CDLs experience a tourism draw. This research will focus on the adverse impacts of anthropogenic use of the CDLs and water quality and will be visualized using a DPSIR Model.

Bradlee Lifsey **Earth and Environmental Science**
Using a Thermal Unoccupied Aerial Vehicle to Detect Submarine Groundwater Discharge in Escambia Bay, Florida

Co-Author(s): Jordan Lewis

Faculty Mentor(s): Phillip Schmutz, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Poster Session

Through OUR Works!, I have been helping a graduate student with her thesis project. The project is field based and is focused on exploring the utility of using an unoccupied aerial vehicle with a thermal infrared camera to detect submarine groundwater discharge (SGD). The study site is located on the western shore of Escambia Bay near Bay Bluffs Park which is a known SGD zone. At the study site we first use a Rad 7 radon detector to detect for thoron. Thoron is an indicator that SGD is present. After testing four locations in the bay along the shoreline, we use a drone with a thermal infrared camera to take images of the water. Variations in temperature of the water will indicate SGD plumes and will be visible in the thermal images. Once the photographs are digitally stitched together, we will then be able to compare the data obtained by the Rad 7 with the images to verify the SGD concentration of the water.

Darrel Williams **Earth and Environmental Science**
Invasive Pest or Ecosystem Engineer?

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Oral Presentation

The nine-banded armadillo (hereinafter referred to as the armadillo) was first recorded in Southern Texas during 1849 with its scope extended to another 15 states by 2014. This armored forager has now become a Texas icon and was named the state small mammal. Between 1920 and 1970 there were several anthropogenic introductions to the state of Florida, allowing armadillos to spread throughout the state, bar a few isolated pockets. Interestingly, in contrast to Texas, the armadillo is slated as one of Florida's most significant nuisance pests. The relatively recent extent of the armadillos new range is shared with a comparatively long-term resident, the gopher tortoise (*Gopherus polyphemus*). The gopher tortoise is considered a keystone species in the longleaf pine savannas of the Southeast United States, due to their burrows that are known to harbor approximately 350 other animal species. Ironically, armadillos construct borrows of a similar stature, earning them the title of ecosystem engineers in other parts of the world. Florida's contrasting outlook on two species that may play a similar role in the ecosystem deserves investigation. Research centered around the psychological aspects of human resistance to change has been well documented in the business world. This research however, attempts to combine such studies with ecological research in an effort to uncover the contrasting views of the armadillo throughout its expanded range.

Amber Bloechle **Earth and Environmental Science**
Spring 2021 Developing an ArcGIS StoryMap Presenting the Circulation of Middle Age Manuscripts

Co-Author(s): Jacob Hardin, Hannah Morris, Tara Nevels, Kinsley Pendleton

Lead Author Department: Earth and Environmental Sciences

Session: Faculty Submission, Poster Session

The purpose of the project is to develop an ArcGIS storymap presentation that showcases the different parts of Dr. Champagne's work studying Nicolaus Maniacutius, the manuscripts and how they were made, as well as the work by other Honors groups. Circulation of the texts *Ad Incorrumpita* and the *Decretum* will be made into an interactive, informative map tour, presenting the original locations of the manuscripts and where they ended up. The presentation will also include text to describe the texts and why each is significant. The work of the other Honors groups researching the same text will be added in, from examinations of the texts to find differences between each version, to a more artistic of-the-time map showing the obstacles faced during movement of the manuscripts, and a focused study on the 6 significant texts that contain the *Decretum* alongside *Ad Incorrumpita*.

Kiersten Cavender **Earth and Environmental Science**
Influence of Political Affiliation Toward Support of Solar Energy in Florida Gulf Coast Counties

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Oral Presentation

The focus of my proposed research, the Influence of Political Affiliation on Support of Solar Energy in Florida Gulf Coast Counties, is to determine if, why, and to what extent political affiliation influences the support of solar energy. In this study, my specific objectives are to determine whether political affiliation has an impact on support of solar energy or if the potential cost-savings of solar energy is the greater influence in support for this energy. Through the use of criterion sampling, I have chosen the counties located along the Gulf Coast of Florida due to the high solar potential. Within these counties, I wish to survey members of the local Democratic and Republican parties. I will analyze data for only those counties in which both local Republican and Democratic parties respond. In addition to the surveys, I will conduct one-on-one interviews with interested survey respondents to explore further reasoning behind solar energy support. The knowledge of political affiliations influences on preference for support of solar energy can assist decision-makers in creating policy and incentives to encourage or increase preference for support of solar energy.

Riley Dibble **Earth and Environmental Science**
A Case Study of the American Creosote Works Inc. Superfund Site

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Poster Session

The focus of this presentation is a case study of a superfund site in Pensacola, Florida. The selected site is the American Creosote Works Inc. (Pensacola Plant) Superfund site. In 1983, the Environmental Protection Agency (EPA) placed the site on the National Priorities List (NPL) due to contaminated groundwater and

soil. The contaminant results from the use of Pentachlorophenol (PCP) as a wood-treating chemical which caused dioxins to appear at the site. While the site is still awaiting remediation, it is important to note that the site contamination does not threaten the surrounding communities. Currently, the site is slated to be redeveloped into a passive park. As a case study, this project will present maps that will provide a demographic profile of the surrounding area that falls within a one-mile radius centered on the superfund site. As this project develops, the superfund site will be considered under the focus of two main questions: “can this superfund site be considered an environmental justice mobilization or green gentrification?” and “will the leading redevelopment proposal of a passive park be beneficial for the residents of the surrounding area?”

Nana Duah **Earth and Environmental Science**
Inclusive Participatory Agricultural Development: An Evaluation of the ADVANCE project

Faculty Mentor(s): Kwame Owusu Daaku, Earth and Environmental Sciences
 Lead Author Department: Earth and Environmental Sciences
 Session: Oral Presentation

Development as a word has varying meanings and interpretations all over the globe. Development may take different shapes and forms in different contexts and projects, rendering the term as quite elusive. This evaluation report appraises the invisible man (so to speak) of development by throwing a cloth on him to reveal the shape and form development takes in a five-year (2009-2014) development project in Ghana. The Ghana Agricultural Development and Value Chain Enhancement Project (ADVANCE) was a USAID-funded program aimed at sustainably reducing poverty and hunger by improving the agricultural yield of the maize, rice, and soybean value chains. The ADVANCE project was aligned with the Feed the Future Initiative and aimed at contributing to two of the Feed the Future strategic objectives: inclusive and sustainable agricultural-led economic growth, and a well-nourished population, especially among women and children. My assessment of the project is based on periodic (annual and semi-annual) reports and a case study. The status and nutrition of women and children was found to be significantly improved, with evidence of sustainable economic development grounded on inclusivity. The project is a good model of participatory development. In spite of these positive outcomes, this report will also highlight some areas for improvement.

Chasidy Hobbs **Earth and Environmental Science**
Argos' Edible Campus HIP experience

Lead Author Department: Earth and Environmental Sciences
 Session: HIP Faculty Showcase

The Argos' Edible Campus program aims to expand access to nutritious food for UWF students by providing edible, medicinal, and pollinator-friendly plants in small garden areas located across campus: free for any student to harvest! Students participating in the directed study are leading the effort to launch the Argos' Edible Campus program on campus during the Spring 2021 semester as well as establishing a new orchard and wildflower meadow. Student Learning Outcomes: 1. Apply lessons learned through a literature and program review to develop and implement an orchard and wildflower meadow on campus, 2. Produce updates for a Geographic Information System story map detailing the program, and 3.

Demonstrate the ability to communicate effectively in both oral and written forms the need for this program to help address food insecurity on campus.

Domani Turner-Ward **Earth and Environmental Science**
Analyzing and Visualizing Porewater Nutrient Concentration Data

Faculty Mentor(s): Matthew Schwartz, Earth and Environmental Sciences
 Lead Author Department: Department of Biology, Department of Art and Design
 Session: Poster Session

Data interpretation through the lens of STEAM (Science, Technology, Engineering, Art, and Math) can be used to improve cross-disciplinary communication and public understanding in the case of ongoing research assessing the spatial variability of dissolved nutrients in porewater from a nearshore seagrass bed in the Pensacola Bay System (FL, USA). This project collects new porewater nutrient data and explores ways to visualize it as a three-dimensional art installation. The sampling site is located at the Gulf Islands National Seashore: Naval Live Oaks Preservation Area. This sample location has been identified as an area where submarine groundwater discharge does not occur. This site was sampled once using miniature piezometers on 11 January 2020. Porewater from a single shore-normal transect site was sampled at depths of 8, 25, 50, 75, 100, 125, 150 cm below the sediment surface and later tested in the lab for dissolved nitrate, nitrite, and phosphate concentrations. The samples are conducted at more frequent depth intervals than previous nutrient studies at this location, allowing for a more detailed and informed dataset to be visualized than possible with previous datasets. The results of this data collection process are then used in a creative process exploring ways of creating fine art that represents the scientific findings. Combining scientific discipline and artistic practice to produce a novel visualization of this nutrient concentration dataset enhances cross-disciplinary communication and improves its accessibility to those without an academic background in nutrient cycling.

Monica Woodruff **Earth and Environmental Science**
Investigating Aeroponics, Soil, and Soil Amended with Biochar for Growing Kale: A Comparative Study

Co-Author(s): Jackson Bare
 Faculty Mentor(s): Chasidy Hobbs, Earth and Environmental Sciences
 Lead Author Department: Earth and Environmental Sciences
 Session: Poster Session

The human population is predicted to exceed nine billion people by 2050, and the produce required to support them is expected to double. As the world faces increasing environmental uncertainty and decreasing land availability, nearly four billion tonnes of fruits and vegetables will be needed. The purpose of this study is to compare different methods of growing kale in terms of water-use and yield using aeroponics, soil, and biochar-enhanced soil with the same amount of space used for each group. Aeroponics is a type of hydroponics, but the roots are misted with nutrient-dense water rather than submerged. Aeroponics has been shown to use less water than traditional soil growing. Biochar, a charred biomass used as a soil amendment, has been shown to have greater water absorption and produce greater yield than unamended soil. It was hypothesized that the aeroponic group would produce the greatest yield and use the least amount of water. The biochar group was predicted to produce less yield than the aeroponic

group but use less water than unamended soil. The unamended soil group was anticipated to produce the lowest yield and use the most water per plant. The water usage of each group was measured and recorded throughout their growing period. Electrical conductivity and pH were monitored for the operation of the aeroponic system daily. Yield was calculated using the Rutgers method and results are reported as yield versus milliliters of water use.

Olivia Adamson

Earth and Environmental Science

Real World Experiences with GIS

Lead Author Department: Earth and Environmental Sciences

Session: HIP Student Showcase, Poster Session

During the Fall of 2020 and Spring of 2021, I have practiced and applied Geographic Information Science (GIS) skills learned within my courses at the University of West Florida to my OUR project. I began working on multiple projects with the Earth and Environmental Science department that include map creation, editing, field work and research. I have created heat maps of current students and alumni based on their enrollment in MS in GIS Administration and students in the GIS certificate program. In addition, I have assisted the UWF Archaeology Institute with the historic A.M.E. Magnolia and Zion cemetery project. As well as, creating a story map for the National Professional Science Master's Association (NPSMA) conference that will be hosted in Tampa, FL later this year.

Katrina Boteler

Earth and Environmental Science

Air Quality Monitoring at Willow Glen Subdivision Pace, Florida

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

Good air quality is essential to life. However, the quality of the air we breathe is variable from site to site even within the same location. In order to learn more about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide and Combustibles. This presentation focuses on the monitoring conducted at Willow Glen Subdivision Pace; Florida based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi gas detector to daily log air quality readings.

Cooper Corey

Earth and Environmental Science

Air Quality Monitoring at Utopia Drive, Pensacola

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

Air Quality Monitoring at Utopia Drive, Pensacola Good air quality is essential to life. However the quality of the air we breathe is variable from site to site even within the same location. In order to learn more about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide and Combustibles. This presentation focuses on the monitoring conducted at [insert name of Utopia

Drive, Pensacola based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi gas detector to daily log air quality readings.

Alease Folts

Earth and Environmental Science

Air Quality Monitoring at University of West Florida Village East

Faculty Mentor(s): Kwame Owusu Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

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Brooke Guy

Earth and Environmental Science

Air Quality

Faculty Mentor(s): Kwame Owusu Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

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Cameron Jackson

Earth and Environmental Science

Air Quality Monitoring Where the Escambia River Flows Into Escambia Bay

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

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Lucas Kimmel**Earth and Environmental Science*****Air Quality Monitoring at Meadowrun Apartments, Pensacola***

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

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Madyson Macko**Earth and Environmental Science*****Air Quality Monitoring at UWF***

Faculty Mentor(s): Kwame Owusu Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

Air Quality Monitoring at UWF Campus Good air quality is essential to life. However the quality of the air we breathe is variable from site to site even within the same location. In order to learn more about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide and Combustibles. This presentation focuses on the monitoring conducted at UWF near building 58A and other science buildings (the overlook/lookout) based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi gas detector to daily log air quality readings.

April Mendez**Earth and Environmental Science*****Air Quality Monitoring at Bellview, Pensacola Florida***

Faculty Mentor(s): Kwame Owusu-Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences

Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"

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Kwame Owusu-Daaku**Earth and Environmental Science*****Scaffolded Writing***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Experiential Activities and Collaborative Course Projects for Interdisciplinary Learning***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Collaborative Research and Experiential Activities for Science Communication***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****North Port St. Joe Environmental (In)Justice Community Profile***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Forming Sustainability Habits through The Lifestyle Project***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Experiencing and Expressing Qualitative Research***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Designing a CUBE (Center for Unlocking the Blue Economy) of the northern Gulf of Mexico***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Building Student and Community Resident Capacity for Air Quality Monitoring***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Hypothetical Proposal Development Based on a Real-Life Context***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Kwame Owusu-Daaku**Earth and Environmental Science*****Pink Time***

Lead Author Department: Earth and Environmental Sciences

Session: HIP Faculty Showcase; Poster Session

Katie Ryba**Earth and Environmental Science*****Air Quality Monitoring in Perdido, Florida***

Faculty Mentor(s): Kwame Owusu Daaku, Earth and Environmental Sciences

Lead Author Department: Earth and Environmental Sciences
 Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"
 Air Quality Monitoring at Perdido, Florida Good air quality is essential to life. However the quality of the air we breathe is variable from site to site even within the same location. In order to learn more about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide and Combustibles. This presentation focuses on the monitoring conducted at Perdido, Florida in the neighborhood Landfall based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi gas detector to daily log air quality readings.

Lois Shulund **Earth and Environmental Science**
Air Quality Monitoring at Midway

Faculty Mentor(s): Kwame Owusu Daaku, Earth and Environmental Sciences
 Lead Author Department: Earth and Environmental Sciences
 Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"
 Good air quality is essential to life. However, the quality of the air we breathe is variable from site to site even within the same location. In order to learn more about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide and Combustibles. This presentation focuses on the monitoring conducted at Midway based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi gas detector to daily log air quality readings.

JoAnna Snow **Earth and Environmental Science**
Air Quality Monitoring in Green Acers Community

Faculty Mentor(s): Kwame Daaku, Earth and Environmental Sciences
 Lead Author Department: Earth and Environmental Sciences
 Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"
 Good air quality is essential to life. However the quality of the air we breathe is variable from site to site even within the same location. In order to learn more about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide and Combustibles. This presentation focuses on the monitoring conducted at Green Acers based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi gas detector to daily log air quality readings.

Veron Van Arnam **Earth and Environmental Science**
Air Quality Monitoring at UWF Village West Apts.

Faculty Mentor(s): Kwame Owusu Daaku, Earth and Environmental Sciences
 Lead Author Department: Earth and Environmental Sciences
 Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"
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about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide and Combustibles. This presentation focuses on the monitoring conducted at UWF Village West Apts. based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi gas detector to daily log air quality readings.

Michael York **Earth and Environmental Science**
Air Quality Monitoring Along University Parkway Road

Faculty Mentor(s): Kwame Daaku, Earth and Environmental Sciences
 Lead Author Department: Earth and Environmental Sciences
 Session: Dr. Kwame Owusu-Daaku's Session on "Air Quality Projects"
 Air Quality Monitoring along university parkway road Good air quality is essential to life. However, the quality of the air we breathe is variable from site to site even within the same location. In order to learn more about the mechanics of air quality and air quality monitoring, students enrolled in EVR4039 (Community Engagement in Environmental Science) received a handheld multi-gas detector that measures Oxygen, Carbon Monoxide, Hydrogen Sulfide, and Combustibles. This presentation focuses on the monitoring conducted at university parkway road based on a daily monitoring plan. The results and possible implications of the monitoring will be discussed as well as the experience of using a handheld multi-gas detector to daily log air quality readings.

ELECTRICAL AND COMPUTER ENGINEERING

Haley McKenzie **Electrical and Computer Engineering**
Power and Controls System Installation and Design for UWF Solar Race Cars
Co-Author(s): Jake Kriner, Justin Wymore

Faculty Mentor(s): Cheng Zhang, Mechanical Engineering
 Lead Author Department: Electrical and Computer Engineering
 Session: Poster Session

The American Solar Challenge (ASC) is a competition held by the Innovators Educational Foundation to help foster an environment for students to develop creative solutions to the challenge of constructing vehicles powered using solar panels. This multi-day event is typically held bi-annually and gives students an opportunity to network among other universities and industry leaders alike, while providing a chance to spread public awareness for the technologies developed due to this competition. Teams that submit to participate in this event can spend several years developing their vehicles in order to meet all the regulations and safety standards outlined by the ASC regulations. The University of West Florida's Hal Marcus College of Science and Engineering has two solar vehicles currently under construction, one which has been built from the ground up by Enterprise team members and capstone students and the other which was donated by MIT. Throughout the Fall of 2020 and the Spring of 2021, our capstone team has been tasked with completing and installing the controls systems for both vehicles. This has involved designing, repairing, and constructing wiring harnesses for each vehicle, along with component testing for the batteries, controllers, and motors. By the end of the Spring 2021 semester we hope to

have both vehicles near completion so future teams can begin preparing for our vehicles to be entered into the American Solar Challenge competition.

Bhuvana Ramachandran **Electrical and Computer Engineering**
Innovative Freshmen Learning Experience for Engineers

Lead Author Department: Electrical and Computer Engineering
 Session: HIP Faculty Showcase; Poster Session

Odalys Rodriguez **Electrical and Computer Engineering**
RF Positioning System

Faculty Mentor(s): Tarek Youssef
 Lead Author Department: Electrical and Computer Engineering
 Session: Poster Session

The purpose of this project is to develop an indoor radio frequency (RF) positioning system to track the position of a device within centimeters accuracy. Unlike the Global Positioning System (GPS), the RF positioning system does not communicate with satellites in order to determine a specific location. Instead, the RF positioning system utilizes tracking tags and anchors to track devices in indoor spaces. The ultra-wideband (UWB) technology enables the DMW1000 transceiver chip to calculate the precise real-time indoor location within 10cm of accuracy. The accurate position of a device containing the tracking tag will be calculated by measuring the distance between the anchors and the tracking tags. Overall, implementing this positioning system in a device will resolve the issue of precise, real-time tracking being inaccessible in indoor spaces.

Jodie Welch **Electrical and Computer Engineering**
Dynamic Transmission Line Rating Sensor System
Co-Author(s): Sam Brown, Chance Bellflower

Faculty Mentor(s): Bhuvanewari Ramachandran, Electrical and Computer Engineering
 Lead Author Department: Electrical and Computer Engineering
 Session: Poster Session

As more renewable energy resources, such as wind and solar, are added to the existing grid, there is an increased need for more electrical capacity, and many companies are looking to increase the capacity of the existing transmission system in inexpensive and innovative ways due to the high expenses associated with constructing new lines. In many cases, companies lack the ability to track line conditions, such as conductor sag and weather, in real time. Line capacity is also limited by a static line rating that is often based on unlikely worst case weather conditions. We are designing a two module system that will give system operators the ability to track conductor sag and weather conditions in real time. A line mounted device will make use of an IMU, infrared temperature sensor, and a LiDAR to collect data. This data will then be reported via radio transceiver to the ground module, which will communicate with system controllers. Software systems will be programmed and integrated that can report the conditions recorded by the line mounted module and track those conditions over time to create statistical models that can predict line conditions depending on the usual weather conditions at that time of the year. We will then investigate using the conductor temperature data to adjust the line rating to allow higher loads on

the line in favorable weather conditions. We hope to see the ability to increase the capacity of the lines where this device is used and thus reduce transmission system bottlenecks.

Spencer Ramer **Electrical and Computer Engineering**
Smart Box for Deliveries

Co-Author(s): Alex Fife, Rafael Hinchey, Nathan Koch, Lee McLeod
 Faculty Mentor(s): Yazan Alqudah, Electrical and Computer Engineering
 Lead Author Department: Electrical and Computer Engineering
 Session: Oral Presentation

Porch pirates are ruining the online shopping experience for thousands of people on a global scale. Porch pirates are individuals who take it upon themselves to steal delivered packages right off of your door step. The current solution is to implement a ring doorbell or locker style box on your front porch. However, our group of 5 electrical engineers have decided to take all porch pirates head on. Our Smart Box for Deliveries implements many different locking systems and a security system that no one has yet developed. The locking systems include a manual lock, NFC card reader, and a 4-digit pin pad. The security system includes a motion sensor that triggers a camera that will take a picture of the contents of the smart box and send the taken photo to the recipient of the package in real time. When the Smart Box lid is shut the locking system will relock therefore not allowing re-entry into the smart box. This will help solve the issue of amazon delivery drivers taking a photo of your product then stealing your package and shifting the blame onto someone else. The Smart Box will pick up the activity and the owner will be able to show proof to the proper authorities to get a porch pirate off the streets. Another implementation that is going to be made is for regular mail. The Smart Box will have an opening for the post office to drop off letters through the front of the box.

MATHEMATICS AND STATISTICS

Reid Ginoza **Mathematics and Statistics**
A Spline Model for Hugoniot Curves in Equations of State

Faculty Mentor(s): Anthony Okafor, Mathematics and Statistics
 Lead Author Department: Mathematics and Statistics
 Session: Poster Session

Modeling the detonation of high explosives requires accurate shock propagation within the material of interest. The shock behavior is largely captured with the Hugoniot curve of an equation of state model, which describes the thermodynamic behavior of the unreacted material. While there are parametric forms for these models, such as linear and quadratic fits, that can be fit to shock data, this work explores the use of a semiparametric form with cubic b-splines to allow more flexibility in fitting the shock data. In order to optimize the fit, a genetic algorithm that respects convexity constraints is used to perform a global search. Two test cases to fit a spline equation of state to artificial experimental data result in good agreement with the known truth. Additionally, a spline Hugoniot is fit to shock data for LX-17, an insensitive TATB-based explosive, and constrained by overdriven data. The optimizer successfully reduced the error of the spline to the data while obeying the constraints.

Alyssa Selvey**Mathematics and Statistics****A Longitudinal Analysis of Waterfowl Abundance in Escambia, Santa Rosa, and Baldwin Counties**

Faculty Mentor(s): Samantha Seals, Mathematics and Statistics

Lead Author Department: Mathematics and Statistics

Session: Poster Session

A Longitudinal Analysis of Waterfowl Abundance in Escambia, Santa Rosa, and Baldwin Counties Selvey AT, Nash CS, Holbrook RS, Darby PC, Seals SR For decades, researchers and waterfowl associations have been monitoring the migration of waterfowl in North America. When northern ponds and lakes freeze over in winter, ducks that breed in that region undergo seasonal migrations to a warmer climate to find food during fall and winter. There have been numerous studies on duck migration patterns, however, few studies monitoring wintering ducks have been conducted in the region between coastal Mississippi and the big bend of Florida. A team of UWF researchers began observing ducks in the Pensacola area in February 2014 and continue to monitor every winter, from approximately October to April. This project is a longitudinal analysis of the resulting data. Negative binomial regression is used to model the abundance of redhead, scaup and bufflehead ducks as a function of weather (temperature, water conditions, and wind speed), disturbances (human-induced vs. natural), area (Perdido Bay vs. Santa Rosa), and date of observation. In this presentation, we will discuss predictors of duck abundance, differences between the Perdido Bay and Santa Rosa areas, and abundance trends over time.

MECHANICAL ENGINEERING

Jared Hendricks**Mechanical Engineering****Traffic Monitoring Device****Co-Author(s): Donnie Rice, Thomas Wong, Gus Beltra**

Faculty Mentor(s): Bhuvanewari Ramachandran, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The purpose of this project is to develop a device for traffic studies. Our device is intended to calculate several variables including vehicle speed, vehicle type, and traffic count based on vehicles driving over a pneumatic road tube stretched across the road. While products like the one we are developing currently exist, ours will reduce the amount of road tubing needed. Currently, traffic devices with one road tube can only determine vehicle count and two tubes are needed to determine variables such as vehicle type and speed.

Sarah Aguirre**Mechanical Engineering****International Laser Display Association (ILDA) Project****Co-Author(s): Nikolaus Ludwig, Dylan Menhennett**

Faculty Mentor(s): Tarek Youssef

Lead Author Department: Mechanical Engineering

Session: Poster Session

The International Laser Display Association (ILDA) is a non-profit association dedicated to advancing the use of laser displays in art, entertainment and education. As the ILDA Project Team, our goal is to construct a laser projector that

will display a laser image of the UWF Argonaut Head. The laser projector will be able to take a code created with Arduino (a software that allows a microcontroller to be programmed) and project the corresponding 3D laser image. This project desires to complete a low-cost laser projector and will involve students having individual and group learning responsibilities for various aspects of the project, researching various engineering topics along the way. In Fall 2020 we received funding from OUR to go towards the completion of this project.

Kaya Beasley**Mechanical Engineering****Skateboard Manufacturing****Co-Author(s): Simon Marchetti, Daniel Tillman, Sam Schelling, Manuel Siverio, Nicholas Carlson**

Faculty Mentor(s): Joe Piacenza, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

This semester, the Skateboard Manufacturing Team is going to use experience from crafting skateboards in the previous semesters to develop and refine a manufacturing process that can be used to consistently produce 10 to 20 skateboards in a month. By testing multiple methods for each step in the manufacturing process and measuring their effectiveness, the team will be able to determine which of the methods will be used in mass production. Having a refined manufacturing process will set the team up for success in the future semesters to produce well over 50 boards a semester. Once the team has established a structured manufacturing process, the process can be easily refined or added to, to aid in fixing roadblocks that arise throughout the semester.

Zach Bolton**Mechanical Engineering****Modified Motorized Vehicles for Kids - ArgoTots****Co-Author(s): Ryan Kline, Lisa Blubaugh, Melanie Johnson, Connor Howton, Amanda Johnson, Luke Roberson, Josh Belt**

Faculty Mentor(s): Bradley Regez, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

ArgoTots is a small team of engineering students who modify vehicles and toys for kids with disabilities. Our modifications range from adding basic remote control settings and safety all the way to collision detection and prevention. This semester's focus was to expand our skillset by making an all purpose vehicle that would include seat adjustments for kids of different sizes, a remote control setting for kids who cannot operate the vehicle on their own, and a manual control setting for those who can. This semester we will also include a collision detection system that will detect when dangerous objects are within the immediate vicinity and reverse the vehicle until it is in a safe enough range away from danger.

Jaret Bruce**Mechanical Engineering****Smart Football Sled****Co-Author(s): Isaac Brunet, Dakota Lawson**

Faculty Mentor(s): Bradley Regez, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

Our goal for this capstone project is to produce a football sled designed to better simulate actual football play, while also being able to improve and refine an

athlete's technique. With the help of UWF's football coaching staff, our sled is designed and tailored for the team's needs. The sled's design includes a system that measures an athlete's reaction time, a remote-controlled light that signals when a drill begins, and a unique double-hinge design that allows more degrees of motion of the football dummy. In order to test the overall design of the sled, the capstone team plans to test the sled's performance with a series of different football drills while being observed by the coaching staff. The success of our project will be determined by the input received from the coaching staff.

Cait Chandler

Mechanical Engineering

2021 UWF NASA Rover Team

Co-Author(s): Ryan Brooks, Sean Bridges, Josh Holten, Jacob Keller, Meghan Frymire, Kyle Lupenski, Cade Taylor

Faculty Mentor(s): Carolyn Mattick, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The UWF NASA Rover team works to design and build a rover that adheres to the NASA Human Exploration Rover Challenge guidelines. The team is a part of UWF's mechanical engineering enterprise program and consists of sophomore and junior mechanical engineering students. The competition has a variety of rules and regulations, for example, the rover must be completely human-powered, must fit within a 5x5x5 foot cubic area, and a foot clearance from the ground. While the in-person portion of the competition was canceled due to COVID protocols, the team will still complete the fabrication of the rover and will compete in the virtual portions of the competition. The team plans to complete fabrication in April and will document the progress through social media.

Conrad Echelle

Mechanical Engineering

Morphing Missile Team

Co-Author(s): Michael Letsinger, Jacob Norre, James Carlson, Kyle Preston, Dylan Walter, Cole Hansen

Faculty Mentor(s): Michael Reynolds, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The UWF Morphing Missile capstone team was formed to assist the Air Force Research Lab (AFRL) at Eglin Air Force Base (AFB). The UWF team was assigned to help with Project MERLIN, which stands for Missile Enhancement via Reconfigurable Interceptor Nose Cone. This is a first of its kind project at Eglin AFB. The final product of this test article will be tested using a traditional sled track test. The capstone team was tasked by the AFRL team with researching, designing, and constructing a power and control system for the test article. The Fall 2020 semester consisted mostly of researching the parts that would meet the AFRL's requirements and then the Spring 2021 semester would consist of constructing the test article. This also includes ensuring that the equipment is properly mounted and secured for the forces that it will receive while traveling down the track which is approximately 37G s. During the sled track test the mechanism will perform low frequency motions while still traveling down the track then when it leaves the track it will have slightly over a second to perform high frequency motion. The data will be collected by sensors that are built into the test article along with cameras to capture photos of the nose cone articulating.

Brandon Fenters

Mechanical Engineering

Argo Armada

Co-Author(s): Hunter Stegall, Alaina Coffield, Ethan Bloodworth, Alec Brognano, Bryce Boynton, Jake Randell, Kaitlyn Richards

Faculty Mentor(s): Michael Reynolds, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

This semester the Argo Armada rocket team will begin the foundation for future rocket team members. With the successful conception of the club, the team will no longer have to worry about certifications as previous teams have. The goal is to get new members as early as their first semester at UWF interested in the club and in turn gaining certifications. This will guarantee teams have an opportunity to get to competition and will not have to worry about gaining all the certifications L1 through L3. This semester hopes to accomplish a group L1 certification. The reason behind this is to familiarize the group with the basic process of designing, building, and launching a rocket. Not everyone will be able to be certified through level 3, but the team can be certified at once with a Level 1. In addition to that, the club will also be working to get a member of the club to an L3 certification. This is a goal to be achieved over the next few semesters, but the team will be working to make progress this semester. This semester we will be working on a smaller scale L2 rocket with the L3 electronics bay. The goal is to be able to have a successful launch on a dual deployment rocket that will cost significantly less than an L3. Using a smaller rocket will mitigate the setback of crashing a bigger and more expensive rocket.

Santos Garcia

Mechanical Engineering

University of West Florida Enterprise Solar Car

Co-Author(s): Eli Hagedorn, Nadia Kuchambi, Matt Preston, John Ray, Dylan Robas, Cole Smith, Noah Tucker, Joshua Wells, Chris House

Faculty Mentor(s): Cheng Zhang, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The UWF Solar Car Team was established to build a fully functioning, road legal solar vehicle to compete in the Single-Occupant category of the Formula Sun Grand Prix. Past efforts by the team have resulted in the construction of an aluminum structural frame, the completion of a suspension system, brake system, steering system, as well as an adjustable driver's seat. These components have been installed and tested to ensure proper function. The focus will now be on finishing the drivetrain and building the shell for the vehicle. The team has decided on 0.040 sheets of aluminum to be used for the shell of the vehicle this material is lighter than fiberglass and can easily be formed by the students. The drive train system consists of two electric motors connected to Polaris axles. In order to make these components compatible with the solar car the team has designed adapters to connect the axles to both the motors and hubs. Once installed the solar car will be ready for its first test drive. Integrating these solutions into the vehicle will allow the team to begin working on the most important component of the vehicle, the solar array. Once completed the team will begin preparing to compete in the 2022 Formula Sun Grand Prix.

Grant Ghesquiere**Mechanical Engineering****Automatic Aluminum Foil Dispenser****Co-Author(s): Nathan Simon, Keith Dang, Christian Page, Braxton Mullarkey-Coffee**

Faculty Mentor(s): Mohamed Khabou, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

Our engineering capstone team is designing and constructing an automatic aluminum foil dispenser which has applications in the salon industry.

Cosmetologists usually special order boxes of pre-cut aluminum sheets or cut them up for each client individually for hair dye services, consuming time and therefore costing them money. A current product that the device will be modeled after is the standard automatic paper towel dispenser which is commonly found in businesses and public restrooms. The challenge will be to make our device accept a standard roll of aluminum foil that can be purchased from any grocery store and to cut the metal foil sheets into user defined lengths and amounts to streamline a lengthy process. The senior mechanical and electrical engineering students engaged in this project will be tasked with designing the entire machine from scratch and providing a working model by the end of Fall 2021. Currently, the team is using simulation software to map out the electronic components, housing, delivery, and cutting mechanisms.

While working within safety guidelines with electronic components, skills such as programming motors to work collaboratively on separate internal systems, building and analyzing circuits, and simple manufacturing processes are being explored and implemented. The properties of aluminum foil such as shear yield strength will be tested to justify the best cutting mechanism for our machine. This collaboration between electrical and mechanical engineering disciplines will provide invaluable insight and experience for all involved, and manifest in a product that could be marketable and profitable.

Alex Gibbs**Mechanical Engineering****Development of Piezoelectric Tactile Sensors for Applications with Prosthetic Devices****Co-Author(s): Cesar Gonzalez, Ronald Coro, Renan Barbosa, Tomias Scott**

Faculty Mentor(s): Mizanoor Rahman, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

While looking into the state-of-the-art research of robotic arms and prosthetics it was noted that these can track and replicate the motion of human limbs, however, often they do not apply force and pressure as accurately and precisely as a human. The solution to this problem is to create a method that allows the synthetic hand to react to forces applied. The proposed solution to this problem is to create a glove that fits over one of these hands and provides tactile feedback that can later be used to provide additional control mechanisms to the synthetic hand. This will be accomplished through the creation of custom piezoelectric tactile sensors attached to a glove and then programmed accordingly.

Dalton Grubbs**Mechanical Engineering****Fresh Water Filtration System****Co-Author(s): Kendrick Chau, Bank Lertphanich**

Faculty Mentor(s): Carolyn Mattick, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The scope of the Water Filtration Project is to design a filter system that will meet Florida water quality standards capable of providing safe drinking water from sources, such as lakes, ponds, or streams, that will be used for survival situations. This system will also be carried in its own carrying device that is comfortable and highly mobile for the user. In this regard, the design of the product will be a small, lightweight, and durable build that will also be versatile in different environments where a water source can be accessed. The key objectives of this project are: 1) must produce a minimum amount of water for a human to stay hydrated, which is 3.7 liters for males and 2.7 liters for females a day, 2) the system must weigh under 10 pounds dry, including the carrying device, 3) meets the water quality standards established by the US Environmental Protection Agency (EPA), 4) the filter must be able to be effective for a minimum of 20 gallons of water. This product will include a water pump, battery, water filter, water reservoir, and the carrying device. This project will undergo extensive testing to ensure product quality and reliability in order to be competitive in the markets dominated by companies such as Lifestraw.

Branden Houck**Mechanical Engineering****OUR Works! and Recycled 3D Printed Filament**

Faculty Mentor(s): Murilo Basso, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The OUR program has facilitated many students to gain experience in their area of study and provide them with better understandings of their fields by paring them with knowledge mentors whose projects can give the students hands on experience. Through OUR Works! I have been given the opportunity to work with the SEA 3D recycling initiative headed by Dr. Piacenza and his capstone team. The program endeavors to take used materials such as water bottles and excess PLA and turn it into usable filament. This process requires pre-processing of the recyclables that come in and that need to be cleaned of dirt or food particles to prevent contamination of the material and the clogging the extruder on either the printer or filament maker. The Materials are then shredded using a 3DEVO SHR3D IT and turned into printable material using a 3DEVO Composer. Through experimentation, the printing settings were determined for PLA, ABS, PETG, and PETE. These setting were used to print samples of these materials for tensile testing which will serve as a reference point for further tests into how those properties will change when the material is recycled many times over its lifespan.

Avery Lockett**Mechanical Engineering****SAE Aero Capstone Team****Co-Author(s): Brandon Beckowitz, Sean McGee, Tyler Fortson, Savannah Richardson**

Faculty Mentor(s): Carolyn Mattick, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The proposed project will build on previous knowledge and experience by designing, optimizing, and manufacturing a competitive aircraft for the 2021

Society of Automotive Engineers (SAE) Aero Design west collegiate competition. The main objective for the UWF Florida Team is to design an aircraft that can lift a maximum payload composed of fourteen soccer balls. At competition our aircraft is expected to: takeoff in 100ft, complete a route around the designated airfield, and land in a 400ft landing zone. The final design of our aircraft can be described as a single-engine bi-plane. The challenges faced while designing the aircraft are similar to those faced by early aircraft engineers. The SAE Competition rules place a strict limit on available power, while the scoring scheme favors heavy payloads. Bi-planes, common in the early 1900s, compensate for lower thrust by creating more lift at low speeds. Only after the increase in power, did the industry shift to monoplanes. By utilizing a biplane design, this project relies on well-understood technology with the ultimate goal of helping develop the next generation of efficient aircraft

Taryn Minnick

Mechanical Engineering

Design/Build/Fly, Fort Walton Beach

Co-Author(s): Chau Vu, Brad Hernandez, Gavin Bruns, Keon Frank, Sterling Pittman

Faculty Mentor(s): John Ireton, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

During the fall and spring semesters of 2020-2021, the Fort Walton Beach Design Build Fly (DBF) team will design and fabricate an electric remote-controlled airplane for research and development purposes, and compliant with the DBF Competition rules for the accompanying year. First, the team will learn practical knowledge of aeronautics by learning to fly a different radio-controlled airplane in the specified flight pattern below. This knowledge is being provided by the Eglin Aero Modelers and their flight instructors. The team has also learned the general process for using Solidworks to design and fabricate the aircraft and all associated parts. The team aircraft will be required to take off from the ground within 100 feet, fly 3 laps through a 1000-foot-long racetrack style course including a 360-degree turn, and land safely. Furthermore, it must be able to operate under its own power, with no external take-off or landing assistance. The airplane must be electrically powered, with a maximum 5 feet wingspan, and not to exceed 55 pounds. The team design is battery powered, has a 5 foot wingspan, and is about 19 pounds. It must have an external arm/safe mechanism, and the capability to carry a small payload. \$1250 in funding has been raised for OUR and the Mechanical Engineering Department. The design has been finished, and files from the design are being used with a laser cutter provided by the faculty research mentor, Dr. Carolyn Mattick. Most of the materials have been purchased, and fabrication is in work.

Nathan Paulchek

Mechanical Engineering

Sea 3D Recycled Printing

Co-Author(s): Milli Cowart, Alex Burns, Emily Keiffer

Faculty Mentor(s): Joe Piacenza, Mechanical Engineering, Bradley Regez, Mechanical Engineering

Lead Author Department: Physics

Session: Poster Session

Our team will collect PETE products (mainly water bottles and single use food containers) and contribute to improving the process of recycling and turning

consumed PETE into useable, functional 3D printed material by May 9, 2021.

The focus of the project is to improve the uniformity and usability of the PETE. Our first objective is to successfully shred half a pound of uniform and uncontaminated PETE to be used for extrusion. Another objective is to use a 3D printer to successfully print a dogbone for testing. Using the MTS Criterion 45, the dogbone will give us important data on the tensile strength, modulus of elasticity, and plastic deformation of the PETE we extrude. We will create an excel sheet of quantified data relating to the variables that can affect the quality of our prints. We would like to be able to print the material that has been collected and manipulated into a usable form that can be used for PETE research. This research will be done to make recycled PETE more feasible for 3D printing. Finally, we will assist with printing of PETE, PLA, and ABS and the mechanical testing of these materials using the MTS Criterion 45.

Brooke Sanders

Mechanical Engineering

Adaptive Technology for Kids

Co-Author(s): Tyler Adams, Tyler Wells, Cristy Higginbotham, Brie Aziz

Faculty Mentor(s): Danita Marcum, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

The Adaptive Technology for Kids Fort Walton Beach team is a derivative of the Pensacola based Argotots team in which the team members use their developing engineering skills to design and fabricate a project for a disabled child. This semester, the Adaptive Tech for Kids team has worked closely with a volunteer physical therapist in choosing a candidate to work with. The candidate, a child with limited joint mobility, has requested the team modifies a bicycle according to his needs. The team is in the design phase of the project, using the candidate's specifications, and will begin to order parts and fabricate soon. The Adaptive Tech for Kids team is excited to carry on the tradition of exemplary engineering that has been featured on the University of West Florida's YouTube channel and to continue to work for and with more children in the area. The engineering profession is about making people's lives simpler, safer, and more fun, and this project embodies that.

Kim Sanders

Mechanical Engineering

Spring 2021 Human Powered Vehicle

Co-Author(s): William Tice, Joshua Dold, Stephen Barrs, Mark Knoll, Daniel Bozeman, Connor Goldsworthy, David Schroeder

Faculty Mentor(s): Michael Reynolds, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

In the Spring of 2021, the Human Powered Vehicle team will continue the construction of the human powered vehicle from the previous semester in accordance to 2021 American Society of Mechanical Engineers (ASME) Human Powered Vehicle Competition Rules. The vehicle must be able to contain a single student driver safely, maneuver around with ease, and brake on command in order to be safely driven by the student driver. This semester the team will prioritize the creation of a prototype shell and the installation of a seat and harness such that the vehicle conforms to the ASME regulations for competition in the Human Powered Vehicle competition. The team will also work to overhaul

the existing drivetrain to use multiple shorter chains in place of a single lengthy chain to increase reliability and reduce the risk of jumped sprockets. The long-term goal of this team is to design and construct a human powered vehicle capable of reaching speeds of up to 100 mph, which will break in the World Human Powered Speed Challenge record of 89.59 mph. The team's objectives are to prototype a functioning shell, to overhaul the drivetrain to use multiple shorter chains, and to mount a seat and harness

Davin Scheller

SAE Aero Design

Co-Author(s): Tomas Escobar, Hunter Rose, Ryan Davis, Luke Nelms, Matheus Nunes, Trent Booker, Daniel Egberongbe

Faculty Mentor(s): Carolyn Mattick, Mechanical Engineering

Lead Author Department: Mechanical Engineering

Session: Poster Session

Competitive team projects following the Society of Automotive Engineers (SAE) serve to provide members with opportunities in areas of specific practical application found in industry. This project prioritizes the construction of a small scale aircraft following SAE competitive guidelines which utilizes a scoring system to rate designs. Aircraft must carry two types of payload including boxes and weighted plates while other requirements limit wingspan and power output. These goals simulate the conditions future engineers in the team will handle in their careers, providing opportunity to improve communicative and technical skills. Areas of study required to achieve a functional small scale aircraft primarily fall under aerodynamics analysis, including the airfoil, fuselage, nose, tail, and control surfaces. The team has modified these elements to achieve competition goals using strong but lightweight materials such as balsa. These materials allow the plane to maintain a sufficiently low weight to reduce power usage and stay in flight for a prolonged period of time.

Cody Smith

Object Detection Accuracy Enhancement in Color based Dynamic Sorting using Robotic Arm

Co-Author(s): Tabatha Mascarenhas

Faculty Mentor(s): Hakki Erhan Sevil

Lead Author Department: Mechanical Engineering

Session: Poster Session

Science and technology have been making great advances in the field of robotics during the past few decades. Companies have increasingly turned to automation and robotics to better serve customers and reduce costs. Even more important than the machines are the artificial intelligence (AI) and automated systems that enable them to carry out their tasks. Within this rapidly growing world of technology, robotic arms are being used more frequently for numerous tasks in factories and warehouses around the globe. A common example of this is the use of robotic platforms for object detection, tracking, and sorting applications. University of

Mechanical Engineering

West Florida (UWF) added a robotics project to the Engineering Design course in Mechanical Engineering Department for students to have the opportunity to experience the robotic design process in a more practically applied setting. The team focuses on assembling and integrating the object detection algorithm with a robotic arm with a conveyor belt for the purpose of object sorting, and our aim is to achieve accuracy enhancement for the number of items that are sorted correctly. The ultimate goal is to focus on one of the most popular areas of robotic system use that is warehouse automation for object pick and place application.

PHYSICS

Lavender Allen

Solvatochromism Involving Rhodamine 6G

Co-Author(s): Christian Conkle

Faculty Mentor(s): Aaron Wade, Physics

Lead Author Department: Physics

Session: Poster Session

Solvatochromic effects on Rhodamine 6G (R6G) were studied in eight different organic solvents by investigating the effects of those solvents on the absorption and emission spectra of R6G. Different models were used to estimate the ground-state and excited-state dipole moments of the fluorophore in each of the solvents. Additionally, Kamlet-Taft and Catalan models were also used to probe the solute-solvent interaction mechanisms and the degree to which each effect contributed to the solvatochromic shifts. The methods used to prepare solutions, measure absorption and emission spectra, and fit and analyze data were developed into an instruction manual for use by students in an upper division lab in chemistry, physics and related programs.

Physics

Andrew Porter

Ultra thin-film via the Langmuir-Blodgett technique

Co-Author(s): Molly McLain

Faculty Mentor(s): Aaron Wade, Physics

Lead Author Department: Chemistry

Session: Poster Session

Intermolecular forces strongly influence the formation of ultra-thin films. The Langmuir-Blodgett technique was used to study the formation and the effect of intermolecular forces. The film was formed at an air-water interface and pressure vs area isotherms of the film were taken to characterize the gas-like, liquid-like, and solid-like phases and to determine the zero-pressure molecular area for optimal thin film deposition. The film was then deposited onto a prepared glass slide to form a highly ordered multilayer film. Spectroscopic techniques were then used to analyze the optical properties of the film and to characterize the electronic energy levels.

Physics



HEALTH SCIENCES AND ADMINISTRATION

Sam Waz **Health Sciences Administration**
Investigating the Association Between Abortion and Depression

Faculty Mentor(s): Jessica Ryan, Health Sciences Administration
Lead Author Department: Health Sciences Administration
Session: Oral Presentation

According to the Centers for Disease Control and Prevention in a total of 618,581 abortions were reported in the United States in 2018 (Kortsmit et al., 2020). However, does an association between having an abortion and depression exist? To address this question, I first researched the clinical definition of depression. Next, I sought out numerous articles on the subject written by physicians and other mental health experts. Furthermore, my research has concluded there is a strong association between having an abortion and experiencing depression.

MOVEMENT SCIENCES AND HEALTH

Patricia Barrington **Movement Sciences and Health**
Virtual Poverty Simulation

Lead Author Department: Movement Sciences and Health
Session: HIP Faculty Showcase; Poster Session

Brooke-Ellen Davis **Movement Sciences and Health**
The Effect of Pharmacological Memetic of Exercise on High fat-induced Cardiac Myocytes Injuries

Co-Author(s): Madeline Wei, Benny Segovia-Ruiz

Faculty Mentor(s): Youngil Lee, Movement Sciences and Health; Ludmila Cosio-Lima, Movement Sciences and Health
Lead Author Department: Biology
Session: Poster Session

Metabolic distress caused by an excess High-fat diet (HFD) is linked to various types of heart diseases. Interestingly, recent studies have reported that HFD per se may directly damage cardiac cells independent of vascular diseases. Although mechanisms remain to be determined, dysregulation of autophagy (self-eating), metabolic signaling, and cellular senescence (aging) are possible factors involved in HFD-induced cardiac degeneration. Given that regular endurance exercise confers various cardioprotective benefits against metabolic

diseases by promoting autophagy and delaying aging processes in the heart, we hypothesized that exercise-induced cardiac benefits might be directly derived from the cardiac cells aside from vascular origin. Our study, using a cell culture model of HDF, investigated whether a pharmacological exercise memetic (5-aminoimidazole-4-carboxamide-1- β -D-ribofuranoside: AICAR) rescued cardiac cells against HFD-induced cellular injuries via promoting autophagy and anti-aging reprogramming. Rat ventricular cells were cultured in three different conditions: 1) normal culture media (CON, n=4); 2) high fat diet, treated with 0.5 mM sodium palmitate (Pal, n=4); and 3) high fat diet + AICAR, treated with 0.5 mM sodium palmitate and 1 mM AICAR (Pal + AICAR). Our study showed that AICAR treatment mitigated morphological disfiguration but neither rescued HFD-induced autophagy disruption nor improved mitochondrial biogenesis nor enhanced glucose metabolic signaling compared to the HFD-treated group. Instead, AICAR rescued lipolysis and improved antioxidant capacity, which was downregulated by an HFD. Our data suggest that improved lipolysis in conjunction with antioxidant capacity by AICAR rather than autophagy modulation seems to provide cardiac protection against HFD-induced cell impairment as reflected in morphology data.

Case Jackson **Movement Sciences and Health**
Effects of the COVID-19 Pandemic on the Fitness Routines of College Students and Faculty

Faculty Mentor(s): Lauren Adlof, Ludmila Cosio-Lima, Movement Sciences and Health

Lead Author Department: Movement Sciences and Health

Session: Poster Session

The rapid transition to emergency remote teaching and the temporary closure of fitness facilities as a result of the COVID-19 pandemic had profound impacts on the daily fitness routines of both college students and faculty. The purpose of this study was to examine the initial effects of the temporary fitness facility closures from March to July, on the fitness routines of college students and faculty at a regional University. METHODS: A sample of 250 students and faculty (age=18-60yrs; n = 45 males n= 200 females) participated in an online survey measuring exercise frequency, type, and motivation surrounding the initial COVID-19 gym closures. Paired Samples t-tests and Pearson product-moment correlation coefficients were used to assess differences and relationships between variables over time. RESULTS: The majority of the participants (32.33%) reported a PRE exercise frequency of 3-4days/wk. However, during COVID-19 (DUR), most participants reported an exercise frequency of 1-2 days/wk (35.78%) which was significantly lower than exercise frequency PRE ($p=0.00$). The majority of participants (67/ 29%) reported a POST exercise frequency of 1-2 days/week, which was significantly lower than PRE ($p=0.00$). On a Likert-scale of 0-5, there was a significant difference between exercise motivation PRE (3.8 1.14), DUR (2.8 1.30, $p=0.00$), POST (3.5 1.21, $p=0.00$) conditions. CONCLUSIONS: The COVID-19 pandemic significantly negatively impacted the exercise frequency and exercise motivation of university students and faculty. Frequency and exercise motivation levels did not return to PRE- levels, even after fitness facilities reopened.

NURSING

Jessica Chandler

Nursing

Assessing Bachelor of Science in Nursing Students' Perceptions of Social Distancing During COVID-19

Faculty Mentor(s): Jill Van Der Like, Nursing

Lead Author Department: Nursing

Session: Poster Session

The coronavirus disease has changed the lives of Americans since the day the first case was reported. People lost jobs, and students of all ages were transitioned to an online setting. The online learning environment can be difficult, especially for nursing students who require in-person clinical practice to learn the profession. A survey was conducted after Institutional Review Board approval to measure how the COVID-19 pandemic has affected the mental health of the third and fourth-semester traditional Bachelor of Science in Nursing students of the University of West Florida. The survey was conducted as part of undergraduate research, and revealed that 78% of the students 1) felt that staying or working from home affected personal mental health, and 2) felt as though virtual simulations did not prepare students for clinical experience. Although this has been a difficult experience, it might help these students to adapt to difficult situations in the workplace.

Kalyn Kelso

Nursing

Concept Analysis Literature Review for Trauma Informed Care in Nursing

Co-Author(s): Austin Stacy

Faculty Mentor(s): Angela Blackburn, Nursing

Lead Author Department: Psychology

Session: Poster Session

The term trauma-informed care has been used frequently in the literature on nursing practice despite not yet having a universal definition. This literature review aims to analyze the existing research relevant to this concept to more clearly define trauma-informed care and its various dimensions. The authors reviewed the existing literature surrounding the concept of trauma-informed care within the context of nursing using structured search strategies. Several Databases were used including CINAHL, ProQuest, Cochrane Library, PubMed, and Medline. Search terms included variants of trauma-informed care and trauma. Developing a thorough understanding of the present literature related to this concept is a key part of the process of further clarifying the way that trauma-informed care is defined within nursing research and practice.

Kelci Malloy

Nursing

Perceived Benefits and Barriers of a Novel Approach to Prenatal Blood Pressure Telemonitoring: A Qualitative Study

Faculty Mentor(s): Cynthia Smith-Peters, Nursing

Lead Author Department: Biology

Session: Poster Session

Hypertensive pregnancy disorders (e.g., gestational hypertension, transient hypertension, preeclampsia) increase women's chances of developing poor maternal and fetal outcomes. One way to detect the earliest signs of

hypertensive pregnancy disorders and decrease the chances of complications is to monitor blood pressure and seek further testing when there is an elevation during pregnancy and postpartum. Testing can be done remotely through telemonitoring. The use of telemonitoring may promote self-care and decrease frequent non-urgent office visits and emergency care visits. This study explores potential benefits and barriers perceived by women when using a blood pressure cuff and a smartphone application to simulate telemonitoring during their pregnancy. Therefore, the study's qualitative data may set the foundation for future smartphone applications explicitly designed for screening hypertension disorders of pregnancy

Brandy Strahan

Nursing

Aligning RN-BSN Graduate Outcomes (ARGOS) for Nursing Mentorship

Lead Author Department: Nursing

Session: HIP Faculty Showcase; Poster Session

Jill Van Der Like

Nursing

Spring 2021 HIP with a Virtual Literature Review Experience with an RN-BSN Student

Lead Author Department: Nursing

Session: HIP Faculty Showcase; Poster Session

The 2020 Gallup Poll ranked nursing as the most trusted profession for 19 consecutive years. Many Registered Nurse-Bachelor of Science in Nursing students have been caring for critically ill COVID-19 patients for over a year while remaining dedicated to advancing their education. The profession of nursing is full of potential with approximately four million registered nurses in the United States, and growing numbers of employers requiring new hires to have a bachelor's degree. Nurses honor the public trust with the utmost in professionalism through lifelong learning. Nursing educators have the privilege of mentoring undergraduates that are registered nurses in their area of research interests within practice. The bachelor's degree elevates the understanding of the importance of research for healthcare excellence. Approximately 2% of the nation's registered nurses have earned a doctoral degree, and increasing the percentage begins with the bachelor's degree. Mentoring is needed to meet the current demand for advanced practice, and the undergraduate nursing student needs caring support through the pandemic conditions. The purpose of this presentation is to highlight the resilience of a working registered nurse in a bachelor's degree program exploring research during the COVID-19 pandemic.

Erica Williams

Nursing

Exploring Interventions for Atrial Fibrillation through a Literature Review as a Cardiac Nurse

Faculty Mentor(s): Jill Van Der Like, Nursing

Lead Author Department: Nursing

Session: Poster Session

Atrial fibrillation is a condition that causes the heart to beat with irregularities. Typically, the heart contracts and relaxes at a steady rate. The steady rate/rhythm is also known as normal sinus rhythm. In some cases, patients experience fainting, reports "racing" of the heartbeat, or as if their heart "skips a beat". Advancing age is the most prominent risk. Then along with age, high blood

pressure, congestive heart failure, diabetes Mellitus, coronary artery disease, and multivessel disease may also increase the risk of the development of atrial fibrillation. People over the age of 50 years are the most like population affected. Although patients report feelings of embarrassment, this condition can be life-threatening. This quivering or irregular heartbeat could lead to blood clots, stroke, and heart failure. Examples of treatment options for atrial fibrillation may include dual antiplatelet therapy, cardiac medications, and both surgical and nonsurgical options. According to peer-reviewed articles found in the CINAHL healthcare database, atrial fibrillation prevalence in the general population increases steadily with advancing age, from 0.12-0.16% in people younger than 49 years of age to 3.7-4.2% in those aged 60-70years. Beyond 80 years, the prevalence can be as high as 10-17%. Cardiac nurses require additional training to care for the patients. Cardiac nurses spend time attending to mental health care needs because patients report feelings of fatigue and sadness.

PSYCHOLOGY

Garrett Brown

Psychology

Applying Job Analysis to Graduate Assistantships in Psychology: A Service Learning and Collaborative Project

Faculty Mentor(s): Valerie Morganson, Psychology

Lead Author Department: Psychology

Session: HIP Student Showcase, Poster Session

In Spring 2021, a consulting team, comprised of graduate students, partnered with the University of West Florida's (UWF) Psychology Department to conduct a job analysis for the Graduate Assistant position within the Department. A job analysis is the process of gathering, documenting, and analyzing three features of work: the content of the job, worker attributes related to the performance of the job, and the context in which the job is performed. The primary function of a job analysis is to identify the tasks associated with a job, as well as the knowledge, skills, abilities, and other characteristics (KSAOs) that are necessary to perform the job (Cascio & Aguinis, 2019). The job analysis performed by the consultants consisted of four phases: (1) gathering background information on the Graduate Assistant position for various sources (e.g., O*NET and the Graduate Assistant Handbook), (2) interviewing subject matter experts to understand the KSAOs and tasks associated with the position, (3) developing KSAO and task statements for the position and putting them into a questionnaire, and (4) analyzing the results of the questionnaire and delivering the results to the client. The job analysis will be used to create a more accurate description of the position and create more specialized selection practices. The data from a job analysis is necessary for an accurate and fair selection process, and can also be used for training, compensation, and performance management.

Olivia Cutshaw

Psychology

Associations Between the Impact of COVID-19 and Maternal Stress

Faculty Mentor(s): Kimberly Day, Psychology

Lead Author Department: Psychology

Session: Poster Session

The ongoing COVID-19 pandemic has instigated many unique challenges for

parents, including mental and physical health concerns, economic stress, and increased marital conflict. The purpose of this study was to determine if impact of the pandemic is associated with higher levels of maternal stress. COVID-19 related stressors pose a threat to child well-being, as parental distress has been linked to child maltreatment (Xu & Wu, 2020). Mothers are the focus of the current study, as women are typically primary caregivers within the family and are at risk for higher levels of parenting stress (Griffith et al., 2010). Browne (2020) proposes a theoretical model in which disruption from the COVID-19 pandemic increases parental distress, which alters crucial inter-familial factors, leaving children at risk for poorer developmental outcomes. The present study investigates associations between COVID-19 impact and maternal stress. This study has received IRB approval and as data collection is currently ongoing; this conference poster will be focused on preliminary data. Participants are mothers reporting on themselves and their 3- to 5-year-old children via a Qualtrics survey. COVID-19 impact is measured by the Coronavirus Impacts Questionnaire (Conway et al., 2020). Parental stress is measured using the Parenting Stress Index-4 (Abidin, 1995). We hypothesize that families who have been heavily impacted by the COVID-19 pandemic will report higher stress levels. This hypothesis will be examined in SPSS using correlations. If significant positive associations are found, it would highlight the importance of therapeutic interventions aimed at parents to manage stress during these difficult times.

Jane Halonen

Psychology

External Assessor Capstone Experience

Lead Author Department: Psychology

Session: HIP Faculty Showcase; Poster Session

Morgan Kelley

Psychology

Adaptively Adding Concepts During Study Improves Flashcard-based Learning

Faculty Mentor(s): Lisa Blalock, Psychology

Lead Author Department: Psychology

Session: Poster Session

While the majority of students use flashcards to study, most make suboptimal decisions on how many cards to study and when to drop or add items to a deck. For example, Kornell and Bjork (2008) showed students drop cards from study too soon. In this study, we examined the optimal flashcard learning strategy by having participants identify butterfly species under different mastery conditions. We compared retention and transfer over the short- and long- term between a control group, a mastery drop group, and a mastery add group. In the first group, no items were dropped or added throughout the study. In the second group, participants started with all study items and items were dropped after three correct recalls in a row. In the third group, participants started with three categories of butterflies and new categories were added after three correct recalls in a row. During the first session, all participants completed an initial pre-test, then studied butterflies based on their assigned condition, and lastly took a post-test and a transfer test. One week later all groups completed a delayed post-test and transfer test as well as a working memory span task and a visual working memory change detection task to test their cognitive ability. Preliminary data show adding cards based on mastery led to better learning outcomes compared

to dropping cards, but similar performance when compared to no mastery. However, participants in the mastery add condition completed significantly fewer trials compared to no mastery (i.e., greater learning efficiency).

Hannah Lowe

Psychology

Analysis of the Effect of Horror Cinema on Modern Crime

Faculty Mentor(s): Jane Halonen, Psychology

Lead Author Department: Psychology

Session: HIP Student Showcase, Poster Session

I utilized my Capstone project to create a thesis focused on the relationship between copycat crime and horror movies. Copycat crime currently has no definitive way to categorize its prevalence or cause. However, there is abundant research dedicated to the effect horror movies have on ones' emotional and mental state. Through my thesis, I utilized multiple studies dedicated to the effect of horror cinema, crime patterns, and individuals predisposed to violent behavior. I used said research to determine the characteristics of an individual who is likely to commit to a copycat crime versus an individual who is unlikely to commit a copycat crime, even if they both watch horror movies frequently.

Mikaela Ramos

Psychology

Examining Associated Variables with Voluntary Compliance to COVID-19 Restrictions

Faculty Mentor(s): Steven Kass, Psychology

Lead Author Department: Psychology

Session: Poster Session

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.

Title: Spring 2020, Analyzing the Socio-Political Climate of the General Iron Strike in Chicago, Illinois Objective: Gain an understanding of the existing literature relevant to the General Iron Strike that contributes to the socio-political climate of the ongoing hunger strike Currently, there is an ongoing hunger strike against the plan for General Iron to relocate their metal shredding operations to the Southeast side of Chicago. Through an in-depth literature review, I will investigate the contributing socio-political factors that have led to the hunger strike, protesting the relocation of General Iron to the Southeast Side of Chicago, a majority LatinX neighborhood, from an affluent predominately white neighborhood, Lincoln Park. The secondary literature background will consist of journal articles, social media posts, newspaper articles by the Chicago Sun-Times, permits, government documents, and environmental reports. An examination of these varied documents will demonstrate the factors that have contributed to this issue as well as demonstrate the environmental and health impacts on the community. The primary data collection will be through an in-depth interview of an individual who has participated in the hunger strike. This first-hand account will provide a real account of the front-line demonstrations taking place to combat the placement of the metal shredding facility. This act of environmental racism has detrimental health impacts on the surrounding populations including asthma and other immunocompromised disorders. Through this interview and literature review, I will assess the socio-political climate that led to this hunger strike, the current proceedings and describe the outcome of this matter.

OTHER PROGRAMS



KUGELMAN HONORS PROGRAM

Olivia Adamson

Kugelman Honors Program

Argos' Edible Campus

Faculty Mentor(s): Chasidy Hobbs, Earth & Environmental Science

Lead Author Department: Earth & Environmental Science

Session: Poster Session

At the University of West Florida (UWF), 1 in 12 students visit the university food bank, Argo Pantry, for food assistance every year and that number is rising. Additionally, Feeding America estimates that 13.6 percent of people living in Escambia County are food insecure. Edible campuses have proven to help ease the burden of food insecurity on campuses. An edible campus provides a wide variety of harvestable produce to the local community. The purpose of the Argos Edible Campus program is to use the concept of edible landscapes to help combat the issue of food insecurity on the UWF campus. Students within the program were split into three research groups that focused on food insecurity, edible landscapes, and creating a plant manual. Students then planted edibles

PUBLIC HEALTH

Elizabeth Ramsamooj

Public Health

Spring 2020, Analyzing the Socio-Political Climate of the General Iron Strike in Chicago, Illinois

Faculty Mentor(s): Wesley Farr, Public Health

Lead Author Department: Public Health

Session: Poster Session

and wildflowers (to draw pollinators to the trees and bushes) in accordance with their research. Students were then tasked with creating a working story map on ArcGIS Online using GPS to locate edible plants with ArcGIS Collector. In addition to the points previously collected, there will be more data added as Argos Edible Campus program continues to grow. Lastly, next steps for the development were drafted for future terms. Findings from the three research groups, along with details of the Argos Edible Campus program are presented.

Brandon DeVries

Kugelman Honors Program

Should College Athletes Receive Compensation?

Faculty Mentor(s): Chenxiang Song, Administration and Law

Lead Author Department: Kugelman Honors Program

Session: Poster Session

Just recently, the state of California passed the Fair Pay to Play Act which allows college athletes to enter into third-party contracts to benefit from their names, images, and likenesses. Prompted by this act and pressure from other states, the NCAA voted unanimously to allow college athletes to receive compensation from third parties based on their names, images, and likenesses. However, the NCAA stated that each individual conference would be responsible for enforcing rules enabling college athletes to receive compensation from third parties. Also, the NCAA revealed that college athletes could receive compensation from third parties as long as the compensation contracts still promoted “amateurism.” The NCAA has long been able to avoid the compensation of college athletes by claiming that the effects of this compensation would damage amateurism. The question of whether or not colleges should be able to pay college athletes directly based on their revenues generated and in competitive ways now stands. The upcoming Supreme Court case *Alston v. NCAA* will decide whether or not colleges can give college athletes more benefits (like computers, science experiment instruments, study-abroad scholarships, etc.) than ever given. Depending on the ruling of this case, a new case could potentially argue that colleges should pay college athletes directly. In this research, I will perform a literature review that looks at the legal factors, economic factors, rules and regulations, and public opinions regarding college athlete compensation directly from colleges to determine whether or not college athlete should receive monetary compensation from their colleges.

Morgan Snow

Kugelman Honors Program

Measuring Depression, Anxiety and Stress in Nursing Students Using the DASS-21 Scale

Co-Author(s): Kirsten Traynor

Faculty Mentor(s): Jill Van Der Like, Nursing

Lead Author Department: Kugelman Honors Program

Session: Poster Session

Nursing school students were predicted to have high levels of depression, anxiety, and stress due to academic and career pressures. Academic literature research showed that the DASS-21 was a reliable tool to measure depression, anxiety, and stress in nursing students and registered nurses. Before the assessment, a pilot study with two volunteers was completed; their responses are not included in the final data set. A sample of 50 nursing students from the Fall 2019 University of West Florida Bachelor of Science in Nursing program

volunteered to take the DASS-21 using a secure online survey tool, Qualtrics. It was hypothesized that measures for anxiety and stress would exceed the normal ranges due to the strenuous requirements of the program. Depression levels were the lowest of the three domains. The average scores for depression, anxiety, and stress were 4.84 out of 14, 7.96 out of 10, and 9.08 out of 17 respectively.

Rebecca Yates

Kugelman Honors Program

Accelerating Maturity: The Plague of Adult Media on Developing Children and Adolescents

Faculty Mentor(s): Jane Halonen, Psychology

Lead Author Department: Psychology

Session: Poster Session

My presentation titled “Accelerating Maturity: The Plague of Adult Media on Developing Children and Adolescents” was completed as part of my psychology capstone course, “Psychology in the Movies” (PSY4930) underneath the guidance of Dr. Jane Halonen (jhalonen@uwf.edu). My project is also a substitution for my undergraduate honors thesis, a requirement from the Kugelman Honors Program. Accelerating maturity refers to the confrontation children are faced with adult media content invading much of film, television programs, and social media, even in spaces designated for youth. Through critically reviewing relevant literature, I will discuss how the loss of innocence in children is being expedited and how films and other easily accessible media are promoting this phenomenon. My presentation also analyzes how American industrial values bleed into childrearing and subsequent child development. My thesis is that both maturation experiences and perceptions of these experiences have morphed considerably, and either inspires adult content in youth media or arises from it. Emerging adulthood is characterized by a variety of life situations including overcoming fears, developing confidence, and learning responsibility. However, modern coming-of-age themed films and other media tend to primarily display unfavorable adult content such as explicit sex, violence, drug usage, and profanity. My paper will seek to assess and understand the dangers of adult content in youth film/media and advise why it is important to be patient with the maturation process.

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