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**Abstracts**

**College of Arts**

**Department of Art and Design**

**Connextion:**

**Exploration in Innovation for the**

**NEXT Office Design**

Amber Fite

Sponsor: Dr. Selena Nawrocki

The effect of the pandemic has changed how people interact within work environments, forcing designers to adapt. Gradually, more people are preferring to work from home, and traditional office design has evolved to multi-functional and dynamic spaces. As a result, the Connextion office design considers various principles and concepts to accommodate to the new expectations and needs of people.

Connextion is a research and development company dedicated to exploring new, innovative ways to improve everyday living through smart technology products. The brand concept is influenced by ions, tiny molecules that carry electrical charges and when connected create larger, stronger bonds. Connextion’s goal is to cultivate a work environment where people can combine ideas like ions, leading to new innovations. The design integrates advanced technology, fixed to fluid spaces for hybrid and collaboration purposes, promotes physical and mental well-being, and creates an atmosphere that encourages productivity, diversity, and inclusivity. This is achieved by zoning spaces based on work typologies, selecting various furnishings that are ergonomic and diverse in use, applying a complimentary blue and orange color scheme to balance motivation and relaxation, and incorporating biophilic elements through natural material choices and plants. These methodologies have proven to positively impact and enhance our shifting work environments.

**Rephotography:**

**Valdosta State Athletics**

Madison C. Connolly

Sponsor: Lindsay Godin, MFA

Since 2021, I've been an assistant sports photographer for Valdosta State University Athletics while completing my degree in Art & Design. I drew an interest in the University's historical archives, specifically sports photography. I started to compare the old photographs with my new images and this comparison made me appreciate the history of athletics and the numerous changes the university has made to it over time. I wanted to showcase these comparisons concretely, so I created a handmade photobook inspired by rephotography, a genre in photography where a photographer recreates photographs at the same location to showcase a comparison of time. In my process, I designed the photobook strategically by placing historical archives and new photographs in an assortment of ways to demonstrate changes throughout time in sports. By researching these archives, I became aware that my photographs will also become archives in the future. This project serves as a document, both as an art form and as a historical artifact, for the university body and Valdosta community to appreciate the history of our athletics. Going forward, I plan to create a professionally printed photobook for the school to look back on.

**Department of Communication Arts**

**A Consideration of Work Morale's**

**Deeper Impact**

Andrew J. Bardes

Sponsor: Dr. Chialing Ho

Scholars attributed the recent phenomenon of "great resignation" to low work morale and respect for employees. In turn, rethinking the value of work-life balance has become the public's attention. Thus, the current study examined the association between an individual's work morale and its impact on the same individual's home life. Participants were asked to rate their perception of the security provided by a job and compare it to the level of support they felt at home.

**The Use of Dating Apps Compared to the**

**Ease of Finding a Partner**

Claudia R. Brown

Sponsor: Dr. Chialing Ho

Online dating has become a very popular way for people to meet in recent years. Although the popularity of dating apps and websites is undeniable, research shows that using these venues to find a match is not all that it seems. What I pursued in my own research was if dating apps are to blame for fast partner turnover and if a fast partner turnover rate makes finding a partner easier or harder. I surveyed students of Valdosta State University on their opinions on this matter. It led me to very unexpected results. This study is an interesting and important look into the viewpoint college students have on online dating.

**The Relation of Online Interaction**

**and Confidence**

Nautica N. Graddy

Sponsor: Dr. Chialing Ho

Prior literature, Janjua & Rasool (2020) and Zhai (2019) showed that people who are indulging in internet activities are more vulnerable to stress and other mental disorders like depression and anxiety which causes stress when thinking about their ability to perform in future careers. Although the above studies showed that online communication/interaction can lead to depression and anxiety, they have not shown online communication's positive effects. Therefore, to learn more about the positive effects of online communication, the current study will explore how to detect the negative effects on one’s mental health when interacting online. The results showed that most of their online communication is related to their confidence when interacting with people in person (face-to-face) are (r = .08). The conclusion is in line with what was found in other studies. Other studies suggested that people who are less likely to communicate online tend to be more confident when communicating in person.

**Effect of the Mobile Phase in the Analysis of**

**Anti-Arrhythmic Drugs Using**

**High-Performance Liquid Chromatography**

Airionna S. Fordham

Sponsor: Dr. Linda de la Garza

The mobile phase plays an important role in the separation of molecules in high-performance liquid chromatography (HPLC). In this project, several drugs of clinical importance were analyzed using different percentage composition of the mobile phase, in reverse-phase chromatography. The anti-arrhythmic drugs included disopyramide, lidocaine, and quinidine which eluted in less than 10 minutes using a 5 cm C18 column. The mobile phases were prepared with water, methanol, acetic acid, and triethylamine (TEA) starting at 63:30:6.5:0.5 %v/v yielding solutions of pH ~ 2.76-3.4. As the percentage of methanol increased in the run, the retention time of the drugs decrease. As the percentage of water increased in the run, the retention time of the drugs increased. The addition of methanol had more of an effect on the retention time of the drugs than water, which did not increase the retention time by much. Further evaluation of % methanol and % TEA in the mobile phase will be performed to optimize the separation of the anti-arrhythmic drugs using the HPLC.

**Bed Time Stories**

Adalyn Watkins and Jalacia Outlae

Sponsor: Dr. William Faux

This paper examines the role of how Walmart showcases an app in an advertisement called Bedtime Stories where they allow incarcerated fathers to read to their children and how it can help increase literacy rates. African Americans tend to be incarcerated at higher rates than any other race so it makes it very difficult to advance and succeed in life. Children of the incarcerated tend to deal with stress and anxiety because they have witnessed traumatic experiences. By Walmart promoting this app, it allows the children to connect with their father and learn how to be better readers. This program will break the stigma that our society places on African Americans.

**Limiting the Ecological Footprint of the**

**Theatrical Industry**

Ella Risa Marroquin

Sponsor: Dr. Chalise Ludlow

The mainstream process of theatre creation typically aligns with the Cradle-to-Grave mindset, where materials are created for limited time use, disposed of once they are no longer needed, and are replaced with a new show as it repeats this process. This cycle leads to the theatrical industry’s large ecological footprint. The idea of “Green Theatre” is a new concept that has emerged in recent years to combat these wasteful practices by planning ahead for what materials may be used and how they will be used most efficiently with as little waste as possible. Through this study, I created an anonymous survey to gather if the Valdosta State University Theatre and Dance community were aware of the common but wasteful practices within the theatrical industry and if they know of solutions or initiatives towards greener theatre practices. Results showed that the majority of the VSU Theatre and Dance community feel that there is a large ecological footprint in the theatrical industry and recognize many areas that could reduce waste with potential solutions. However, participants acknowledged many challenges that an educational institution might have moving towards greener theatre compared to a professional theatre company.

**Mass Media**

**Women Overcoming Gender Norms**

**in *The Queen's Gambit***

Jamie Collins

Sponsor: Dr. Nicole Cox

*The Queen's Gambit*, a Netflix limited series, is set in the 1950s. Beth is a young girl growing up in Lexington, Kentucky, who is about 9 years old when her mother dies in a car accident. Beth lives in an orphanage until the second episode of the series, when she is adopted by Alma and Allston Wheatley at about 15 years old.

Feminist media studies state that gender is socially constructed and does not follow one's sex. The stereotypes and social constructs around gender persuade and heavily influence the audience. The media text can consciously or unconsciously influence the audience who partakes in watching the series, whether the influence is negative or positive. Feminist media studies also look at how cultural expectations of gender tend to lead to a social system that privileges men over women.

Alma Wheatley raises Beth once Alma and her husband, Allston, adopt Beth. Alma struggles and is not the best role model or mother to Beth; however, she supports Beth and is present with her during tournament trips. *The Queen's Gambit* demonstrates the power of gender-based social perception concerning marriage, addiction, and mental illness through the character and actions of Beth's adoptive mother, Alma Wheatley.

**Producing Educational Videos to**

**Help Local Educators and Schools**

**in the Coastal Plain RESA**

Jamie Collins and

Chontele Abney

Sponsor: Dr. Collin Walker

During the Spring 2022 semester, Chontele Abney, Avery Barnett, Jamie Collins, Nathan Harrell, Ethan Lowe, Brooke Meindl, Kaya Purcell, and Brianna West worked together in an experiential, non-profit service-based course to create educational and interactive videos and social media posts. The group worked closely with the Harley Langdale Jr. Foundation (HLJF), a non-profit organization, to create educational videos to help local educators in the Coastal Plains RESA. These videos were all filmed at the Grand Bay Wildlife Management Area and focused on the natural sciences. We made video lessons for two different target audiences. Our animal-centered videos were created for students in Kindergarten through 5th grade. Some of these videos included lessons on raccoons, swallow-tailed kites, and armadillos. The lab lessons videos were targeted toward students in 6th through 12th grade. In these videos, the Wetland Education Specialist facilitated lessons for a pH Lab, Dissolved Oxygen Lab, and Methane Lab. We also created social media posts catered to parents and educators for each lesson. The social media posts contained information and announcements for parents and teachers to generate excitement about specific topics. We also incorporated animations and an animated puppet character in each lesson to further engage the target audiences!

**Department of Music**

**Bach's Double Violin Concerto in D Minor,**

**BWV 1043, I. Vivace**

Amelia Pharis, Kamille McLean,

and Rebeca Sierra

Sponsors: Dr. Joshua Pifer and Xin Yu Chang

Johann Sebastian Bach (1685-1750) was a German Baroque composer. Bach was a musical genius, and his pieces have a key component known as counterpoint. J. S. Bach's Concerto for Two Violins, famously known as the "Bach Double," was composed during the late Baroque period and it is his only concerto for two violins. The first movement, *Vivace,* springs into counterpoint with a defining fugal subject which then echoes through the violins and orchestra creating an intricate tapestry of motion. As music majors, our primary area of scholarly research is live music performance. As a member of an ensemble, we are expected to learn not only our individual parts but how each part fits into the ensemble. In rehearsals we discuss who has the most important melody and how to blend each part to create the stylistic musical expression and character. This process of collaboration with peers is enjoyable, creative, and filled with decision making. The outcome of this research, involving practicing and rehearsing, is performing in front of an audience. This performance goal is then to bring Bach's music to fruition for the performers and to life for those who comes together to enjoy live music and a positive impact on the human soul.

**A Musical Realization of the Aramaic**

**Version of The Lord's Prayer**

Zackary David Price

Sponsor: Dr. Joshua Pifer

One of the most well-known prayers in Christianity is The Lord’s Prayer. Not only is this prayer a staple within the Christian tradition but, over time, it has evolved to become one of the central pillars within the *zeitgeist* of the western world. Although many Christians can recite this prayer by rote, the general populace is not always fully aware of its actual meaning or of its cultural and social history. In my presentation, I will discuss the original Aramaic version of this prayer and its historical, social, and cultural components. I will then discuss how this prayer has changed over time as a result of its movement through many translations and through different languages. As a music major here at VSU, my area of scholarship is music composition, arranging, and performance. I have composed and arranged both a piano and a choral ensemble piece of music that is set to the original Aramaic version of this prayer and reflects the nature of the prayer. This presentation will begin with a short lecture and conclude with a live performance of my composition which is the culmination of my scholarly activity.

**Department of Theater**

**A Whole "New Look" or a Whole "New View":**

**Analysis of the Development of**

**the *Aladdin* Movie Cultural Garments**

Brandall S. Kearse Jr.

Sponsor: Chalise Ludlow, MFA

Movies are often a way of telling stories that are not necessarily culturally accurate. Some companies take past historical moments and depict them to get ratings without considering the historical culture (society, cultural values, beliefs, and attitudes) and historical events (events that shaped a culture/nation). The result is often offensive, stereotypical, and dishonorable to certain societal groups as well as continuing the misinterpretation of a cultures and individuals. Disney released two versions of Aladdin: 1992 animated and 2019 live action film. Articles suggest that the 2019 release was an attempted to correct the cultural misrepresentation of the 1992 film.

This study evaluates the cultural accuracy of Middle Eastern garments presented in the 1992 animation verses the 2019 live action *Aladdin*. A consultation with the Arab American National Museum provided a general idea on how to deepen research techniques by first identifying certain places in the middle east like Persia, Arabia, Turkey, India, and China. After identifying a specific region, one could then examine how those areas influenced the clothing represented in the films. Using informational articles and written interviews with the costume designer Michael Wilkinson, it is helpful to understand his process involving the live action film. Additionally, the research examines how the silk trade route influenced the different cultural garments represented in both films.

**Langdale College of Business Administration**

**Department of Economics/Finance and Healthcare Administration**

**The Florida Panhandle:**

**Coastal Property Values**

Alexandra Elizabeth Redfearn

Sponsor: Dr. Zulal Denaux

The North Florida real estate market has seen record-high sale prices in the last couple of years. The purpose of this research is to analyze the relationship between property values and water-influenced properties in the Florida panhandle. In the year 2022, MLS data from eight counties spanning the northwest Florida coastline are studied to determine the market impact the water has on sale prices. Water influences include a residential property's water frontage and view type, which is broken down into 3 different subcategories: Gulf, Bay, and Canal/River. Of the eight counties in this region, there were a total of 12,313 sales or observations in the year 2022. The factors investigated in this study are the home's square footage, acreage, age of the home, the number of bedrooms in the home, the number of full bathrooms, the number of half bathrooms, and then the three categories of water influences.

Additionally, in this study individual city's water influences are analyzed. For example, the median price of a Gulf front home in Destin is $5.9 million and the median price of a home with a Gulf view is $2.3 million. The median sale price of a bay-front home is $1.6 million, and the median price of a home with a bay view is $1.2 million. Finally, homes on a canal in Destin are valued at $1.1 million. The data shows that in the Destin market, half the value of Gulf-influenced sales is dependent on if the home is on the water. Conversely, the sale prices of bay-front, bay-view, and canal-front properties are very similar. These characteristics of water-influenced properties vary across the panhandle and are important for real estate professionals to understand in these coastal markets.

**Department of Management**

**The Analysis of a Burnout Effect on**

**Nurses during Post-Coronavirus**

**at Phoebe Organization**

Ayanna C. Newberry

Sponsor: Dr. Gary Hackbarth

The purpose of this research is to examine the results if nurses experience burnout or not. This research will be researched within the hospital setting, analyzing ways that the hospital has chosen to improve nurse burnout. The primary data utilized in this study was obtained from U.S. Bureau of Labor Statistics. The data shows categories of pay for nurses compared to different industries. Additionally, the data presented also shows the unemployment rates from the past two years which is post coronavirus. All data was obtained from 2021-2022. The research methodology uses surveys that were given to nurses to express burnout personally. The data is set upon a panel technique which surveys were given twice to see if there would be a significant difference after a month (February and March). The research intends to inspire hospitals to focus more on their nurses' health and to inspire ways to improve worldwide. Overall, this is not only meant to highlight Phoebe’s organization, but also many other healthcare organizations.

**Investigating Students' Perspectives on Their**

**College through Exploratory Data Analysis**

Joanna N. Smith, Gerniya Z. Flewellen

and Andrew J. King

Sponsor: Dr. Taewon Hwang

This study investigates students' perspectives about their college through analysis of a survey, collected from students at College of Business Administration (CBA), Valdosta State University (VSU). Student perceptions of confidence, satisfaction, and benefits were measured on a five-point Likert scale. The survey data included 174 college students (50% male, 49% female, and 1% non-binary) with ages ranging from under 18 to 36 and older. This research will provide valuable information through exploratory data analysis. It will help college administrators improve their program and have opportunities to recruit more students.

**James L. and Dorothy H. Dewar College of**

**Education and Human Services**

**Department of Teacher Education**

**I Pledge Allegiance**

Courtney N. Clark

Sponsor: Dr. Karen Terry

House Bill 1084, paired with House Bill 888, will limit the way Social Studies teachers teach their content. Many of the topics discussed in history can be looked at as "divisive." America ties religion to nationalism, and this could be an issue when it comes to the Pledge of Allegiance in schools. In addition, students have a myriad of reasons they choose not to participate in the pledge. This paper will look at why and further discuss nationalism from past to present tense, as feelings on the topic have changed in recent years. The topic of the United States Pledge of Allegiance, the Georgia Pledge, and the Georgia flag from 1951-2001 will be referenced when discussing teaching Social Studies in particular. How to respond to students who refuse to recite the pledge will also be covered. The paper will discuss how Georgia House Bills change the way teachers approach the pledge, as well as the topics specific to Georgia history.

**Education Stance on Gun Violence**

Michael T. Addison

Sponsor: Dr. Karen Terry

Education on gun violence is crucial to help reduce the number of school shootings and mass shootings across the country. There is an ongoing debate over gun control in the United States, a social and political issue. Gun control laws have been used to discriminate against communities of color, a historical context that should be acknowledged in the classroom. The issue of school shootings is a complex one that is not only related to access to firearms but also issues such as mental health, poverty, discrimination, and other factors. Students must have a comprehensive, intersectional approach to their education on this topic, so they understand there is more than one side to this debate. HB1084, a bill that can potentially limit the depth and breadth of education on the topic of race, could lead to a lack of understanding of the historical context and current issues related to race. This paper will explore the connection between gun violence and racism, and discrimination, focusing on school shootings in the United States and the education provided on the stated issues in relation to HB1084. Through this research, social studies educators will be able to understand these issues clearly to provide their students with a comprehensive, inclusive, and culturally responsive education that addresses our students’ diverse experiences and perspectives.

**The Necessity of Hands-On Science through**

**the Lens of Non-Traditional**

**Teaching**

Raya A. Schilke

Sponsor: Dr. Gayle Ramirez

Children are naturally curious about the world around them. Hands-on experiments and demonstrations are essential to effectively teaching science to elementary students. When provided with opportunities for multisensory explorations, students actively engage with scientific content while using the Crosscutting Concepts as tools to make sense of phenomena which encourages engagement and creativity, which is vital to student comprehension. Tactile activities paired with live science demonstrations allow students to observe phenomena and draw conclusions on their own. By exploring this concept application through a non-traditional teaching setting, curiosity and engagement are encouraged while evidence is gained, supporting an application within a traditional classroom setting. Learning opportunities that are student-centered and allow multisensory engagement with science content, such as those provided by the Tellus Science Museum in Cartersville, Georgia promote inquiry-based learning. The purpose of this research is the investigation of the effectiveness of hands-on science activities and to promote the emphasis of direct student participation in order for better comprehension and more effective teaching. The results were compiled from the observation of the in-person application of said activities, with approved scholarly literature to support. The written material emphasized the project claim along with the desired application within traditional classroom environments.

**Evidence-Based Practices for Managing**

**the Elementary Classroom**

Cassidy Huebener

Sponsor: Dr. Forrest Parker

Classroom management strategies are a major predictor in teacher retention and success. One-way teachers can better prepare for their own future success and the success of their students is to use evidence-based practices. This presentation will explore a wide variety of evidence-based practices that should be used by elementary teachers to ensure a safe, socially stimulating, and emotionally healthy classroom environment.

**House Bill 1084 and Cultural**

**Education in Georgia**

Devon L. Day

Sponsor: Dr. Karen Terry

House Bill 1084 has already made some major adjustments in the short time since being passed. This presentation will discuss how teachers are limited on how they can teach certain concepts in World History, United States History, and the Education of different cultures in the classroom. We will discuss the constraints to the education of different cultures in other subjects like language, literature, art, music, and traditions. With this bill and the effect it has on the state, Georgia social studies teachers are rethinking their lesson plans and how they must carefully navigate certain parts of history. Veteran educators will likely struggle alongside novice teachers as they determine how to address certain topics without crossing a line. This presentation will also explain how cultural education is an important tool that can help promote cultural awareness, understanding, and respect for other cultures in the classroom. I will finally suggest benefits to implementing cultural education.

**Developmentally Appropriate Practices**

**in the Elementary Classroom**

Martha Breedlove

Sponsor: Dr. Forrest Parker

Developmentally Appropriate Practices (DAP) is a teaching approach that aligns with children's developmental stages, abilities, and needs. In the elementary classroom, DAP helps teachers to create a supportive learning environment that fosters children's social, emotional, physical, and cognitive growth. This oral presentation will explore the key principles of DAP, provide examples of effective teaching strategies, and discuss the benefits of implementing DAP in the classroom. By adopting DAP, teachers can create engaging and challenging learning experiences that support children's holistic development and help to set the foundation for future academic success.

**Women’s Reproductive Rights**

**and Effects on Students**

Savannah F. Carter

Sponsor: Dr. Karen Terry

Students are often limited on the amount of information they have been given in school about women’s reproductive rights. Topics such as abortion and sex education impact students’ lives well beyond their years in school. Various states have legislation on sex education, yet only a little over half require that it be taught "medically accurate," although definitions vary across each state. "Out of those 29 states, only 17 states require that the sex or HIV education programs be medically accurate" (Rowe, 2020). Not educating students, or providing misinformation, harms students. House Bill 1084 prevents teachers from addressing any divisive topics in school. Does this mean misleading students by not giving them all their options? The prevention of educating students on these topics exemplifies the amount of misinformation and also risks the spread of STIs and unplanned pregnancies as students are uninformed. Furthermore, the overturning of Roe v. Wade alongside the Georgia Heartbeat bill places restrictions on healthcare for women and students, limiting their time for certain resources. House Bill 1084 may restrict teachers from even mentioning all of students' options. Abortion, laws, sex education, curriculum, and Georgia legislative bills will be further addressed.

**10 Key Evidence-Based Practices to Ensure**

**Developmentally Appropriate Practices**

 **in Elementary Education**

Tranayah U. Clark

Sponsor: Dr. Forrest Parker

This oral presentation will provide a comprehensive overview of the 10 key evidence-based practices to ensure developmentally appropriate practices in elementary education. It will highlight the importance of implementing these practices to meet the needs and abilities of young learners and foster their academic, social, and emotional growth. The presentation will provide a brief explanation of each of the 10 key practices, along with relevant research and practical examples. The presentation will also discuss the challenges that educators face in implementing these practices and provide strategies to overcome them. The ultimate goal of this presentation is to empower educators to create developmentally appropriate learning environments that support the holistic growth of their students

**The Geography of Thought:**

**Reflections on Richard Nisbett’s**

**Eastern vs. Western Schema Theory and Its**

**Role in Mediating Sociocultural Conflict**

Rachel Popham

Sponsor: Dr. Lucia Lu

Dr. Richard Nisbett’s research on cultural differences in cognitive processing patterns between Westerners and East Asians posits that Westerners exhibit tendencies to focus on stand-alone focal objects (analytical constructs) while East Asians tend to emphasize contextual backgrounds (dialectical or holistic constructs). In addition, Westerners were observed to attend more to object attributes and engage in object categorization, while East Asians were observed to attend to relationships and associations among objects. Understanding differences in memory, judgment, and pattern grouping can reveal critical insights into diverse thinking frameworks among different cultural groups. More importantly, understanding the strengths of cognitive frameworks and how they can be co-applied in real-world assessments of events, situations, and conflicts can function as a vehicle for cross-cultural communication, empathy, and problem solving (5). However, subjective perceptions of this theory’s assessment validity can also influence cross-cultural plasticity and has not been tested. In this study, researchers administered Nisbett’s famous Fish Tank Test to participants (N=120) in South Georgia. A comparative assessment between an individual’s results and their subjective perceptions of their results revealed that the majority (80%) perceived test result reliability to be accurate. Furthermore, thematic analysis revealed that individuals perceived gender differences and conflicts between acculturation and native culture to be confounding factors that should be accounted for during sample selection and administration of the schema test.

**What Would You Do?**

**Surveying Breadth of a Social Experiment**

 **Television Broadcasting Program to**

**Initiate Low-Risk Conversations on**

**Diverse Socio-Cultural Perspectives**

Caleb I. Chaney

Sponsor: Dr. Lucia Lu

The ABC television broadcasting program, *What Would You Do (WWYD),* created by Chris Whipple and hosted by news correspondent John Quinones, chronicles passerby reactions to controversial scenarios and situations encompassing an assortment of social, cultural, religious, and political current issues in the U.S. The program’s situational experiments and actors are staged by the producers in public settings at various locations in the U.S. and strangers’ responses to the situations are recorded with hidden cameras. Following each response, the producers reveal the nature of the social experiment and interview the individuals involved. During these interviews, the individual’s motives and reasons for intervening or not intervening are explored. The series currently spans 16 seasons with a total of 147 episodes. Given the fast-evolving cultural backgrounds of children who comprise the “melting pot” American school system as well as the skyrocketing of technological media platforms such as *YouTube* and *Instagram*, the importance of finding new technological modalities to educate current and future teachers on multicultural issues in education is undeniable. However, initiating and facilitating discussions on sociocultural perspectives and issues related to diversity in an educational course setting can be difficult given the controversial and inflammatory nature of many of these topics and the different views of students in the classroom. Given the low-risk observational nature of the episodes, the series serves as a potential tool for initiating respectful and thoughtful discussions and reflections about difficult and controversial issues. However, neither its content breadth, suitability, nor utility in generating conversations about diverse perspectives in an educational setting has been explored. In this initial study, researchers investigated and catalogued the entire spectrum of topics that were investigated in each episode over the 16 seasons.

**What's the Deal with CRT?**

Gerardo J Carter

Sponsor: Dr. Karen Terry

This paper looks over critical race theory in the education system. It will show what critical race theory is and how it has been seen in education. Which is why it has to be looked at in its core since critical race theory is an interdisciplinary approach to understanding race and racism in the United States. Also, this paper will pit CRT versus House Bill 1084 and see how that bill has an effect on critical race theory being taught in a classroom setting. It is important to look at the house bill and see all the areas that specifically target CRT and anything that branches from this interdisciplinary approach that involves applying CRT in the classroom. CRT is diverse because it involves engaging in conversations about race and racism, and examining the ways in which these issues are intertwined with other forms of oppression. Also, CRT will be compared to “culturally responsive teaching,” which is an approach that recognizes the importance of cultural and ethnic backgrounds in the learning process. This will help us to see how CRT works and how it plays out in the classroom.

**Praying in School**

Laneston L. Hendricks

Sponsor: Dr. Karen Terry

House Bill 1084 has put a restriction on teachers in the classroom. Praying in schools has been an issue for many years. With America being a melting pot with different cultures, ethnicities, and religious groups, praying in schools has been a hot topic recently. This research paper will discuss why praying in schools is an issue and how House Bill 1084 ties into the issue. In this research, there will also be discussion on how different religious groups feel about praying school and should it be allowed or not. Different research will be used to help strengthen this research and its goals.

**Department of Human Services**

**Twice Exceptionality:**

**The Profile of Developmental**

**Coordination Disorder and Giftedness**

Jamaceo Rhodes

Sponsor: Dr. Ophelie Desmet

Developmental coordination disorder (DCD) or dyspraxia often goes undiagnosed or misdiagnosed. DCD is a neuromotor disability in which a child's motor coordination difficulties significantly interfere with activities of daily living or academic achievement (DSM’s American Psychiatric Association, 2013). Research on DCD is limited, and there are few research papers or resources available regarding students with DCD who are gifted and talented. We conducted a multiple case study to explore the clinical profile of gifted students with DCD. We collected data from three students (1 girl, 2 boys) ages 5, 10, and 17 who are gifted and talented and have DCD. Findings highlight the characteristics and needs of gifted students with DCD and focus on evidence-based interventions to best promote talent development among this population. We found that challenges associated with DCD may develop into complex psychosocial problems, with difficulties in peer relationships and social participation, bullying, low self-worth and perceived self-competence, and internalizing disorders, such as anxiety.

**Discovering Unique Strengths of**

**Students with Autism Spectrum Disorder**

Jenna N. Herren

Sponsor: Dr. Ophelie Desmet

People with Autism Spectrum Disorder (ASD) may display a range of strengths and abilities. However, the mainstream scientific community often overlooks the idea of unobserved strengths and abilities in people with ASD. This study explored potential areas of strength in ASD individuals and gifted ASD individuals (18-25 years). Seven unobserved strengths were assessed in people with ASD and without ASD: fluid and crystallized cognitive abilities, creativity, self-awareness, conscientiousness, openness, and motivation. Data was collected exclusively online through different listservs, University clinics, ASD support organizations and groups, and university classes. ANOVA, T-test, and content analysis were conducted to analyze the particular strengths and differences among people with and without ASD to inform strength-based approaches to best serve and empower people with ASD. Therefore, our study contributes to the existing literature on people with ASD by exploring non-observed strengths and abilities. With such information, teachers, clinicians, and researchers can more accurately identify and capably serve people in need by leveraging their strengths to accommodate their needs.

**Achievement and Social-Emotional**

**Differences between Boys and Girls**

Tammy J. Byrd

Sponsor: Dr. Ophelie Desmet

Researchers have estimated that up to 50 percent of gifted and talented students may underachieve at some point in their school career (Siegle, 2018). Based on previous research (Desmet et al., 2019), we hypothesize that social emotional functioning, operationalized as motivation, self-perception, and wellbeing contribute to underachievement of gifted and talented students. Additionally, research shows that boys may be more at risk of underachieving than girls (Desmet & Pereira, 2021; OECD, 2015). Therefore, we looked at gender differences in achievement patterns. We collected data from 284 students in the Netherlands with 145 boys. We used analysis of variance (ANOVA) to examine social emotional functioning among achievers and underachievers and determine if there were any gender differences. First, we found that there was a two to one ratio with boys underachieving at higher rates than girls. Second, underachievers reported lower social emotional functioning than achievers. Lastly, we determined which part of social emotional functioning had the largest effect on achievement status. When comparing motivation, self-perception, and well-being we found motivation had the largest effect. In conclusion, our findings demonstrated the continued need to focus on social emotional functioning, particularly in boys.

**Fostering Creative Thinking in a**

**K-8 Enrichment Program**

Rosieana E. Johnson

Sponsor: Dr. Ophelie Desmet

Although creativity is generally recognized as an important skill for students for long-term career goals, schools typically do not sufficiently foster creativity. Within an enrichment program setting, teachers often have more freedom to include activities and strategies that foster creative thinking. Therefore, this study aimed to explore how teachers in a K-8 enrichment program perceived and fostered creative thinking in their classrooms, using a general qualitative inductive approach. Our sample included 12 participants, of which three identified as female. Participants were interviewed, observed, and their lesson plans were reviewed. Findings showed that enrichment teachers foster creativity by using hands-on activities, open-ended instruction, and introducing students to new and different environments to stimulate the creative process. Teachers perceived creativity as problem-solving skills, seeing things from different perspectives, the ability to synthesize information, and thinking outside the box. Implications of our study include recommendations for how other teachers can foster creativity in their classrooms.

**College of Humanities and Social Sciences**

**Africana Studies**

**Music of Excellence:**

**The History of Black Music**

**and Its Impact on American Culture**

Kayla M. Griffin

Sponsor: Dr. Marilyn D. Lovett

Throughout American history, music created by African Americans has been the most impactful on popular music and culture. However, the role that Black musicians, singers, and artists have played in developing American and popular culture has been minimized because of discrimination, prejudice, and cultural appropriation. From genres like rock and roll, jazz, gospel, pop, rap/hip-hop, and R&B, Black musicians have had an important role in revolutionizing popular music and influencing American culture and it is essential that this is recognized. The purpose of the study is to analyze how songs created by Black artists in the 1950s were consumed by the media and reconfigured by white artists. A content analysis will be conducted using newspapers, magazines, articles, and listening to different versions of the songs.

**Going the Distance with Education:**

**The Impact of Black Families**

Kianna Marie Cox

Sponsor: Dr. Marilyn D. Lovett

All too often, those with mainstream American views believe that Black parents do not adequately convey the value of education to their children. However, researchers have found that when children struggle in school, African American parents will often ensure that they receive academic resources. Other researchers have noted that mothers are the primary communicators about education in the family. This study aims to ascertain how the various Black family configurations (nuclear, single-parent, and multigenerational) view educational achievement. This qualitative methodology will consist of in-depth interviews of ten college students who identify as African American or Black. They will be asked about their family’s educational views, how often their parents or family members checked their homework, and what messages they received about studying. Results, discussion, and implications of this research proposal are to be determined.

**Department of English**

**When Real-Life Horror Meets Fiction:**

**Dystopia in *The Nickel Boys***

Laura A. Northup

Sponsor: Dr. Donna Sewell

This project conducts an analysis of Colson Whitehead's *The Nickel Boys* through the lens of dystopic fiction. In this novel, a teenager named Elwood finds himself wrongfully convicted of automobile theft and sent to Nickel Academy, a reform school in Florida that abuses students behind closed doors. Elwood attempts to address the school's corruption with the help of his newfound friend, Turner. While *The Nickel Boys* is fictional, the history of the school it's based on is alarmingly real. The events of the novel are very disturbing, but the pieces that make it disturbing are also purely factual. Dystopic fiction characteristically takes what I call “periphery spaces” (physical spaces society typically pushes out of view to house the atypical society member) to the extreme, integrating the most negative aspects of real life as the foundation for a fictional world. However, Colson Whitehead's *The Nickel Boys* was inspired by a real-life space so naturally grotesque, it needed little fictionalization to create disturbing images. Analyzing Whitehead's novel from this lens begs the question of just how far some of the spaces in our world are from being dystopic.

**A Hate It or Love It Relationship**

**with *Dharma & Greg* and Its**

**Pragmatic Analysis**

Tammy L. Cochran

Sponsor: Dr. Li-Mei D. Chen

This study is meant to analyze pragmatics as they are used on the Television Situation Comedy *Dharma & Greg* with the purpose of examining how the puns, wordplay, metaphors, and southern accent add dimension and meaning in addition to providing comedic effects. Language samples were obtained from 119 episodes of the series and were analyzed by reviewing the episodes and documenting the ones that proved the intended usage along with their effects. The results of this study indicate that the actors of *Dharma & Greg* used linguistic ambiguity to create the desired effect. These findings provide additional insight into pragmatics of humor across discourse domains. The findings can be applied in the classroom to give young students new and interesting ways to express themselves as they maneuver through life.

**Reflections of Classical Greece in**

**Donna Tartt's *The Secret History***

Laura A. Northup

Sponsor: Dr. Theresa Thompson

This project analyzes elements of Classical Greece and their presentation in Donna Tartt's dark academia novel *The Secret History*. A Greek professor named Julian sequesters certain students to only take classes with him throughout their time in college. In doing so, Julian is able to strictly control the atmosphere he creates for these few. The culture Julian builds for his class reflects the time period of Greek history from around 500 B.C.E. to the conquest of Greece by the Macedonian king Phillip II in 338 B.C.E. Julian embodies Athenian culture in his teaching philosophy and class culture. I specifically focus on reflections of excellence, Greek tragedy, hamartia, the picturesque and Greek art, philosophy, gender roles, and homosexuality. Understanding classical Greek culture shows us the utopia Julian wanted to create for his students but failed to because of the culture's inherent conflicts with modernity.

**Department of History**

**Cleopatra:**

**An Ancient Story for a**

**1960s Audience**

Hannah M. Clark

Sponsor: Dr. Melanie Byrd

An iconic Hollywood classic, the 1963 film version of *Cleopatra*, directed by Joseph L. Mankiewicz, is a lavish re-telling of the well-known, often reinvented saga of Cleopatra, Julius Caesar, and Marc Antony. As one of the most famous and powerful female figures from ancient history, Cleopatra has long been an inspiration for art, theater, and film. The film contains numerous exaggerations and embellishments. Mankiewicz intentionally used creative license to create a version of the ancient events that would appeal to a 1960s audience. Casting Elizabeth Taylor as Cleopatra connected power, glamour, and gender in ways that would resonate with 1960s western culture. While Mankiewicz's creative choices were unfaithful to the historical Cleopatra as depicted in ancient sources, they enhanced the film's drama and overall cinematic qualities. Distortions present in the film unsurprisingly featured an identifiably 1960s flair which made Cleopatra a more appealing picture for its intended audience. Additionally, the fictionalized Hollywood Cleopatra overlapped with the star persona of Elizabeth Taylor, partly because of scandals surrounding the film. The cinematic Cleopatra and the historical queen became blurred into one.

**The Effect of Brown vs. Board of Education**

**Locally at Valdosta State College**

**and Lowndes High School**

Isabelle F. Reimer

Sponsor: Ms. Deborah Davis

The 1954 landmark decision of Brown vs. Board of Education set in motion a great change in education across the nation. The interpretation of these changes differed greatly in Georgia colleges and universities rather than in local school systems. Historical documents reveal these differences and shape how Brown was applied at Valdosta State College and Lowndes High School. Following Brown, Thaxton’s papers discussed how the Cook argument of 1954 used article VIII of the Georgia Constitution to express that taxes could not be provided to an integrated university or college, postponing VSC integration until 1963. The Sibley Report of 1960 was a survey done within Georgia to understand how the public would react to public school integration, whether taxes will be provided to integrated schools, and if students would still attend integrated schools. The purpose of my research was to understand the impact of both these archival sources locally at VSC and Lowndes High School and their integration. Concluding the research, it was found both Lowndes High school and VSC were not integrated for equality, but for economic funds and Thaxton’s determination to not be forced into integration.

**A Look into the Lynching Rampage of Lowndes County:**

**Why It Happened, and Why It Is Relevant Today**

Reagin M. Jones

Sponsors: Dr. Melanie Byrd and

Dr. Deborah Davis

Despite the United States’ extensive history with lynching, the records of these heinous acts are largely under developed and unreliable. There are many cases that never made it into the history books, but the Mary Turner lynchings are specifically considered to be the most gruesome and graphic, and therefore have been dubbed the "Lynching Rampage of the South." Reasons for the extreme violence, and lack of accountability that mark the Mary Turner lynchings include the deep-rooted racism found in the South, which even today have its own consequences. Another reason can be found in the general disregard for African American safety and justice as shown by law enforcement and government officials at the time.

**Department of Interdisciplinary Studies**

**Psychological Effects on**

**Bilingual Children**

Laura K. James

Sponsor: Dr. Lavonna Lovern

This paper explores bilingual language skills in children and adults in the United States. The paper will examine some of the theoretical positives and negatives in the research literature as well as literature discussions on bilingual individuals and educational progress, social competencies, and adult achievement scores. Specific attention will be paid to literature involving general and academic communications, cogitative achievements, and psychological impacts involved in being bilingual in America. While the demographics and the areas studied are broad, this is a preliminary literature review that will guide a larger and a more detailed research project. The purpose of this research is therefore to set a base-line and to provide guidelines for additional research.

**Department of Modern and Classical Languages**

**Not All That Glitters Is Gold:**

**A Critical Reading of**

**Spanish Golden Age Poetry**

Georgia J. Wynn

Sponsor: Dr. Grazyna Walczak

Lasting between the 1400s and 1700s, the Renaissance and Baroque were two aesthetics that dominated the Spanish Golden Age and reflected changes in the disposition of the artists. Renaissance art is characterized by balance, simplicity, harmony, and realism, while Baroque art is more dynamic, detail-oriented, pretentious, and dramatic. Although Baroque art is notable for its lavish nature and grandiosity, the literature of the time reflects a societal pessimism the art deflects. The Portuguese word barroco, meaning imperfect or irregular pearl, inspired the naming of the period, and the Baroque’s beautiful art and depressing literature epitomize the concept of an imperfect pearl. The Renaissance and Baroque both reflect the feelings of the people, affected by the rapid changes in their world. However, being so different, how could the two trends coexist then, what sustained them and what does it say about the generational frame of mind?

The response to this question can be found through a critical reading of Golden Age literature. The paper’s primary focus is to analyze traces of the opposing characteristics of the Renaissance and the Baroque in poems by Garcilaso de La Vega, Luis de Góngora, and Francisco de Quevedo. An analysis of the poems reveals the authors’ and lyrical voices’ reactions to changes occurring in the cultural landscape. By reviewing several examples of poetry, this paper uncovers the progression from Renaissance optimism to Baroque pessimism and reveals the mindsets dominating the Spanish Golden Age. The themes, forms, and figurative language in the poems mimic the ornamentation of Spanish Golden Age art and illustrate the non-linear transition of the Renaissance to the Baroque.

**Experiential Learning through Tutoring of**

**a Second Language**

**Apprentissage expérientiel par le biais**

**du tutorat d’une langue seconde**

Scot Burbank

Sponsor: Dr. Ofelia Nikolova

English:

During the Fall Semester of 2022, I conducted ten 45-minute virtual tutoring sessions with 2002 FREN students from Valdosta State University. Each session consisted of approximately 20 minutes of discussion in French and 25 minutes of tutoring. Our topic of conversation was episodes 1 to 5 of the French television series *Lupin*. Before the first conversation, I developed a series of questions in French in order to cultivate a discussion. I also designed a rubric to allow me to evaluate and analyze each conversation. In this presentation, I will reflect on and summarize the issues encountered throughout the tutoring process and the conversation practice. These challenges include building rapport and personal connection in an online environment, recognizing the power dynamics at play between teacher and student, helping guide students to find answers to questions they have and helping students overcome barriers to productive discussion. I will also discuss the experiential learning benefits of tutoring in the target language, as well as the challenges.

French:

Au cours du semestre d'automne 2022, j'ai dirigé dix séances de tutorat virtuel de 45 minutes avec des étudiants FREN 2002 de Valdosta State University. Chaque séance consistait en environ 20 minutes de discussion en français et 25 minutes de tutorat. Notre sujet de conversation était les épisodes 1 à 5 de la série télévisée française « Lupin ». Avant la première conversation, j'ai élaboré une série de questions en français afin de cultiver la discussion. J'ai également conçu une rubrique pour me permettre d'évaluer et d'analyser chaque conversation. Dans cette présentation, je vais réfléchir sur et résumer les problèmes rencontrés tout au long du semestre de pratique de la conversation et de tutorat. Ces défis incluent l'établissement d'un rapport et d'une connexion personnelle dans un environnement en ligne, la reconnaissance de la dynamique de pouvoir en jeu entre l'enseignant et l'élève, l'aide à guider les élèves pour trouver des réponses aux questions qu'ils se posent et l'aide aux élèves pour surmonter les obstacles à une discussion productive. Je discuterai également des avantages d'apprendre par l'expérience du tutorat dans la langue cible, ainsi que des défis de cette approche.

**The Gypsies of Spain:**

**A Triumphant Perseverance**

Yoav Golan

Sponsor: Dr. Grazyna Walczak

Gypsy refers to an ethnic minority people divided into various sub-groups in regional hubs across Europe. After Romania, the country home to the biggest Gypsy population in Europe, Spain boasts one of the world's most prominent Gypsy sub-group, also known as gitanos or caló. Their mark on Spanish culture and history is significant and their presence in Spain is inestimable. The Gypsy history is full of marginalization, oppression, and ethnic discrimination, yet perseverance and ethnic unity kept this group far from disappearance. Over the centuries, Spain and other European countries have discriminated against the Gypsies and even enacted laws oppressing them; with changing ideologies and governments, and the establishment of democracy and progressive thought, Gypsy people have gained public recognition and acceptance. Their perseverance, though being a mostly nomadic people for many generations, shows in keeping their culture, language, and traditions intact in an ever-changing environment. Assimilation has brought them closer to Spanish culture, leaving their mark in influences in art, music, and literature, particularly in regions like Andalucia, where the Gypsy culture is an inseparable part of the local. Their mixed identity of Spanish and Romani nature, together with their perseverance and unity, carries many significant cultural features that today are recognized as a part of Spain's culture.

**Uncovering the Heart of Democracy:**

**An Experiential Journey through a**

**Legislative Fellowship in Paris**

Mathilde Anik Vedel

Sponsor: Dr. Ofelia Nikolova

This presentation will take you on a journey through the experiences of a Valdosta State University student who embarked on a once-in-a-lifetime opportunity to study abroad as a legislative fellow at the French Parliament in Paris and work at an international law firm, ELC Paris. As a legislative fellow, the student had the unique opportunity to immerse themselves in the heart of democracy by observing the legislative process and participating in meetings and debates. Additionally, the student was able to gain practical knowledge and hands-on experience in international law by working at ELC Paris. Through this experience, the student not only developed a deeper understanding of the workings of government and the legal system, but also gained a new perspective on the world and personal growth. This presentation will provide an inside look at the challenges and rewards of studying abroad and offer valuable insights for anyone considering a similar experience. Join us for a captivating tale of personal and academic growth through international experience.

**English Language Learning in**

**Differing Age Levels:**

**An International ESOL**

**Comparative Case Study**

Brooklyn P. Van Deraa

Sponsor: Dr. Luis Bejarano

There are many factors that can influence a learner's acquisition of a second language, and these are even more relevant when comparing two different ESOL students in two different countries. This poster examines the cultural, linguistic, and geographical factors as well as the age of the individuals, and how these factors can impact different English language learners (ELLs). It will then examine variables prevalent in ESOL learners in the US, such as lack of identification with the dominant culture and socio-cultural, as well as linguistic variables including accent, pronunciation, and syntax. The research compares findings from an adult ELL in the United States and an adolescent ELL in Costa Rica (where the researcher taught ESOL in the Summer of 2022). Methods of data collection include phone and video calls, conversations with the informants, a questionnaire, speaking with family members, observation of class, and face-to-face English teaching. As for data analysis, the hypotheses developed were analyzed to be proved or refuted after observing and interviewing the informants. Some pedagogical implications were developed after the case study and the researcher’s first-hand experience teaching ELLs in Costa Rica, regarding how different ELLs home cultures and comfort levels can affect their motivation to learn English. This study further contributes to the research that language teachers need to acknowledge the many diverse backgrounds and factors affecting their ESOL students.

**How Language Anxiety Affects**

**Second Language Acquisition**

Sarah Burbank

Sponsor: Dr. Victoria Russell

This research project investigated the relationship between foreign language (FL) anxiety and academic performance, the factors that cause language anxiety, and whether gender plays a role for students who experience anxiety in the FL classroom. Students with high anxiety tend to have more difficulty in their language development, which can lead to test anxiety and communication apprehension (Campbell & Ortiz, 1991).

This review of literature also examined language anxiety through the lens of individual differences such as personality traits, learning styles, and performance anxiety. Moreover, the research on language anxiety and learning outcomes measured by final course grades was also investigated, comparing students with both high and low levels of FL anxiety.

This poster presentation provides a summary of the major findings on language anxiety in second language classrooms. In addition, a list of practical implications from these studies, key terms, visual aids, and references are also included.

**Traces of Judaism that Spain Couldn’t Expulse:**

**Jewish Influence in the Spanish Culture**

Lauren I. Mariah
Sponsor: Dr. Grazyna Walczak

Jews have been present in the Iberian Peninsula since long before the Roman era. During centuries of residence in the kingdoms that would become modern-day Spain, sometimes flourishing and sometimes massacred by their overlords amidst the ever-changing cycle of domination by the Romans, Visigoths, Christians, and Muslims, the Jewish communities established their distinctive and enriching subculture. Their contributions aided enormously in the academic, intellectual, and linguistic evolution of Spain as their communities moved between the Arab and Christian kingdoms while participating in the cultures, economies, and conquests of each. They also played a decisive role in the Iberian Peninsula’s economy and military, and later in the growth of the Spanish Empire during the Age of Exploration. Conversely, the influence of the Spanish culture on the Iberian Jews led to its own form of Judaism, while their subsequent expulsions fostered the spread of Spanish culture throughout the world and deprived Spain of their valuable presence. This project elaborates on the lessons that can be learned by uncovering the contributions of different communities sharing the same geographical location, and the consequences of the favorable and adverse politics of the dominating groups to all parties.

**Department of Political Science**

**Wage Gap in the United States:**

**What Factors Explain the Pay Gap Between**

**Men and Women across the 50 States?**

Abigail G. Wilcher

Sponsor: Dr. James LaPlant

The purpose of this quantitative study is to investigate the predictors of the pay gap between men and women. This study evaluates the factors that may contribute to the difference in men and women's earnings across the 50 states. The study analyzed eight independent variables: percent Trump vote 2020, population density, per capita income, percent bachelor's degree, percent African American, percent of women as the head of household, unemployment rate (2019 and 2021), and a nominal-level region variable. This study also compares the wage gap in 2019 and 2021. The impact of these variables on the dependent variable, the difference in men and women's earnings, is determined through a correlation analysis, scatterplots, boxplot, and multivariate regression analysis. Three variables proved to be statistically significant in 2019 (pre-pandemic) and 2021 (post-pandemic). The independent variables that proved to be significant were the Trump vote in 2020, per capita income, and the percent of the population with bachelor's degree. The variables that were insignificant were population density, percent African American, percent women as the head of household, and the unemployment rate. The difference between the Northeast and North Central regions are statistically significant at the p<.05 level for 2019 and 2021. The difference between the Southern and Western states were statistically significant at the p<.05 level when analyzing the change from 2019 to 2021 in the wage gap. After running a correlation and multiple regression analysis on the measure of change in the gap between men and women from 2019 to 2021, all variables proved to be statistically insignificant. Analyzing and identifying the cause of the difference between men and women's earnings is essential in eradicating the wage gap.

**Factoring in Violent Crime**

Maleigh R. Arnold

Sponsor: Dr. Bernard Tamas

Research regarding the violent crime rate is quite seldom. However, the topic of crime and policing is at the center of every political debate and campaign. With the introduction of social media and worldwide connection, individuals have now become more aware and concerned with the "rise in violent crime" and how to combat such wrongdoings. Ultimately, this paper seeks to find significant correlations between a multitude of variables across the violent crime rate overall, as well as four sub-categories that compose violent crime: Rape, Robbery, Aggravated Assault, and Murder. My goal of this paper is to assess and determine whether certain variables hold more or less significance when analyzing what may cause the violent crime rate to rise or lower. Seven hypotheses were formed in anticipation of certain correlations, however all hypothesis failed to hold correct and only serve as an estimate of what could potentially have an effect on the violent crime rate.

**Women's Reproductive Health Care Access:**

**Analyzing the Vote in the U.S. House on the Women's**

**Health Protection Act of 2022**

Angelica M. Bostwick

Sponsor: Dr. James LaPlant

**The purpose of this quantitative study is to examine the key predictors of the “yes” vote on The Women’s Health Protection Act. This study analyzed seven independent variables:**race, gender, number of years served, margin of victory in 2020 election, political party affiliation, region of country members are from, and type of leadership status **through crosstabulation and correlation analysis. The strongest correlations with the dependent variable were party affiliation and race followed by gender. However, the other variables demonstrated how the greater margin of victory modestly correlated with a yes vote as well as the number of years served. Leadership status demonstrated no relationship. Regional differences were evident with yes votes most prevalent in the Northeast and no votes most evident in the South. The Women’s Health Protection Act reflects a deeply divided nation and a key issue for future reproductive rights of women.**

**Turnout in the 2022 Gubernatorial Election:**

**What Factors Predict Turnout Rates across**

**Georgia's 159 Counties?**

Austin D. Peterson

Sponsor: Dr. James LaPlant

The purpose of this quantitative analysis is to examine the key predictors of voter turnout in the Georgia 2022 gubernatorial election between Stacy Abrams and Brian Kemp. This paper analyzes the variables that led to the re-election of Governor Kemp by researching data across each of Georgia’s 159 counties. This study reviews eight independent variables all at the county level: percentage of the African American population, percentage of the population 65 and older, percentage of the population with a college degree over 25 years of age, per-capita income, unemployment rate, population density, percentage of early voting, and percentage of mail-in voting. These variables' effect on the dependent variable, voter turnout, is determined through correlation analysis, scatterplots, boxplot, and multivariate regression analysis. Three of the eight variables proved to be statistically significant. Population 65 and over and per-capita income were found to be statistically significant at p<0.1, while percentage of mail-in votes was found to be statistically significant at p<.05. The unemployment rate held a minimal impact on voter turnout. Percentage of African American population and percentage of early voting were not statistically significant. Population density was also found to not be statistically significant; however, it did reveal another side of this election, as it showed that rural counties had higher turnout rates than urban counties. Voter turnout is one of the largest issues within our country, and it is necessary to research what energizes people to go out and perform their civic duty.

**Predictors of State Support for Undocumented**

**Students across University Systems**

Chiamaka G. Nwigwe

Sponsor: Dr. James LaPlant

This research study examines the key predictors of how supportive states are toward undocumented students in their university system. To examine the key predictors of state support for undocumented students, the dependent variable, this study explores the following independent variables: the percent Hispanic population, population density, percent of the population with a college degree or higher, region (Northcentral, Northeast, West, and South), per capita income, percentage of the vote for Trump in the 2020 election, and the unemployment rate. This study utilizes correlation analysis, scatterplots, multivariate regression analysis, box plots, and a difference of means test. The findings of this study initially revealed that all the independent variables were significant in the correlation analysis. However, with further analysis, the only variable that proved to be significant in the multivariate model was the percent Hispanic population. In addition, the region variable showed that western states had the highest median value for state support toward undocumented students, while the southern states had the lowest median value for support toward undocumented students. The difference of means test between the Western and Southern regions of the United States revealed a t-score of 2.161 with a p-value = 0.022, which illustrates a statistically significant difference. Overall, as the climate of immigration policies is ever-changing there is a growing need to understand what factors play the most important plays a factor in states' support for undocumented students in their university systems.

**Abortion Policy across the 50 States**

Colette Lena Ireton

Sponsor: Dr. James LaPlant

This study aims to determine what factors predict the restrictiveness of state abortion laws in the wake of the *Dobbs* decision. The unit of analysis are the 50 states in the United States of America. Nine independent variables were analyzed: percentage of the population with college degrees, population density, percentage of Latino population, percentage of African American population, percentage of those living in poverty, percentage of Trump vote in 2020, per capita income, party control of the state government, and a region variable. In order to determine the effect of these particular variables on the dependent variable, the abortion climate of each state, this study utilizes a correlation analysis, a multivariate regression analysis, scatterplots, and ANOVA. The results from this study indicated that states located in the South and North Central regions of the United States, which had a high vote for Trump in 2020 and are controlled politically by Republicans, have more restrictive abortion laws. What was interesting about this study was the importance of the Trump Vote in 2020 and the party control of the state government in determining how restrictive a state will be when it comes to abortion laws. The variables of percent African American and percent Latino turned out to be statically insignificant, which was interesting because of the prediction that these variables would carry weight. All of the data collected shows that if a state has more control of state government by Democrats and fewer votes for Trump in 2020, then that state will have fewer restrictions or expanded access to abortion. States with united Republican control of government and a higher Trump vote in 2020 will have more restrictions or bans on abortion.

**The New Constitution of Kenya**

**Confront Human Rights**

Kiara R. Mewborn and

Morgan R. Schaffer

Sponsor: Dr. Marc Pufong

Adopted in 2010, the new constitution boasts several changes among which is the inclusion of much improved Charter of Fundamental Rights protecting its citizens from government instructions. In this paper an effort is made to present information that addresses concerns touching upon the political, constitutional, civil, and political rights of the people of Kenya. Using resources from various sources we assess these conditions focusing on the government which has been central in the lives of Kenyans since the nation's independence to the present time. While electorally many spaces and gains has been made in enhancing multiparty system and the Court system marking an improvement under the new Constitution, the political currency in the Kenya shows aspect of impunity in leadership and the constitutional assessment shows a systematic breakdown in the guarantee of the basic rights to its citizens. Kenya's civil and human rights records used as evidence for our study reveal government transgression and misuse of power. Lastly, the papers demonstrate how corruption and exploitation under the current leadership are manifested. Undoubtedly, Kenya remains a developed country requiring needed focus on policies that empowers and improves the well-being of their citizens.

**2022 Georgia Gubernatorial Race:**

**The Re-Election of Governor Brian Kemp**

Sarah D. Burch

Sponsor: Dr. James LaPlant

The purpose of this quantitative study is to examine the key factors that predicted the vote for Governor Brian Kemp in the 2022 Georgia gubernatorial election as well as the change in his vote share from 2018 to 2022 against returning challenger, Stacey Abrams. This study evaluates the factors that led to the re-election of Kemp in 2022 by reviewing data across the 159 counties of Georgia. The study analyzed several independent variables through correlation analysis, scatterplots, and multivariate regression analysis to determine how they related to the Kemp vote in 2022. The independent variables analyzed in relation to the dependent variable of the Kemp vote in 2022 include the vote for Trump in 2020, the percentage of the population with a college degree, the African American population, voter turnout in 2022, unemployment rates in 2022, population per square mile, percentage of the population 65 and older, and poverty rate. For the Kemp vote in 2022 three variables were negative and statistically significant predictors: population per square mile, percentage African American population, and percentage of the population with a college degree. Voter turnout was revealed to be a positive statistically significant variable. This study evaluates a second dependent variable of the change in the vote for Kemp from 2018 to 2022. The independent variables analyzed for the dependent variable of the vote change for Kemp from 2018 to 2022 include the percentage of the population with a college degree, African American population, change in voter turnout from 2018 to 2022, change in the unemployment rate from 2018 to 2022, change in Trump vote from 2016 to 2020, population per square mile, percentage of the population 65 and older, and poverty rate. When examining the second dependent variable, population 65 and older and change in the Trump vote from 2016 to 2020 were found to be positive and statistically significant variables. Intriguingly, the percentage of the population with a college degree was also found to be a positive and statistically significant variable.

**Algeria and Civil Governance Today:**

**Democracy, Corruption and Human Rights**

Zachary A. Ziady

Sponsor: Dr. Marc Pufong

The goal of this paper is to discover abuses and persecutions, as an unwelcome ingredient fermenting political space in Algeria. With a long history of political struggle, Algeria today is a multiparty republic with an elected president by popular vote for a five-year term. The President has the constitutional authority to appoint and dismiss cabinet members. The prime minister sits as the head of executive government. A revised constitution of 2016 and 2020 reconstituted the authority of the President to avoid a protracted length of office as well as provided added attention to the Chatter of Fundamental Rights with added measures provided to the government to safeguard citizen free participation in the political space. This paper on Algeria considers these recent changes in an attempt to illustrate the state of affairs in all matters concerning the political, governance, and civil rights and liberties of the people of Algeria. While media reports tout corruption next to human rights as the biggest issue in Algeria, this paper goes much further. Using Algerian’s own claim to justice made and published in international conventions we lodge our assessment. We further examine claims of governance and assurances of citizens’ rights made under the new constitution. We cross-examine those with evidence reports generated from credible sources such as the Human Rights Watch, Freedom House, Amnesty International, and the United State Human Rights. Our examination reveals a mix result. Notably, excessive executive exercise of power, reduction in instances of gross abuse of power through persecutions of public officials, while tolerating massive corruption and oppressive measures toward citizens and exacting wrongfully imprisoned, and disappearances. Considering recent events, this report stands as a preposition that a government under the new post Bouteflika regimes can only be made sustainable in the long run on with increase political tolerance and citizen participation.

**Department of Psychological Science**

**Discovering Variables to Determine How Modern**

**News Sources Shape Societal Knowledge**

**on Prenatal Development**

Katherine S. Thornton, Mykaila Inman

and Rebecca M. Moise

Sponsor: Dr. Charles Talor

Access to social media has skyrocketed in the last two decades, becoming one of the largest sources of news information for Americans. Though widespread in use, the quality and accuracy of social media information is highly variable. As a first step in understanding how social media is used, identifying the major social media that people can use for obtaining information is necessary. The purpose of this proposal was to identify the different social media programming used as sources of news. For example, awareness that a person follows Instagram for general news is at too general level, and instead the identification of specific Instagram accounts followed allows greater comprehension of and link between social media and knowledge. For instance, quality of news from @guardian [The Guardian Newspaper, UK] and @bbcnews [BBC News, UK] is different than from the satire site @theonion [The Onion, USA], though some social media users have posted satirical news from The Onion as actual news.

 Once social media programming news sources are identified, a content analysis to classify and categorize programming can be undertaken. The content analysis will focus on developing a rating classification system, including level of accuracy, political affiliation, and religious affiliation. The key hypothesis will be to examine how current use of the different classes of social media influences accuracy and knowledge about prenatal development.

**Preparatory and Concurrent Alcohol**

**Coping Strategies of College Students**

Khari T. Hardin, Naomi E. Nelson

Sponsor: Dr. Charles Talor

College student alcohol use has been a major problem for decades (Loraant, Nicaise, Soto, & Hoore, 2013; Reavley, Jorm, McCann, & Lubman, 2011). Though studies of college drinking find a majority of students report heavy and problematic drinking, these same studies find a smaller proportion of college students either abstaining or drinking alcohol in moderation. Preparatory coping strategies. The purpose of the present study was to examine coping strategies as one reason for the variation in college student drinking. One set of prominent coping strategies refers to goals or behaviors to avoid problem drinking before an event. These preparatory strategies include avoiding pre-game drinking activities and planning to avoid environments which serve alcohol when going out (e.g., breweries, bars, and clubs).

**Exploration of Variables on the Experiences**

**of Pregnancy and Child Rearing during**

**COVID-19 Pandemic**

Mackinley Bales and

Adrian Morrison

Sponsor: Dr. Charles Talor

Access to online information and social media have changed many aspects of our lives in the last 20 years, and especially with the onset of the COVID-19 pandemic. The purpose of the present project was to identify possible variables to explore in the future on whether these societal and health changes have impacted our views of pregnancy and early infancy. In order to achieve this goal, this project developed interview questions that assess the impact of the COVID-19 pandemic on family structure, financial conditions, medical issues during pregnancy, child rearing experiences, and postpartum circumstances. It will also provide insight on the differing thought processes of women with children and how it shaped their pregnancy and labor experiences.

**Developing Variables to Assess Pandemic-Related**

**Stress in Healthcare Workers**

Madison R Williams

Sponsor: Kristin Kirchner

In the United States alone, over 100 million individuals have been infected with COVID-19, and there have been over 1.1 million COVID-19 related deaths. The impact of the COVID-19 pandemic is significant, as it has led to widespread job loss, mental health crises, financial stress, increased isolation, and loss of loved ones. Particularly susceptible not only to the COVID-19 virus, but to COVID-19 related stressors, are healthcare workers. Healthcare workers have suffered psychologically and physically at high rates, displaying symptoms such as emotional and physical exhaustion, with “stress” often being the most frequently endorsed feeling.
The end goal of the proposed research is to investigate the impact of the COVID-19 pandemic, in combination with other life or occupational stressors, on cortisol (a stress hormone). In pursuit of this goal, the present investigation seeks to find a combination of self-report and biomarker methods (through literature review) to aid in understanding how individual differences impacted one’s stress response throughout the COVID-19 pandemic. Appropriate healthcare-focused variables will be identified in addition to methodology for cortisol assessment. Upon development of these variables, future research using them can bring light to how healthcare workers have (or have not) recovered from pandemic-induced stress.

**College Students Use Different Emojis in**

**Communications to Their**

**Parents Compared to Friends**

Aasha Re’a-ah Vernon

Sponsor: Dr. Charles Talor

More than 20 years have passed since the first 176 emojis were introduced in 1999 by Shigetaka Kurita. Emojis are symbolic icons designed to add a communicative context and emotionality to make text messages more like conversations. In the latest update, of September 2021 there are 3,633 emojis. However, as new emojis have become adopted people of different ages have different experiences and familiarity with emojis used in text messages. However, the translation of emojis into meaning is not perfect, so misattributions of emoji meaning can occur (Miller, Kluver, Thebault-Spieker, Terveen, & Hecht, 2018). In general, emojis can be defined by the emotions they evoke, positive, neutral and negative.

Since emojis are now ubiquitous in text communications, this proposal examined how emojis are used differently by college students texting with a friend or family member. Participants were 30 young college students with an average age of 21 and primarily women (73%). Participants identified the top five emojis they sent and received from a close friend and a close family member. These emojis were rated as being positive, neutral or negative in emotionality. An example of a positive emoji is smiley face, while a neutral emoji can be a straight face, and a negative emoji can be a sad face or a crying face.

Examination of different emotionality of emojis was explored with a series of paired t-tests comparing the emotionality of emoji sent to friends compared with family members. College students sent more negative emojis to friends compared to family members (1.30 versus .80), t(29) = -2.55, p = .016, while there were no differences between friends and family members for sent emoji which were positive, t(29) = -1.409, p = .169, as well as emojis which were neutral, t(29) = -.205, p = .839. Similarly, college students received more negative emojis from friends compared to family members (1.17 versus .63), t(29) = -2.57, p = .016, while there were no differences between friends and family members for received emoji which were positive, t(29) = .33, p = .742, as well as emojis which were neutral, t(29) = -.83, p = .415. The asynchronous emoji use suggests different roles of friends and family members in texting activities, as emojis are used to emphasize emotionality messages of the text. Implications of these messages will be discussed.

**Vaccine Hesitancy in the Campus Food Court**

Preston N. Persaud

Sponsor: Dr. Charles Talor

Hesitancy for obtaining a COVID-19 vaccine has been linked to a number of factors such as race, ethnicity, and income level (Willis, Andersen, Bryant-Moore, Selig, Long, Feliz, Curran, & McElfish (2021). Recently, Pinna, Picard and Goessmann (2022) reported COVID-19 vaccine hesitancy from those who obtained pandemic information from viewing news channels such as Fox News compared to other channels such as CNN and MSNBC. A majority of those with COVID-19 vaccine hesitancy were young, healthy adults. Previous studies of vaccine hesitancy were primarily conducted with online surveys of immunization, and for Pinna et al, combined with cable television viewing. The present study extended the study of vaccine hesitancy to an in-person survey of people in an in-door cafeteria area of a moderate sized university (N=11,000) in the Southeastern United States during the pandemic.

**An Exploration of Variables Assessing Cases**

**and Symptoms of Long-Covid**

Zaeli Lopez, James A. Correll

Sponsor: Dr. Charles Talor

COVID-19, caused by the SARS-CoV-2 virus, has created both physical and mental health crises which persist even years after the "peak" of its pandemic in 2020. The last few years have seen a plethora of research into the phenomena of Long-Covid, a condition characterized by persisting COVID-19 symptoms over a duration of time that far exceeds the standard time frame of the illness. The most common symptoms of this condition include persistent fatigue, loss of taste or smell, shortness of breath, persistent headaches, sleep issues, depression, and anxiety. Despite the proliferation of research currently being conducted, there continues to be differing definitions of "Long-Covid" as well as contradicting time metrics for identifying what may be considered "Long-Covid". The purpose of this inquiry was to systematically categorize and conduct a content analysis to define "Long-Covid" variables which could later quantify symptoms and experiences of Long-Covid in groups of college students.

**Department of Sociology, Anthropology,**

**and Criminal Justice**

**FBI Counterterrorism:**

**Pre-and Post-Capitol Breach**

Nathan R. Hughes

Sponsor: Dr. Rudy Prine

This project involves a Comparative Content Analysis of published press releases from the Federal Bureau of Investigation's Section on Terrorism. The qualitative data contained within these press releases gives insight into recent foreign and domestic terrorism concerns. Specifically, this study focuses on the FBI's counterterrorism effort comparing the periods January 6, 2020, through January 6, 2021, and January 9, 2022, through January 9, 2023, respectively. To assist in this analysis, variables have been created based on individual cases' affiliation, legal status (such as cases awaiting trial or awaiting sentencing, and previously sentenced), as well as geographical region. Main affiliations in this study include the January 06 capital breach, Islamic State of Iraq and Syria (ISIS), smaller affiliations such as Hamas, Hayat Tahrir Al-Sham (HTS), as well as many instances of individuals acting without affiliation. This primarily qualitative data is supplemented by quantitative information collected and processed through Microsoft Excel and SSPS.

**On-Campus Greenspaces and Student**

**Mental Health in Conjunction with**

**Landscape Genetics**

Nicole E. Woolridge

Sponsor: Dr. Shelly Yankovskyy

Utilizing green spaces, particularly in conjunction with other therapies for mental health, has the potential to reduce the prevalence of mental health issues among today's college students and improve student success. On a campus in South Georgia, qualitative research was conducted in the spring of 2022 and 2023 to ascertain whether greenspaces were utilized and the self-reported impact on mental health. Online surveys and in-person interviews were completed by students over the age of 18. Students were asked how they spent their free time, how often they went to campus green spaces, and if there was any difference between before and after COVID. The vast majority of students did make extensive use of the campus's green spaces, and they discovered that doing so helped them improve their mental health. This investigation was prompted by the author's interests in anthropology and biology. As the author continues to build on this research through the significance of landscape genetics, the study of landscape ecology and population genetics, the replotting of trees and measuring width growths with tools like GPS will be taken into consideration, as well as the outcomes of interactions between humans and greenspaces. This campus's tree inventory growth and loss will also be compared to that of another Georgia university using prior data.

**Socioeconomic Status, Mental Health,**

**and Opioid Abuse**

Jacob Avila

Sponsors: Dr. Anne Price and

Sponsor: Dr. Ellis Logan

Each year tens of thousands of people die from opioid-related overdoses in the United States, as observed by the CDC. Since the 1990s the number has grown exponentially and there seems to be no sign of it slowing down as the volume of prescription and illicit opioids flood the market. While the effects these drugs have on users are devastating, more research is needed on the socioeconomic and mental health factors that have contributed to the rise in opioid abuse and related deaths. How can we prevent individuals from turning to these drugs for emotional and physical relief? This research project aims to discover why individuals resort to the use of opioids. My specific questions are: first, does socioeconomic status affect an individual's decision to use opioids? Second, how does an individual's mental state affect their choice to use opioids? And third, how do both work together to lead an individual to abuse opioids? Quantitative data will be collected via an anonymous survey of opioid-recovering patients. The goal of this project is to provide insight into how socioeconomic and mental health vulnerability leads individuals to turn to opioids. The results will hopefully inspire preventive action and social science-informed policies.

**The Case for Multiculturalism:**

**Developing University and Community**

**Collaborative Social-Cultural Events**

Kiesha Washington

Sponsors: Dr. Ellis Logan and

Dr. Anne Price

Spring will soon end, and summer is yet to begin. How do you feel when you are interacting with a diverse group of people? For example: Africans, Jamaicans, a diverse group of Hispanic and Asian cultures, just to name a few; there are certainly many others. People of other nationalities have been contributing to Valdosta, Georgia for years, and increasingly so in the last decade. They contribute in several ways: economically, culturally, and socially. Historically, Valdosta has been predominantly made up of people identifying as Black and white. What are you willing to sacrifice for community cohesion rather than division? Why not start the summer with a social-cultural event to support our growing cultural diversity and allow for group collective effervescence? How will we as a community create and foster this extravagant social gathering? How many, if any at all, social-cultural events have taken place in Valdosta in the last 10 years? Why do campus organizations typically develop events separate from the community at large, why is there not collaboration between town and gown? Division by social separation at its finest. However, there is a resolution: survey the community and the VSU community to identify gaps in these types of events.

**Bicycle- and Pedestrian-Involved Crashes:**

**Investigating Causes and Solutions**

**in South Georgia**

Nikki Ballard, Erica Glover,

Autumn McAtee and Nashie Wesley

Sponsors: Dr. Brandon Atkins and

 Dr. Anne Price

Bicycle-and pedestrian-involved crashes and fatalities make up approximately 20% of all traffic deaths in the United States, even though nationally, on average, less than 1% of commutes are done by biking or walking. Data from sources such as the Governor’s Highway Association and the Georgia Department of Transportation show a substantial uptick in pedestrian- and bicyclist-involved crashes and fatalities over the last five years. We used data from the Southern Georgia Regional Commission to identify trends in bicycle and pedestrian accidents in the eighteen-county region they serve. The dataset we used is compiled from police reports and provides variables surrounding the crashes, allowing us to understand the effects of these additional factors and why the crashes occur. We used SPSS to create frequency and percentage distributions, analyzed the mean, median, and mode of variables, and analyzed the relationships between variables using crosstabulations. Within the counties under the Southern Georgia Regional Commission, Ware, Lowndes, and Bacon counties show the highest percentages of bicycle and pedestrian-involved crashes. In 2021, fifty crashes occurred in Lowndes County alone. Poor visibility, distracted driving, and low mode share are potential contributing factors. The most effective solution for this problem is modifications to the built environment, such as sidewalks and safer crosswalks and intersections. Hopefully, these findings can be used to plan and provide safer roads for bicyclists and pedestrians.

**How Has Acculturation Influenced the**

**Outcomes of Cardiovascular Issues**

**for and Ghanaian and Nigerian Immigrants?**

Ashley Cetoute

Sponsor: Dr. Ellis Logan

The purpose of this research project is to shed light on the impact acculturation may have on West African immigrants' cardiovascular health, specifically from Ghana and Nigeria. By using the snowball sampling method, data will be gathered from 1st, 2nd, and 3rd generation Nigerian and Ghanaian immigrants through an online questionnaire. By examining what draws the citizens of Ghana and Nigeria to immigrate to the United States, what potentially motivates them to emigrate from their home country, and the lifestyle changes these immigrants may face after arrival, the research hopes to reveal how acculturation varies across different generations. Further research will identify key differences between the health systems in Ghana and Nigeria and how those differences impact immigrant experiences with the health care system in the United States. The reason why this research is important is because it may reveal hidden problems within the U.S. health system when it comes to West African immigrants. This research may allow useful insights into the current and foreseeable problems that immigrants may face and provided viable solutions. Through understanding the effects of acculturation, the necessary steps may be taken to lessen the cardiovascular issues that Nigerian and Ghanaian immigrants may face.

**Gender and Political Affiliation**

**Effects on Views**

**of Gun Control Laws**

Ashlin J. Overstreet

Sponsor: Dr. Anne Price

With the rise of gun violence, there has been a lot of controversy on whether there should be stricter gun control laws or not. Many lives are taken every year because of gun violence. During this study, I will take a look at gender, political affiliation, and whether individuals think gun control laws are too strict, just right, or not strict enough. Participants will be asked these questions through a brief survey. I hypothesize that my findings will show me that those who are more conservative are more likely to believe that gun control laws are either just right or too strict, in comparison to those who are more liberal. I think that women will be more likely to feel that gun control laws are not strict enough, in comparison to men. The purpose of this study is to find out how different political affiliations affect their standpoints. This paper will include background research leading up to my study and will also look at how gun violence has changed over the years.

**Who Supports the Overturning**

**of Roe v. Wade?**

Cierra E. Goodson

Sponsor: Dr. Anne Price

In recent years we have seen drastic changes in our legal system. One of the most drastic has to be the overturning of Roe v Wade. This case was the centerpiece for reproductive rights for women; the new change to women's reproductive rights has created an uproar in our society. In this study, I will be conducting research on how do one's religious beliefs and generation affect attitudes towards women being able to get abortions? There seems to be a strong correlation between one's religious views and how an individual feels about recent abortion laws. I also expect generation to affect attitudes as well. I hypothesize that individuals whose are highly religious will be more likely to agree with a ban on abortion. I also hypothesize that those that have been born in an earlier generation (i.e. baby boomers) will support restrictive abortion law. This study is important because it will show the demographic of people who are for and against abortion.

**Attitudes on Border Patrol Laws Based**

**on Race and Political Views**

Daniela I. Gomez Requena

Sponsor: Dr. Anne Price

How many times have we come across reports of people that have experienced discrimination and this has limited their number of opportunities? Do we know of instances when people act upon their corrupt nature in order to satisfy the racial resentment they feel towards people different from them? We ask ourselves, are self-improvement and prosperity the important American values that our country was really founded upon? Is it not an American value, to dream big and make that life one has envisioned for oneself? The people we choose to let into our country should not be a personal issue, but it becomes one when border regulations are politicized. This study argues that political affiliation and race affect a person's attitudes towards stricter border patrol laws. This is important to discuss because if our constitution is based on righteousness and equality for all, then what factors explain our views towards people that are different from us who are simply trying to build a better life? I hypothesize that people with more conservative beliefs and white people will have stricter views on border patrol laws than other groups. I gather data through a survey in Qualtrics and discuss my analysis and findings.

**Understanding Crime Risk:**

**Who Has Been a Victim of a Crime**

Emily P. Griesemer

Sponsor: Dr. Anne Price

Do you ever think about who will be a victim of a crime and what factors into it? There are many things that can come into play with figuring out how likely it is that you or someone you know will ever become a victim of a crime. I am testing my hypothesis of whether a person's wealth status and their gender affect whether they have been a victim of a crime. It is important to understand these factors so we understand and decrease the likelihood that specific groups will be victims of crime. Through my study, I will be asking basic and simple questions to collect data. For wealth status, I will be asking what their family's income was and what they think their current income is. For gender, I plan on asking people what their gender is. From this, I will understand how social class (wealth) and gender affect the likelihood that an individual has been a victim of crime.

**Enlisting Age and Drinking Age:**

**A Public Opinion Survey**

Hayleigh M. Whitmire

Sponsor: Dr. Anne Price

Why can teenagers join the military and go to war but cannot enjoy an alcoholic beverage at dinner? The legal drinking age in the United States has been one of many controversial legal rulings. When the 21st Amendment was passed in 1933, repealing Prohibition, many states set their legal drinking age at 21 years. In the 1960s and 70s, many states lowered the legal drinking age to 18. In 1984, Congress passed the National Minimum Age Drinking Act, which again raised the age for purchasing or possessing alcohol to 21. Some may argue that the legal drinking age law is not just. This research paper will examine data gathered from a survey, open to people of all generations, races, ethnicities, and genders, as well as all affiliations or lack thereof with the U.S. Military. Questions asked during this survey will aim to gauge people's attitudes on the legal drinking age in the United States, and how it is shaped by their personal characteristics. This will provide important public opinion data as to whether the legal drinking age should be changed or remain the same.

**Who Believes Hip-Hop Music Would Lead**

**to Crime – and Who Doesn't?**

Jaisha Grice

Sponsor: Dr. Anne Price

It's no secret that hip hop is a genre of music that emphasizes poverty and the day-to-day life of living around crime, but what characteristics of individuals make them more likely to believe that listening to hip-hop promotes violent crime? My research question is: how does one's race and gender shape their beliefs on whether listening to hip-hop music increases the likelihood of committing violent crimes? My hypothesis is that women will be more likely to believe that hip-hop does promote more violent behavior. I also hypothesize that those who identify as Caucasian, or white, will be more likely to agree that hip-hop promotes violent behavior as well. This study is relevant because I believe music is an influential tool in society that not only brings people together, but also inspires and empowers people. Hip-hop, with its primary focus on doing anything to get out of poverty which tends to be by illegal means, has become more than just an auditorial influence, but with the help of social media it has also become a visual performance, where music videos use things like weapons and other tools as a form of power and credibility. This study will show if gender and races influence how people feel about the relationship between hip-hop music and violent crime.

**Belief about Discrepancy in EMS**

**Emergency Response Time Based on**

**Individual's Reported Race**

Jameshia L. Dover

Sponsor: Dr. Anne Price

Emergency Medical Services (EMS) is the emergency services that provides urgent pre-hospital treatment and stabilization for serious illness and injuries and to transport to definitive care. EMS is the first form of medical case/assistance that many encounter when they have an ailment, illness, or injury that requires their care. Because of this job, EMS travel to different locations to provide assistance to those in need. But, could receiving calls from different locations affect how EMS personnel respond to the emergency? My aim is to understand what characteristics of individuals affects their belief about whether EMS response time is racially biased. The plan for this study is to conduct an anonymous survey that contains numerous questions that are attempting to address individual beliefs about whether characteristics such as race, socio-economic status, place/area of residence, and gender effect EMS response time in an emergency situation. This study will help give a glimpse into the effect that healthcare disparities has on another part of the medical field outside of doctors in medical institutions, by focusing on first responders. It will assess beliefs about whether all individuals are equally served by EMS. I will make policy suggestions for what needs to occur within the medical field to combat this serious issue.

**Generation, Social Media Consumption,**

**and Views on Marriage**

Jasmin I. Small

Sponsor: Dr. Anne Price

Since 1920, the rate of marriage has been on the decline. To some, this might not seem like an important social issue, but many western beliefs stem from the idea of a marital partnership to develop a family. Also, many legal policies, including financial, liability, the support and care of children, and shared responsibilities are built into marriage. Due to these policies being linked to marriage, policies may need to be readjusted to fit new customs and norms of nonmarried people. With this in mind, I am interested in drawing a potential understanding as to how people in our society look at marriage, decide whether marriage is right for them, and why. I will examine how individuals make the decision of whether or not to marry, and how this is affected by their generation and associated experiences and their social media usage.

**Beliefs about Systemic Racism in the**

**Criminal Justice System**

Kiarra J. Gourgue

Sponsor: Dr. Anne Price

This study will take a look at how race and gender affect beliefs about systemic racism in the criminal justice system. I hypothesize that gender and race will affect beliefs about systemic racism in the criminal justice system due to personal experiences shaping one’s beliefs. I also hypothesize that more women and African Americans will believe that systemic racism in the criminal justice system is real. This study is important because currently there is a gender and race disparity within the criminal justice system. This study is focused on racial disparity and will reveal how gender and race shape beliefs about racial disparity. This study will examine if individuals believe systemic racism is a real issue. The results from this study could lead to additional studies examining why some feel as if systemic racism is real or why they believe it is not real. This study could open doors to several other study possibilities and is important for understanding what shapes individual beliefs about bias in the criminal justice system. I will gather my results through a Qualtrics survey.

**How Do Religious Orientation and**

**Gender Identity Affect Voting Behavior?**

Nikkie Ballard

Sponsors: Dr. Anne Price and

 Dr. Ellis Logan

This research will explore the ways in which gender identity and religious affiliation affect voting participation. A survey of United States citizens will be conducted to gather information about individual's self-reported religious beliefs and gender, as well as previous and planned future voting behavior. The hypothesis of this research is that there is a connection between both gender and voter participation, as well as a connection between religious orientation and voter participation. More specifically, it is hypothesized that women are more likely to vote than men, and individuals who consider themselves religious are more likely to vote than those who do not. Previous research has found that individuals who regularly attend church are more likely to vote (Gerber et al., 2008), and that the gender voting gap may have reversed in industrialized nations, with higher political participation in women (Cassese & Holman, 2016). The goal of this research is to follow up on previous studies, helping identify and explain potential factors that affect political participation in the present day. This information can lead to a better understanding of who votes, who does not, and why.

**Poverty, Education, and the Likelihood**

 **of Criminal Behaviors**

SkyLah Joi Parker

Sponsor: Dr. Anne Price

My study will help measure the likelihood of one participating in criminal activities based on their social class and guardian's education level growing up. This is an important question because a lot of labeling and stereotyping comes about when basing one's criminal behaviors on demographic characteristics. However, categories such as poverty and education can be used to understand the possible life troubles one had to go through and possible changes that could be made to help prevent future generations from going through the same tribulations. Therefore, I am going to create a survey, distributed through Qualtrics, asking questions about one's family social status while growing up, their guardian's education, if they've ever committed a serious crime, and their mental health status. I will analyze my findings and report my results.

**A Comprehensive Analysis of the Overprescribing**

**of Antibiotics in Two Southern States:**

 **Alabama versus Georgia**

Taelynn Walton

Sponsor: Dr. Ellis Logan

In 2020, there was a notable setback against antimicrobial resistance in the United States. An antibiotic is a pharmacological option that impedes the growth of microorganisms. The most commonly prescribed antibiotics are penicillin (ex. Amoxicillin). It is important to note that prescriptions are commonly prescribed in an outpatient setting. To combat the over-prescribing of antibiotics, the CDC launched the campaign Get Smart for Healthcare which focuses on the prevention of unnecessary prescribing which collects national data connected to the Antimicrobial Stewardship program. One in three antibiotic prescriptions have been deemed unnecessary. Following, the CDC published data stating that more than half of the prescribed antibiotics do not align with recommended practices. Considering the over saturation of prescriptions, the over-saturation could potentially lead to the increase of antibiotic resistant bacteria which further relays to the unpreparedness for another potential pandemic or epidemic. In this scenario, the research compares the over-prescribing of antibiotics in heavily and 'mildly' saturated states. The chosen states to compare were Alabama and Georgia based on geographical location. Further, by using secondary data from several different sources such as the Centers for Disease Control and Prevention and others, the research analyzes the overprescribing of antibiotics in southern states.

**Social Support, Student Life, Mental**

**Health, and GPA: Examining the**

**Impacts of Support, Involvement,**

**and Mental Health on College-Level GPA**

Theodore Buckner

Sponsors: Dr. Anne Price and

Sponsor: Dr. Ellis Logan

This paper will examine the relationship between a student’s mental health, housing, stress levels, social support, involvement in and knowledge of campus activities and resources, and GPA. Existing literature states that there is often a positive correlation between mental health and GPA in college students and that students who live on campus typically have higher GPAs
than those who do not (Araujo and Murray, 2010). It is theorized that students living on campus achieve higher GPAs due to their involvement in programs on campus. More research is needed on the relationship between involvement on campus and mental health and how mental health factors such as resilience affect GPA.

I plan on conducting a survey of current students at Valdosta State University. Students will be surveyed on their GPA, housing, involvement on campus, social support from peers, family, and faculty, knowledge and usage of campus resources, and mental health. I hypothesize that students who live on campus, are more involved in campus activities, receive more social support, and know of and use the resources available to them will have better GPAs and self-reported mental health scores. The results of my survey may provide insight into raising GPA, retention, and graduation rates.

**Abortion and the Current**

**Political Climate**

Tori-Anne S. Chambers

Sponsor: Dr. Anne Price

This abstract examines how one's political views and age influence one's thoughts on today's issue surrounding women's right to have an abortion, as well as taking preventative measures to prevent pregnancy from happening unintentionally. The questions asked are simple, yet will paint the pathway to determining the individual's thoughts on the issues at hand. They are: what is your age? What is your political party? Do you support the overturning of Roe v. Wade? My independent variables are age and political party, and my dependent variable is beliefs about women's rights to an abortion. I hypothesize that there will be a strong relation between a person's political affiliation and their views on the abortion ban (the overturning of Roe v. Wade). This study is important because some people may allow the leader of their political party to determine their morality. This in turn will enable politicians the freedom to implement policies they feel are morally right through the manipulation of their audience. By understanding what a person truly believes about an issue, and disregarding what is popular in their party's views on politics; we could also be able to properly choose legislation without the undue influence of factors such as race, age, and/or religion.

**Religion, Gender, and Regretful**

**Sexual Experiences**

Zy'Ronica S. Lindsey

Sponsor: Dr. Anne Price

The reason I chose to study the effects that religion and gender have on whether or not one has a regretful first sexual experience is because this topic is often extremely taboo in large part because of religion and gender norms. The American sex education system has proven to be behind the times and ineffective in educating young adults on how to engage in healthier sex practices. However, an even bigger issue is that so many young adults suffer in silence when it comes to discussions about sex or sexual encounters, because no one is willing to talk about it. The question I want to be able to answer through my research in particular is, how does your gender or religious affiliation affect your beliefs about whether you wish you waited longer before having your first sexual experience? In this particular study I define sexual experience as whether or not an individual has had sex or engaged in some form of sexual activity. I will first synthesize the existing research on this topic from peer-reviewed journals. Next, I will conduct an original survey of young adults in Qualtrics, complete univariate and bivariate analysis, and discuss my findings on the relationship between religion, gender, and the likelihood of regretting first sexual experiences.

**On-Campus Greenspaces**

**and Student Mental**

**Health in Conjunction with**

**Landscape Genetics**

Nicole E. Woolridge

Sponsor: Dr. Shelly Yankovskyy

Utilizing green spaces, particularly in conjunction with other therapies for mental health, has the potential to reduce the prevalence of mental health issues among today's college students and improve student success. On a campus in South Georgia, qualitative research was conducted in the spring of 2022 and 2023 to ascertain whether greenspaces were utilized and the self-reported impact on mental health. Online surveys and in-person interviews were completed by students over the age of 18. Students were asked how they spent their free time, how often they went to campus green spaces, and if there was any difference between before and after COVID. The vast majority of students did make extensive use of the campus's green spaces, and they discovered that doing so helped them improve their mental health. This investigation was prompted by the author's interests in anthropology and biology. As the author continues to build on this research through the significance of landscape genetics, the study of landscape ecology and population genetics, the replotting of trees and measuring width growths with tools like GPS will be taken into consideration, as well as the outcomes of interactions between humans and greenspaces. This campus's tree inventory growth and loss will also be compared to that of another Georgia university using prior data.

**Women’s and Gender Studies**

**Heteronormativity and Compulsory Heterosexuality**

Carlyn A. Remmes

Sponsor: Dr. A.J. Ramirez

Heteronormativity is the assumption that being straight is the standard and being straight is superior to any other sexuality. Heteronormativity promotes the gender binary and that marital and sexual relationships should be with the opposite sex only. Heteronormativity reinforcement in society through social media, movies, books, family, and religion, can have devastating effects on members of the LGBTQ+ community. Subliminal messaging also contributes to the shaming and pathologizing of those who do not identify within the heteronormative guise. Compulsory heterosexuality is similar to heteronormativity, in which the LGBTQ+ community, specifically lesbian women, may have to abide by societal norms over how they truly identify. Furthermore, the idea of heteronormativity and its push of traditional gender role stereotypes is problematic within LGBTQ relationships who deviate from this facet. This paper will address heteronormativity, compulsory heterosexuality, and the privilege of heterosexuality through a feminist and queer lens and its impact on those communities which do not conform to the status quo.

**Is Homosexuality a Choice:**

**An Examination of Biological Factors**

**Contributing to Homosexuality**

Damon Negron

Sponsor: Dr. A.J. Ramirez

Members of the LGBTQ+ community have often faced criticism and discrimination for their sexuality, with many opponents believing homosexuality is a choice. There seems to be a prevalent idea that homosexuality is a deviant act that participants willingly involve in. Opponents to this viewpoint argue that nature plays a majority role in deciding who experiences same sex attraction. Although directly participating in sexual acts with members of the same or opposite sex is a willing occurrence, the presence of attraction for either sex is what is questioned. For this research, the focus is centered around the question “Can a person willingly control the presence of homosexual attraction?”. Based on genetic research conducted by several accredited institutions, it can be concluded that there is no single gene linked to the causation of homosexuality, but similar genetic markers were found in both male and female populations that identified as homosexual. This identifies that there is, to some degree, a genetic predisposition to homosexuality. Research findings also show that homosexual tendencies are present in numerous species. This is significant, as behavior patterns and social structures vary drastically across different organisms, meaning that homosexual tendencies are likely to be more naturally occurring than what some researchers argue.

**College of Science and Mathematics**

**Department of Biology**

**Are Morphological Traits of the Dwarf Seahorse**

**(*Hippocampus zosterae*) Under Selection**

**Due to the Mating Pressure?**

Darshi N. Patel

Sponsor: Dr. Emily Rose

Dwarf seahorses exhibit extreme morphological specialization for parental care through male pregnancy. However, they maintain the conventional courtship roles, with males competing to gain access to mates. There are three goals of this study. First is to investigate potential sexual dimorphism in body masses for seahorses collected from the wild population. Secondly, we aim to compare the effects of algal turbidity on mate preference and lastly, identify the traits under sexual selection by measuring numerous morphological parameters from the successfully mated fishes from mate-choice trials. The experiment consisted of 8 replications with male-biased (2M:1F) and female-biased (1M:2F) treatments in clear and turbid waters using 96 fishes. When the mate choice is analyzed comparing the focal fish's body mass with the larger or smaller mate options, we observed size assortative mating in both male- and female-biased treatments in clear waters but randomly chosen mates in turbid waters. Preliminary results indicate that body mass has a strong positive correlation with the total body length and analyses are on-going to determine which traits vary between the sexes. The results of this study will enable us to determine which traits influence the potential mate choices and reproductive success outcomes for seahorses in captivity.

**Potential Consequences of the 2023 Ohio Train**

**Derailment on the Progression of Society**

Kristal A. Salmon-DePass and

 Aaliyah J. Chapman

Sponsor: Dr. Phillip Storey

Over the past decade, there has been a growing concern with the increasing instances of ecological disasters and its impacts on the environment, as well as those individuals who reside in those areas. Anthropogenic hazards such as The Flint Water Crisis and The BP Oil Spill have proven the long-term detrimental effects of human negligence. The ultimate goal of the research is to increase the general public's knowledge and provide an extensive analysis of the possible societal outcomes including an overview of the chemicals (Vinyl chloride and butyl acrylate) released in the 2023 Ohio Train Derailment. As the emergence of potentially harmful toxins became announced, questions began to formulate surrounding the likelihood of these factors contributing to future ailments of the East Palestine residents. A considerable amount of the information presented gives attention to the possible risks the community may face in the coming years. Nevertheless, it must be taken into account the lack of credible information currently available to the world at large. This uncertainty and the documented societal outcomes of previous ecological disasters underscores the potential effects of these chemicals.

**Dissecting the Signaling Network of Plant**

**Defense Hormone, *Methyl jasmonate***

Daniel Rincon Diaz

Sponsor: Dr. Ansul Lokdarshi

Plant health is central to all life and any form of plant stress has direct impact on agriculture and socio-economic growth of a nation. Therefore, understanding plant health, specifically how plants respond to different types of stress is of prime importance. My research investigates the role of protein synthesis (translation) in plant defense management and maintenance of plant health. We show that the pan-eukaryotic protein kinase General Control of Nonderepressible (GCN)2 phosphorylates the eukaryotic translation initiation factor (eIF)2. In response to the stress hormone methyl jasmonate (MeJA) and gcn2 knock-out, mutant plants fail to recover from MeJA stress. Using gene expression studies, we also show that gcn2 mutant plants have defects in the expression of defense response genes, supporting the central role of GCN2 in MeJA signaling. MeJA is a volatile hormone released by all plants under different types of threat (example, caterpillar attack). Other plants can detect this chemical scream and begin to invest in their own defenses, producing chemicals that deter caterpillars in case they are next on the menu. While MeJA functions as a defense hormone, it also causes stress to the host plants by triggering developmental anomalies. Our results provide new insights into the MeJA signaling network and benefit ongoing studies that aim to develop stress resilient crops.

**Do City-Dwelling *Joro* Spiders**

**Have Higher Fitness?**

Nicole E. Woolridge

Sponsor: Dr. Erin Grabarczyk

Web-building spiders that live in urban habitats may have higher fitness if food sources and suitable habitats for their webs are more abundant. Joro spiders (*Trichonephelia clavata*) are a web-building spider that were recently introduced in Georgia, USA. In their native range of Asia, Joro spiders are found in both urban and rural habitats, but females reached larger body sizes in rural forests. However, a related orb-weaver (*Nephila plumipes*) grew to larger sizes and had higher fitness in urban habitats. Here we seek to study how urbanization affects Joro spider body size and whether larger female body size correlates to higher reproductive success. During 2021, 96 male and 213 female Joro spiders were captured at 32 sites in Georgia and South Carolina. We used imageJ to quantify body size (abdomen width, total body length, thorax, and tibia) and ArcGIS to determine the proportion of urban habitat within a 1 km radius of collection site centers. In addition, we measured body size of gravid females captured in 2022 and counted the number of eggs dissected from females. This project is part of an ongoing assessment of the impact Joro spiders have on native spiders and ecosystems in the southeast.

**Understanding the Effects of Anthropogenic**

**Noise on Pig Frogs (*Lithobates grylio*)**

Alysa Smith, Dalila Sanchez,

Jewell Johnson, Emily Scarborough,

Erin Grabarczyk and John Phillips

Sponsors: Dr. Erin Grabarczyk and

Dr. John Phillips

Animals that use vocal communication to signal mating are affected by anthropogenic noise. To understand how anthropogenic noise directly impacts frog species found in South Georgia, we conducted a study with the commonly found Pig Frog (*Lithobates grylio*). By conducting a study on the effects of anthropogenic noise on Pig Frogs, there is potential to understand the increase or decline of frog species in heavily populated areas. To monitor Pig Frog calling activity and noise pollution levels, we used automated recording devices set to record for five-minutes every twenty-five minutes starting at 5pm. Local areas for recordings have varying degrees of traffic (from deeper swampy areas to high traffic areas beside highways). In addition, we surveyed study areas by sight and sound at night to identify Pig Frogs that recording devices might have missed. Audio recordings will be analyzed with Kaleidoscope software to monitor call frequency and duration before, during, and after anthropogenic noise may be heard. The results will propose an idea of how Pig Frog calls vary in the presence of anthropogenic noise and how noise may affect local populations in Georgia.

**Student Satisfaction and Perceptions of**

**Academic Advising and Faculty-Student**

**Mentoring at Valdosta State University**

Brandall S. Kearse, Jr.

Sponsor: Dr. Theresa J. Grove

Academic advising and faculty-student mentoring systems have different, yet related, functions and are equally important to students being able to successfully achieve their academic and career goals. However, some college students have misconceptions of the responsibilities of academic advisors and faculty mentors because their high school guidance counselors served both roles. While the functions of the college advising centers at Valdosta State University (VSU) have been relatively well-defined, the implementation of the faculty-student mentor programs has not been consistent across departments or colleges. Therefore, the purpose of this study was to gain a better understanding of student usage of, satisfaction with, and perceptions of the roles of academic advisors and faculty mentors at VSU. An anonymous Qualtrics  survey was distributed to all undergraduate students enrolled during the spring 2023 semester at VSU; respondents were 18 years or older from all academic colleges. Generally, respondents indicate greater satisfaction with academic advisors compared to faculty mentors; however, more respondents saw their academic advisors compared to the number of respondents who saw their faculty mentors. Further analyses of the results from this survey will provide insights into how VSU can better support current and incoming students.

**Plaque Psoriasis**

**Sara Taylor**

**Sponsor: Dr. Tom Manning**

Plaque psoriasis is an immune system condition that causes skin cells to grow faster than usual leading to dry, itchy, inflamed skin patches. It is a chronic and uncurable condition. However, there are several medications and treatment categories that can control the symptoms of the condition.

**A Novel Non-Invasive Method for**

**Imaging Seeds in *(Arabidopsis***

***Thaliana)* Siliques**

Brylie A. Ritchie

Sponsors: Dr. Ansul Lokdarshi and

 Dr. Ted Uyeno

Plant seeds are of immense agronomic value to humans and represent the very means of survival of any plant species. *Arabidopsis thaliana* is the most useful plant model for studying the genetic determinants of seed count and size; however, the small size of its seeds makes measurements tedious. Bulk seed weights are often used as an indicator of average seed size, but details of individual seed are often obscured. Analysis of seed images is possible, but issues arise from variations in seed pigmentation and shadowing making analysis laborious. Traditional ways of analyzing *Arabidopsis* seed count and size involve lengthy histological procedures utilizing seed storage organs called siliques. To explore a method that is non-invasive and requires the least sample processing without organic solvents, and with a shorter time for obtaining data, we tested X-ray imaging of *Arabidopsis* siliques at different stages of their growth. Our analysis of the early, middle, and late silique developmental stages using ImageJ program show that X-ray imaging can be successfully used for imaging *Arabidopsis* siliques and provides valuable information about seed count and overall topology. Future investigations are focused on expanding this novel technique for imaging hard-to-image fruiting organs such as the spiral seed pod of model legume, *Medicago truncatula*.

**Comparing Juvenile Dwarf Seahorse**

**(*Hippocampus zosterae*) Measurements at Birth**

**between Field and Laboratory Offspring**

Constintly A. McCoy

Sponsor: Dr. Emily Rose

A great representative species for determining the effects of changes in seagrass environments is the dwarf seahorse, *Hippocampus zosterae*. The most unique feature of the seahorse is male pregnancy. Although there has been numerous research done on seahorses, few have compared data on brood qualities of wild-caught specimens to laboratory-bred specimens. This study aims to compare broods and offspring sizes of wild-caught pregnant males “Field Dads”™ collected from Tampa Bay and laboratory-bred “Lab Dads”™ resulting from mating trials at VSU. Field Dads (n=20) were transported to VSU after their mating in the wild to give birth, while Lab Dads (n=41) carried out their mating and full pregnancy in the aquatic lab at VSU. For each pregnant male’s brood, offspring were weighed at birth and photographs were taken to measure body lengths in ImageJ. Field Dads were found to have more offspring per brood at 39.5 Â±3.86, than Lab Dads at 30.2 Â±2.44. These findings offer insight into early correlations of brood qualities between field and laboratory settings. This study's conclusions will demonstrate how information gleaned from data collected in two separate habitats might aid with experiments on dwarf seahorses and better support estimates of wild population sizes.

**Investigating the Effects of**

**Algal Turbidity on the Mating System**

**and the Reproductive Outcome of the**

**Dwarf Seahorse (*Hippocampus zosterae*)**

Darshi N. Patel

Sponsor: Dr. Emily Rose

Dwarf seahorses (*Hippocampus zosterae*) are an excellent environmental indicator species because they spend their entire lives in coastal communities that are threatened by human-induced eutrophication. The goal of this study was to quantify laboratory reproductive success, identify mate preferences, and survivorship of offspring in clear vs turbid treatments. The experimental design included paired (1F:1M), female-biased (2F:1M), and male-biased (1F:2M) treatments, in clear and turbid waters with a total of 128 seahorses across 8 replications. Mating latency was shorter for turbid treatments compared to their respective treatments in clear water. Reproductive success was unimpacted by turbidity, but differences were seen among the three treatments of varying sex ratios, with brood sizes being highest in the female-biased treatment (28 Â± 4.56), followed by the male-biased treatment (25.31 Â± 4.94), and lastly, the paired treatment (17.94 Â± 4.90). For sex-biased treatments, 75% of matings in clear water were size assortative, whereas it was random in turbid treatments. On-going behavioral and statistical analyses will further elucidate the relationship between mate choice and reproductive success. This study’s results highlight the critical need for interpreting the results of behavioral studies conducted in pristine lab conditions when investigating mating systems of coastal fishes adapted to eutrophic waters.

**Effects of Anthropogenic Noise**

**on Spring Peeper’s Songs**

Emily Scarborough, Jewell Johnson,

Dalila Sanchez and Alysa Smith

Sponsors: Dr. John Phillips and

Dr. Erin Grabarczyk

Anthropogenic noise has numerous impacts on wildlife, particularly in communication among vocal species, such as frogs. It has been a concern that the artificial noises produced have affected frog breeding calls during their mating season. To test the impact of noise, we selected Spring Peepers (*Pseudacris crucifer*) due to their abundance in urban and rural areas and the conspicuousness of their calling behavior. We observed P. crucifer in different environments across South Georgia to see how artificial noise and light affects their behavior. To observe any effects, we placed devices that captured five-minute recordings at intervals of 25 minutes beginning around dark. These recorders were placed in locations of varying levels of artificial noise, some deeper in the swamps or places that are higher up closer to highways. The audio recordings were analyzed with Kaleidoscope software to monitor the duration and frequency of the calls before, during, and after traffic noises. Our results demonstrate variation in P. crucifer populations in the presence of artificial noise and how such disturbances may impact frogs. Future work will seek to expand our understanding of these results to additional species and use these data to address species of conservation need in the southeastern US.

**Optimization of DNA Extraction for**

**Genome Sequencing of the Invasive**

**Mussel *Mytella Charruana***

Jacob C. Adams

Sponsor: Dr. Cristina Calestani

*Mytella charruana* is an invasive marine mussel found along the southeastern US coastline. To date, the genome of M. charruana has not been sequenced. The purpose of this project is to optimize the DNA extraction procedure to obtain high molecular genomic DNA for sequencing with the Oxford Nanopore Technologies system. One of the advantages of this sequencing technology is that longer DNA fragments can be sequenced at once. Longer DNA reads will make the following genome assembly easier. The two DNA extraction methods include the Qiagen protocol for the DNeasy Blood & Tissue Kit and a modified protocol with the goal of minimizing DNA shearing. Tissue was disrupted with a micro pestle to facilitate homogenization and samples were always mixed by inversion, instead of vortexing. We sequenced DNA from gills, foot, and mantle. Genomic DNA extracted from gills with the modified method gave the best results, as opposed to mantle and foot tissue. With the gills samples we obtained sequence reads on average 2.5 times longer than with the manufacturer's method. The sequencing of the genome of M. charruana will facilitate the development of molecular markers to track different populations, both in their native and introduced environment. It will also help the study of gene expression related to the survival and reproduction of this invasive mussel in the new environment. Ultimately, all these studies will help environmental managers and agencies planning strategies to fight the invasion of this mussel species.

**The Study of Mussel Recovery from**

**Heavy Metal Stress**

Jasmine Pratt

Sponsor: Dr. Cristina Calestani

*Ischadium recurvum,* also known as the “hooked mussel,” is a species that can be found along the Atlantic coast of North America. The St. Johns™ River in Jacksonville, Florida is home to these native mussels and the subjects of this study. The purpose of this study is to analyze the gene expression in mussels™ tissue to observe the recovery from heavy metal stress. Because there is no genomic sequence available for the local species *Ischadium recurvum*, the genes were isolated using the genome sequence information of other closely related species. Different types of molecular analysis were used to compile the data such as comparative genomic, RNA isolation, cDNA synthesis, gradient PCR and real time quantitative PCR. Currently the sequence for the female specific gene Vitellogenin, the heavy metal response gene Catalase and the endogenous control gene actin were obtained. This study gave insight on the molecular and cellular mechanisms involved in recovery from heavy metal stress and its impact on reproduction of the mussel *Ischadium recurvum*.

**Gopher Tortoise Mortality and Reliability of**

**Passive Integrated Transponders (PIT Tags)**

**at Reed Bingham State Park**

Jazmin M. Borges and

 Nicole E. Woolridge

Sponsor: Dr. J. Mitchell Lockhart

The Gopher tortoise (*Gopherus polyphemus*) is considered a keystone species as they create burrows that house over 300 different species of wildlife and play a vital role in the pollination process via scat dispersal. Therefore, it is imperative to encourage recruitment and survival of Gopher tortoise populations. Unfortunately, Gopher tortoise populations have declined significantly in the past hundred years. This decline is due to multiple factors including but not limited to; predation (animal and human consumption), habitat destruction (degradation, fragmentation, climate warming, sea-level rise), human activity (urban expansion, tree harvest, gasoline in burrows, and poor habitat management) and introduced diseases. The purpose of this project is to conduct a demographic survey on a 2-year cohort of 174 Gopher tortoise hatchlings marked with Passive Integrated Transponders (PIT) tags and released during 2008-2009 at Reed Bingham State Park in Adel, Georgia. A line sweep will be conducted on the areas and all subadult and juvenile tortoise burrows and tortoises encountered will be recorded. Captured tortoises will be scanned for a PIT tag ID number and their weight, shell height, carapace width, and straight carapace length will be measured. Each recapture will have a record that includes the capture site's flag or tag, GPS coordinates, date, weather information, and time of day. Results of this survey could provide demographic information on growth and survivability of Gopher tortoises and evaluate the reliability and usage of Passive Integrated Transponders over time in population monitoring.

**Evolutionary Patterns and Virulence of**

**Viral Hemorrhagic Septicemia Virus**

Lauren D. Vosburgh

Sponsor: Dr. John Phillips

Viral Hemorrhagic Septicemia Virus (VHSV) is a highly virulent virus found to infect and cause mortality in more than 140 species of marine and freshwater fish across the globe. Since the first appearance of the virus in 1938, VHSV has diversified and remained notably prevalent in aquaculture systems across Europe and Asia. However, in recent decades, subgenotype VHSV-IVb has emerged as a prominent threat to fish populations of the Laurentian Great Lakes in North America since it was fist isolated in 2003. In attempts to predict the future trajectory of VHSV outbreaks, literature has begun to study the similarities of evolutionary patterns and virulence among the four VHSV genotypes and subgenotypes in regard to their recorded outbreaks. Herein, I examine evolutionary patterns found across the genotypes and discuss comparative virulence studies and similarities across these results. Findings have observed similar large-scale population growths within singular geographic regions and rapid radiation among subgenotypes -Ia and -IVb. Findings also suggest a host species preference is likely a factor in regard to virulence across the genotypes of VHSV. Additionally, a relative decrease in virulence of VHSV-IVb over time since the first outbreak in 2003 in the Great Lakes was observed across several studies.

**Could Seasonal Variation**

**“Cirri-ously” Affect**

**These Seahorse Appendages?**

Paige M. Bland

Sponsor: Dr. Emily Rose

Seahorses are cryptic fishes found in coastal marine environments that grow skin filaments, also known as cirri. Cirri presence has been reported to vary across seahorse species and tend to disappear in captive individuals, but we do not know what factors cause changes in cirri length and appearance. By analyzing the cirri on seahorses from various collection events throughout the year in Tampa Bay, we aim to determine what environmental factors influence the presence of cirri across the sexes and age distributions in the wild. Seahorses were photographed after collection and cirri were documented for four locations on the fish™ Paige M. body, including eyes, head, crown, and body segments. Preliminary results indicate that cirri are more numerous and ornamented in the summer months while seahorse populations are denser in the wild. Analyses are being conducted to determine if the presence of the cirri varies across the juveniles compared to sexually mature adult seahorses. Previous studies on European seahorses indicate that larger fish had more cirri, therefore future directions include measuring body sizes of the seahorses to investigate this relationship in the dwarf seahorse. The results from this illuminate potential seasonal adaptations to changing environmental conditions for wild populations of seahorses.

**Is Homosexuality a Choice:**

**An Examination of Biological Factors**

**Contributing to Homosexuality**

Damon Negron

Sponsor: Dr. A.J. Ramirez

Members of the LGBTQ+ community have often faced criticism and discrimination for their sexuality, with many opponents believing homosexuality is a choice. There seems to be a prevalent idea that homosexuality is a deviant act that participants willingly involve in. Opponents to this viewpoint argue that nature plays a majority role in deciding who experiences same sex attraction. Although directly participating in sexual acts with members of the same or opposite sex is a willing occurrence, the presence of attraction for either sex is what is questioned. For this research, the focus is centered around the question, “Can a person willingly control the presence of homosexual attraction?” Based on genetic research conducted by several accredited institutions, it can be concluded that there is no single gene linked to the causation of homosexuality, but similar genetic markers were found in both male and female populations that identified as homosexual. This identifies that there is, to some degree, a genetic predisposition to homosexuality. Research findings also show that homosexual tendencies are present in numerous species. This is significant, as behavior patterns and social structures vary drastically across different organisms, meaning that homosexual tendencies are likely to be more naturally occurring than what some researchers argue.

**Department of Chemistry**

**Discovery of Copper-Catalyzed**

**Click Chemistry Reaction Intermediates**

**in Nanoreactor by Accelerated MD**

Walker Hayes

Sponsor: Dr. Shafat Mubin

Click chemistry (Nobel Prize in Chemistry 2022) is characterized by small molecules acting as building blocks that can be joined to larger systems to build more complex molecules, with the copper-catalyzed azide-alkyne click reaction being the most prominent example. While catalysts are known to accelerate click reactions, the underlying reaction mechanisms and reaction intermediates have not been conclusively resolved. We approached this problem by constructing a first principles based molecular dynamics simulation of the copper-catalyzed *methylazide propyne* click reaction using the simulation platform Nanoreactor, which offers GPU-based capability in simulating dynamics and reaction events. Furthermore, the simulation was accelerated by an adaptive hyperdynamics algorithm to sample reactions over a larger time scale. By running the simulation at experimental conditions, we identified instances of reactions and subsequently identified species that could serve as reaction intermediates, including those not listed in literature.

**Accelerating Cancer Growth**

**Rates to Kill Cancer Cells**

Akshil Patel and

Capri Persaud

Sponsor: Dr. Tom Manning

This presentation will focus on a novel group of cancer drugs that performed well at the National Cancer Institute. The concept is to increase the cancer cell metabolism rate using cellular nutrients and building blocks in order to accelerate the uptake of the drugs. Paclitaxel (PAC) is a mitotic inhibitor that is used to treat several types of cancer such as lung, breast, leukemia, and pancreatic. Three limitations of PAC are its water solubility, a one-dimensional mechanism of action, and the ability of cancers to build up a resistance to the drug. In this invention, copper (II) is bound to PAC via a Cu-N bond and several Cu-O bonds. These bonds cause the water solubility of the taxane to increase and change the shape of the drug, so resistance mechanisms in cancer cells do not recognize it. They also make the drug more toxic. The copper (II) species can generate reactive oxidation species and randomly bind and distort proteins within a cancer cell. Cu(II) also plays a role in accelerating angiogenesis and creates a Trojan horse effect scenario that increases the drug and increases its uptake rate.

**Electrochemical CO2 Reduction Utilizing a**

**Pd-Ni-Cr Trimetallic Catalyst**

Jodeci L. Mitchell

Sponsor: Dr. Tolulope Salami

To date, copper is the only heterogeneous catalyst that has been used to produce valuable alcohols and hydrocarbons, other catalysts such as Pd-based trimetallic and bimetallic alloys have shown some promise. Thus, there is a vital need to develop new catalysts that have the potential to effectively reduce CO2 to useful fuels. To contribute to the science, we are synthesizing a series of trimetallic and bimetallic alloys through a cyanogel templating technique. Our presentation will discuss the synthesis and analysis (FTIR, NMR, SEM) of a Pd-Ni-Cr trimetallic alloy electrocatalyst, adhesion of the alloy to glassy carbon electrode, configuration of the electrode and the result after the electrochemical reduction of CO2.

**Effects of Silver on Respiration**

**of Baker's Yeast**

Julia Higdon

Sponsor: Dr. Kurt Winkelmann

We are designing a nanotechnology-themed experiment for the first-year Chemistry lab course. Students will study the effect of silver nanoparticles on the cellular respiration of baker's yeast (Saccharomyces cerevisiae). Students will synthesize silver nanoparticles by reducing silver cations with citrate anions, which also serve as a coating to stabilize the nanoparticles once they form. They then measure the rate of carbon dioxide produced during respiration via water displacement. Since the synthesis of silver nanoparticles may not completely convert all silver cations to nanoparticles, our most recent studies examined the effects of silver nitrate on cellular respiration, showing that higher concentrations of silver nitrate inhibited yeast respiration. In addition, we measured the extent that silver cations are reduced to silver nanoparticles. Dialysis membrane tubing was used to filter silver nanoparticle solutions and separate any silver cations present in the solution then the silver cation concentration was measured using a silver ion selective electrode. Future work will include the effects of silver nanoparticles synthesized by different methods and the study of freshwater algae instead of baker's yeast.

**Extraction of Carotenoids Using Non-Ionic
Deep Eutectic Green Solvents**

Lizett Rubio

Sponsors: Dr. Gopeekrishnan Sreenilayam

 and Dr. Ligia Alexandrina Focsan

Carotenoids are natural pigments that can be found in fruits and vegetables. They are frequently used in the health, food, and pharmaceutical industries all over the world because of their health-promoting properties. One of the many benefits of these pigments is that they act as an antioxidant for the human body. This is very beneficial because it lowers the risk of chronic diseases. Humans are not able to synthesize these pigments naturally, they must be ingested through fruits and vegetables. There is a great interest in developing green solvents to extract these pigments efficiently. At this time volatile organic solvents (VOS) are being used to extract carotenoids, but these are replaced by green solvents such as deep eutectic solvents (DES). These “green solvents” offer many advantages such as biodegradability, low toxicity, low cost, and simple preparation. In this research, two different non-ionic DES derived from an Acetamide-Urea system were utilized due to their low eutectic points. These DES will be used to extract the carotenoid pigments from natural sources such as fruits, vegetables, or leaves. The extracts will be analyzed using the HPLC instrument with a YMC C30 carotenoid column.

**Super Shellfish:**

**How Oyster Restoration**

**Can Help Save Our Ocean**

Madeline Pond

Sponsor: Dr. Tom Manning

Supplying erosion control, water filtration, and a hub for biodiversity simply by existing as normal, oysters are a critical keystone species that must be protected. Our research centers on using green technology to create a clean and affordable way to support restoration. Green technology describes the use of science and technology to reduce anthropogenic impacts on the natural environment. It encompasses a large array of research, including but not limited to hydrology, agriculture, energy, material science, and atmospheric science. Our research utilizes renewable resources and natural chemical sources to create portable base structures to help rebuild oyster bars. It demonstrates a biodegradable, mobile, and affordable way to reconstruct a base for this key stone species facing massive habitat loss. Oyster bars serve as natural erosion and shoreline control, water filtration, and food and shelter for hundreds of other species. This project has recently gained further permitting and support from the Florida Department of Environmental Protection to continue our work and testing at Jack Rudloe's "Living Dock" in Wakulla County in conjunction with the UGA Marine Lab (Skidaway Oceanographic Institute) and the Gulf Marine Specimen Lab. Continuation of this research will provide key information to novel methods of accessible oyster restoration.

**Cloning of an Aquaporin**

**Gene into Yeast**

Aldo Madrigal Olivarez and

Savanna Mitchell

Sponsor: Dr. Donna Gosnell

Aquaporins are proteins that selectively transport water across membranes. The current work is part of a larger research project to use aquaporins to create a biomimetic film for the desalination of water. Prior bioinformatics research found an aquaporin gene in a micro algae called *Trebouxia*. This gene was successfully cloned into E. coli. This gene was chosen because of its high sequence similarity to an aquaporin gene in a salt water sea lettuce, *Ulva mutabilis*. The hypothesis is that aquaporin proteins from salt water organisms may be better choices for the desalination of water than from other species. This project focuses on also cloning the aquaporin gene into yeast, because of the potential for greater expression of the aquaporin protein and possibly less toxicity of the aquaporin to yeast compared to E. coli. Quantitative measurement of the expression of the protein in both E. coli and yeast will use techniques such as column chromatography, western blot, and spectroscopy. The goal is to produce aquaporin in sufficient amounts to use to make the desalination membranes.

**Comparing COVID Medications and**

**Writing a Book Chapter**

Capri N Persaud, Akshil Patel, Taylor Taylor,

Madelyne Adair, Paige Bland,

Sandra Arellano and Teighlor Livingston

Sponsor: Dr. Tom Manning

During COVID pandemic, a faculty and a small group of students worked on and published a suggested treatment of COVID. It was based on an inhalation approach to reduce the viral load in the lungs. At the molecular level, it denatured the spike protein on the corona virus making viral replication possible. Two hospitals, one the United States and one in Iran, utilized the method out of desperation and it statistically worked quite well. This resulted in an application the U.S. FDA for EUA status on the drug from the VSU group. This presentation will outline the current endeavor, which focuses on writing and invited book chapter summarizing and comparing the work to other medications. We use physical, chemical and biological parameters to compare the method we originally published against how the other medications performed against COVID (45 total).

**An Analysis of Computational and Clinical**

**Data of Medications Developed to Treat COVID-19**

Capri Persaud, Akshil Patel, Madelyne Adair,

Taylor Taylor, Paige Bland,

Sandra Arellano and Teighlor Livingston

Sponsor: Dr. Tom Manning

During the recent COVID19 pandemic, the laymen news about new medical treatments was dominated by the development and implementation of vaccines. Very little information was circulated about medications that could cure a patient stricken with the SARS-Cov2 viral infection. The dominant drug in the market was Remdesivir, which was widely criticism in headlines such as “Remdesivir Fails to Prevent Covid-19 Deaths in Huge Trial” (NY Times, 2020) and “Fact Check-No evidence Remdesivir is “killing” COVID-19 patients, contrary to social media posts.” This press releases reflected scientific data that was published in peer reviewed journals. This poster will present the results of QSAR calculations. (chemical, physical and medicinal) for approximately 50 medication that were evaluated during COVID. It will also compare the results of four clinical trials for medications, including the world wide Solidarity trials that was sponsored by the World Health Organization

**Detection of the Reactive Species**

**in Cellular Culture**

Carlton W. Francis II

Sponsor: Dr. Yakov Woldman

Reactive species attracting considerable attention in current biomedical science, as they are involved in many pathological conditions, including multiple sclerosis, arthritis and neurodegenerative diseases. However, quantitative determination of the reactive species, such as nitric oxide, superoxide and peroxynitrite requires specific probes that react with corresponding species producing fluorescent or luminescent signal.

We use cytochrome c labeled with fluorescent dye carboxy-X-rhodamine to detect superoxide produced by different types of cells. Change of the oxidation state of iron in cytochrome c due to reaction with superoxide leads to change of the fluorescence of the attached dye. This allows to measure the rate of superoxide production and effect of inhibitors and activators on this rate. The data could be useful for better understanding of pathological conditions related to production of superoxide radical.

**Reactivity of Engineered**

**Myoglobin Biocatalyst**

**in Green Organic Solvents**

**at Different Conditions**

Daniel Rincon Diaz

Sponsor: Dr. Gopeekrishnan Sreenilayam

Deep Eutectic Solvents also called DES are sustainable solvents prepared by mixing two or more components. DESs have many desirable physicochemical properties such as high thermal stability, conductivity, easy recycling, negligible vapor pressure, little to no toxicity, and non-flammability. It is a new generation method and is much better than traditional organic co-solvents used in biocatalysis. These solvents can be easily synthesized from cheap, commercially available, and naturally occurring renewable materials. Biocatalysis uses enzymes and proteins as catalysts. Biocatalysis is increasingly used in organic synthesis due to its environmental sustainability, excellent chemo-, regio- and stereo- selectivity, improved productivity, simplified work streams, milder reaction conditions, and more significant economic saving potential. Organic/Aqueous cosolvent-based biocatalytic reactions suffer from disadvantages such as catalyst stability, lack of substrate scope and substrate solubility, catalyst recycling, low sustainability index, decreased reaction kinetics, and high toxicity. One way to overcome these limitations is to perform biocatalytic reactions in an aqueous/DES solvent mix or in a pure DES solvent system. The objective of this research is to synthesize a set of few DESs and study the stability of engineered myoglobin biocatalysts (purified enzymes) in these DES using UV-Vis spectroscopy to identify the best catalyst-DES combinations. Afterward, the activity of the biocatalyst will be evaluated in the DES solvent system under aerobic, semi-aerobic, micro-aerobic, and anaerobic conditions, as mentioned above, to establish the best reaction conditions. Our initial results showed that DES solvents outperformed traditional organic/aqueous cosolvents, especially under aerobic reaction conditions.

**Cyclic Voltammetry Analysis of**

**Antiantiarrhythmic Drugs**

Denetria N. Thomas

Sponsor: Dr. Linda de la Garza

Electrochemical methods including voltammetric techniques are characterized by high selectivity, sensitivity, reproducibility, rapid response of detection, and low cost of equipment, and often used for the determination of a wide range of pharmaceutical substances. Cyclic voltammetry is used to identify antiarrhythmic medications with a 3-electrode electrochemical cell. Glassy carbon and platinum act as the working electrodes, platinum wire as the counter electrode and silver/silver chloride electrode as reference electrode. Procainamide, disopyramide, and quinidine oxidative peaks were evaluated under various conditions of pH, concentration, and working electrode.

**Optimizing Reaction Conditions for [2+2]
Photocycloaddition Reactions**

Hope E. Smith

Sponsor: Dr. Shipra Gupta

Solar light, especially UVB radiation (290 320 nm) at high doses, represents a major threat to public health. DNA nucleobases directly absorb UVB wavelengths, triggering complex photochemical pathways leading to the appearance of DNA lesions.1,2 Harmful DNA modifications such as cyclobutane pyrimidine dimers (CPDs) are constantly produced and may accumulate in the skin, inducing mutation and carginogenesis.3 CPDs are the most abundant photoproducts and are highly resistant to repair.4 CPDs are formed as a result of [2+2] photocycloaddition of two Thymine bases in the DNA. This makes, [2+2] photocycloaddition reactions an interesting and relevant topic to introduce in an undergraduate organic chemistry teaching laboratory. We started with selecting some well-known [2+2] photocycloaddition reactions and optimizing all the reaction conditions to make them viable for the undergraduate teaching labs. We studied the photodimerization of anthracene, acenaphthylene, tetraphenylethylene, and thymine.

**Extraction of Carotenoids using Ionic Deep**

**Eutectic Green Solvents**

Isabella L. Najar

Sponsors: Dr. Gopeekrishnan Sreenilayam

and Dr. Ligia Alexandrina Focsan

Carotenoids are naturally occurring pigments that are found in a wide spread of organisms such as photosynthetic bacteria, some species of archaea and fungi, algae, and plants. These molecules give off an intense color, such as yellow, orange, or red in many different organisms, including plants and animals. Fruits and vegetables provide humans with most of the necessary carotenoids in the human diet. These pigments are important dietary nutrients because of their antioxidant potential. While these pigments have an importance in maintaining human health, they may also reduce the risk of certain diseases like cancer or cardiovascular disease. Carotenoids have been recently the subject of extensive research because of their potential benefits for human health. The research we participate in is on extracting carotenoids using green solvents. These green solvents are ionic deep eutectic solvents (DES), which have a low toxicity and can be prepared easily by mixing two different solvents. The extraction of carotenoids with ionic DES is done by using simple organic procedures such as centrifugation, filtration, separation, evaporation, etc.

We used a mixture of Choline chloride and ethylene-glycol as the ionic DES to extract carotenoids from spinach. The extract containing different carotenoids was analyzed using high-pressure liquid chromatography (HPLC).

**Quantification of Ions in**

**Aquarium Water**

Jason Roy Phillips

Sponsor: Dr. Linda de La Garza

Testing for water quality is a top priority for many health officials due to its importance for the health of our ecosystems. Be it rivers, lakes, or oceans; each has a different level of dissolved ions that must be maintained, otherwise detrimental effects can occur for not just animals in those ecosystems but also humans if drinking water is involved. Marine tanks also contain a variety of ions that are important for the ocean-like conditions needed to maintain fish or other reef species. The two ions measured here are iron and sulfate, with samples taken from the Baily Science Center Aquarium in room 1043. The typical concentration for iron in aquariums is 0.05 mg/L to 0.1 mg/L and sulfate being 2,500 mg/L. Due to their different properties and concentration limits, different methods for detection and quantification must be used. For the sulfate a conductance titration method was used, with standardized barium chloride, showing a concentration of 3,426 mg/L in the aquarium sample. For the iron, absorbance spectra via UV-VIS was used with 1,10-phenanthroline and compared against a calibration curve and a concentration of .1030 mg/L was found.

**Cyanogel Templating Method for the**

**Synthesis of Pd-Cr Bimetallic**

**Electrocatalyst for CO2 Reduction**

Karli M. Icard

Sponsor: Dr. Tolulope Salami

Due to the abundance of CO2 in the atmosphere, researchers have found that electrochemical CO2 reduction holds the potential to be a foundation for sustainable production of fuels and other chemical compounds. Here we present our research effort in the synthesis of a novel bimetallic electrocatalyst (Pd-Cr) for electro chemical CO2 reduction in aqueous solution. The synthesis of the Pd-Cr catalyst using a cyanogel templating technique, analysis of the catalyst's adhesion to the electrode surface, and electrolysis results will be highlighted.

**Vitamin D Field Study in a**

**Confined Environment**

Lanier Baker

Sponsor: Dr. Shipra Gupta

Vitamin D is a commonly known compound that is considered crucial to optimal health and is often produced commercially. Synthesis of Vitamin D from Pro-vitamin D, with Pre-vitamin D as an intermediate, have been achieved in organic solvent as well as in glassy medium (organic solvents frozen at 77 C). These reactions result in tachysterol, lumisterol, and toxisterols byproducts. This project aimed to utilize Palladium Nanocage (PdNC) as a host to confine Vitamin D precursor. The hypothesis is that the confinement offered by the inner cavity of the host may result in exclusive product selectivity. Finding an optimal method for synthesis of PdNC was the first step of the project, followed by a complexation study of Pro-Vitamin D into PdNC to form host-guest complex, determining the optimal ratio of host to guest. This complex was subjected to irradiation. The photoreaction was studied to determine if Pre-Vitamin D could be synthesized from Pro-Vitamin D while encapsulated in the PdNC. While the ultimate goal is synthesis of Vitamin D, many steps have to be taken to reach this. The synthesis of Palladium Nanocage, complexation studies, and the possible synthesis of additional products from Pre-Vitamin D are studied intensely during this process.

**Feel Good Seashells and a**

**Math Memory Game**

Lisa M. Shepherd, Anthony M. Giles,

Paola R. Lopez and Paige M. Bland

Sponsor: Dr. Tom Manning

The shell game is an incredibly versatile project that can be enjoyed by all ages. To play the game, the player will roll a die or dice, then try to select shells that will add up to the number rolled. If the player exceeds the number rolled, they do not collect any shells. The shell game can be played with people of all ages, and the rules can be manipulated to better suit the age group that is participating. Having to add up the numbers on the shells can help with math skills, and remembering which shells have a certain number can help with memorization. Using shells instead of typical plastic pieces also adds a variety of natural textures and colors and can encourage players to share memories and engage in conversation. From young children to the elderly, the shell game can provide easy mental stimulation and an enjoyable time for anyone.

**Taking on Monkeypox with a**

**Novel Anti-Viral Strategy**

Madelyn R. Adair and

 Taylor Taylor

Sponsor: Dr. Tom Manning

Monkeypox has spread quickly over the past few months with almost 24,000 cases nationwide. The viral disease is similar to smallpox, and thus some of its potential medications are also similar. In particular, the antiviral medication tecovirimat (TPOXX) is approved by the Food and Drug Administration (FDA) to treat smallpox, a disease which was eradicated in the late 1970s. The smallpox/monkeypox vaccine, named JYNNEOS, can protect against smallpox, monkeypox, rabbit pox, and other diseases caused by the orthopoxviruses, including vaccinia virus. We have proposed two new molecular entities that can help in the fight against these diseases. One promising alternative involves a metallic-sugar complex that can adhere to the virus’s outer proteins, then release the toxic metal. Fatty acids are also promising in that they have antiviral behavior and are also bound to a toxic metal (cation), which is used to fight the virus. This presentation will focus on physical and medicinal data we calculated to justify the use of these entities. Below is a drug that contains several levels of efficacy against viral infections we designed.

**Cloning of an Aquaporin**

**Gene into E. coli**

Princess Wynn

Sponsor: Dr. Donna Gosnell

*Aquaporins* are proteins that selectively transport water across membranes. The current work is part of a larger research project to use aquaporins to create a biomimetic film for the desalination of water. This part of the project used cloning techniques to produce E. coli that can express an algal aquaporin protein. The goal is to produce aquaporin in sufficient amounts to use to make the desalination membranes. Prior bioinformatics research found an aquaporin gene in a micro alga called *Trebouxia*. This gene was successfully cloned into E. coli. This gene was chosen because of its high sequence similarity to an aquaporin gene in a saltwater sea lettuce, *Ulva mutabilis*. The hypothesis is that aquaporin proteins from salt water organisms may be better choices for the desalination of water than from other species.

**Antibiotic Efficiency and Resistance**

Robert A. Moorman and

Janantae K. Wright

Sponsor: Dr. Tom Manning

Penicillin was first discovered in the late 1920's but was not mass produced and distributed until 1944. It was the first antibiotic to be mass produced and overcame a critical problem worldwide; people of all ages would suffer and often die from the slightest infection. Bacterial infections, from Mycobacterium tuberculosis (tuberculosis) to Escherichia coli (E. coli) were common killers during the history of humanity, dating back at least 10-12,000 years ago. Many antibiotics have experienced a loss of medicinal activity due to antibiotic resistance. In our study we are utilizing the Î²-lactam core structures. (A) A penam. (B) A carbapenam. (C) An oxapenam. (D) A penem. (E) A carbapenem. (F) A monobactam. (G) A cephem. (H) A carbacephem. (I) An oxacephem. We are altering them using a range of functional groups. By shifting structural properties, a range of parameters ranging from resistance parameters to water solubility and its ability to inhibit the proteins on some bacterium. Computational methods, aka QSAR, are used to predict new structures. Results due date will be presented that point to new functionalized antibiotics and their ability to help humanity deal with increases in infectious diseases that are easily transmitted in a crowded and interconnected planet.

**Should Bryostatin Be**

**Administrated as a Multi-Molecule**

**Treatment for Human Maladies**

Sandra S. Arellano

Sponsor: Dr. Tom Manning

Bryostatin is a marine natural product or a drug from the ocean. It is produced by a specific species of bacteria as a chemical defense system. In one drop of seawater there can be up to 10 million viruses, one million bacteria, and other microbes, with hundreds of species of each microbe present. Bryostatin has efficacy against HIV, various types of cancer, neurological diseases (MS, Fragile X, Alz). This presentation raises the question and answers it with data; does the bacteria defend itself against attacks by bacteria. viruses, algae, etc. using a multi-molecule chemical defense system and should this multi-molecule system be used in treatment of human diseases. Currently, only one molecule or one geometry is used. We model bryostatin fragments with amu's of 509.85 g/mol, 818.2 g/mol, 431.9 g/mol, 527.9 g/mol, 468.85 g/mol, 1089.35 g/mol, 486.9 g/mol, etc. and determine their medicinal activity. two of these collections have been accepted at the National cancer Institute for testing.

**Orientation of Molecules in**

 **Stretched Films**

Tyler Bertoch

Sponsor: Dr. Donna Gosnell

The extent of orientation of several chemical species embedded in stretched polyvinylchloride (PVC) films is investigated. The orientation of the PVC film is also measured. The extent of orientation versus film stretch ratio and the linear dichroism (LD) is correlated to transition moment directions, if known. The LD is also correlated to molecular shape.

**A Quantitative Structure-Activity**

**Relationship Examination of Solution
Conductivity as a Detection Method**

Tyler L. Knight, Kwajalen K. Hall, Paris A. Holbrook,

Gracie A. Roberson, Jason R. Phillips,

Yalanda D Gordon, Aaron J. Paraiso

and Tanasha J Starks

Sponsor: Dr. Tom Manning

Conductivity is one the most robust and versatile measurements that can be made in a chemical analysis. It is often used by itself in environmental monitoring or as an end of the line detector for various forms of chromatography. In this study we blended experimental work with computational work to understand how several parameters such a solvent composition, the average dipole moment and viscosity of the solvent, the charge, cationic and anionic radii of several species (Cesium I), Cu(II), Na(I), Sulfate, chloride and fluoride), hydrogen bonding parameters involving the two solvents (ethanol, water) and the ion-dipole interactions involving the cations, anions and the two polar solvents. The use of QSAR methodology is used to better understand how the different parameters impact the solutions conductivity and the impact this has on the technique as a detection method. Quantitative structure-activity relationship (QSAR) is a computational method to understand relationships between chemical and physical properties and the structural properties of chemical compounds.

**Utilization of Non-Ionic Deep Eutectic Green**

**Solvents for Carotenoid Extraction**

David B. Vasquez

Sponsor: Dr. Gopeekrishnan Sreenilayam

Carotenoids are natural pigments that are found in fruits and vegetables. They are frequently used in the health, food, and pharmaceutical industries all over the world because of their health-promoting properties. These pigments can act as antioxidants for the human body, which can reduce the risk of chronic diseases. Carotenoids cannot be naturally synthesized by humans, so they must be ingested by consuming fruits and vegetables. Nowadays there is an increased interest in extracting these pigments efficiently using green solvents. These green solvents, otherwise known as deep eutectic solvents (DES), have advantages such as biodegradability, low toxicity, low cost, and simple preparation. Currently, volatile organic solvents (VOS) are being used to extract carotenoids, but some of these VOS come with many inconveniences. In this research, two different non-ionic DES derived from an Acetamide-Urea system were utilized due to their low eutectic points. These DES will be used to extract the carotenoid pigments from natural sources such as fruits, vegetables, or leaves. The extracts will be analyzed using the HPLC instrument with a YMC C30 carotenoid column.

**The Shell Game**

Kiersten S. Ley and

Reagan G. Newsome

Sponsor: Dr. Thomas Manning

The shell game is an interactive game that we will play with a young child in an attempt to make learning math more engaging and fun. Young children struggle to stay focused for long periods of time, especially if the object of focus does not interest them. Therefore, creating environments that simultaneously foster learning and enjoyment is beneficial. We predict that the shell game will accomplish this goal by enabling the child to practice simple math skills, such as addition, through the use of seashells with various interesting shapes, colors, and textures that gain the child’s attention. Throughout the game, we will also mention scientific facts about seashells to expand the child’s knowledge of nature and science.

**Department of Computer Science**

**The Advance of Autonomous**

**Self-Driving Vehicles**

Grant D. Lopez and

William B. Butterfield

Sponsor: Dr. Chunlei Liu

With the growth in new technology, it is vital to recognize the potential as well as the issues with the advancements in autonomous self-driving vehicles. Refinement in technology has led to the improvement in safety and change in the system of travel within the United States as a whole. The government and populace have influenced what the future holds for a country by building up a complex yet universal system of travel that would virtually eliminate accidents and promote new standards of living in the United States and even the world.

**An Exercise in Hashing**

Michael Cartier, Megan Johnson

and Candace Williams

Sponsor: Dr. Anurag Dasgupta

Data structures are important in helping us store data in many devices we use to function in our lives. There are many hashing algorithms that can be used to create those data structures, so it is important that we find the most efficient one for each specific task. The focus of this project is to investigate the characteristics of using the double hashing algorithm, which will be demonstrated in two ways. First, we will generate a hash table of songs pulled from an existing *Spotify* database using two different hashing algorithms: double hashing and linear replacement hashing. We will compare how long each algorithm takes to create the database, the number of collisions that occur during the database creation, and the total time it takes for all those collisions to be resolved. Second, we will search through a file system using a double hashing algorithm. We will use this to demonstrate how the double hashing algorithm can be used for near-instant access of an element in a data structure.

**Cryptocurrency in Our**

**Current Day**

Aubrey W. Hughes and

Ricky Browning II

Sponsor: Dr. Chunlei Liu

Cryptocurrency is the future of monetary transactions in the world of e-commerce. While relatively new, cryptocurrency is becoming more prevalent every year as companies start making their platforms accept cryptocurrencies. There are many opportunities and challenges in this field as it becomes more relevant to the online consumer. Many view cryptocurrency as a lost cause while others view it as a better substitute for government-regulated currency. Particularly in today's environment, there are many who view cryptocurrency simply as a commodity to trade to make a profit due to its high volatility. This paper aims to address such issues and take a better look into the utilization of cryptocurrency. In this paper, we highlight the applications of cryptocurrency, address some of the challenges, and look into its future opportunity in e-commerce.

**Tracking Change Over Time**

**in a Reconstructed 3D Scene Using**

**Multiple Monocular Videos**

Chase E. Vaughan

Sponsor: Dr. Radu Mihail

The reconstruction of three-dimensional scenes from two-dimensional video has a multitude of uses. This paper presents a method of reconstructing a scene using multiple videos taken months apart. This method can be used both to observe change over time and to reveal details that would not be apparent from a single video. We temporally align the frames of videos taken along the same path and axis, then analyze the motion of anchor points between frames to determine structure in the form of a point cloud.

**Adverse Societal Effects of**

**Online Gambling**

John A. Self, Keegan F. McCartha

and Carl B. Hamer

Sponsor: Dr. Sudip Chakraborty

For most of the people, the word "gambling" is associated with card tables, roulettes, or slot machines in casinos. Some may extend the association to lotteries or even raffles. While these physical forms of gambling are all too common, gambling has manifested online in the past decade. In fact, online gambling has become an increasing problem nationally and globally. In this paper, we examine the forms and platforms of online gambling, the associated e-cash systems to place bet or earn winnings, the existing laws and restrictions on traditional gambling, and how these laws translate into the online versions. We also examine the challenges in restricting online gambling, especially how the online gambling companies operate to work around the legislations to avoid consequences. Finally, we analyze the ethical issues and social impact of gambling uniquely presented by the shift from the traditional to the online form.

**Ethical Concerns Surrounding**

**Microtransactions in Video Games**

Travis A. Betz, Megan Johnson,

Robert Hinds and Devyn Calkins

Sponsor: Dr. Sudip Chakraborty

Widespread internet access, the growing number of web-based applications, easy updates, and quick addition of new features in software have dramatically impacted how the consumers and producers interact with the software. As a result, many software-based businesses sought new ways to use the state-of-the-art avenues of interacting with their products. Quick to emerge in the world of video games were microtransactions, in-game purchases that allowed users to purchase a variety of in-game items with their real money. Beginning with simple, cheap purchases for additional features and content, microtransactions rapidly evolved as a way for game businesses to market several additional purchases to users. While this is good for developers, this has had unintended side effects on consumers. In this paper, we investigate and analyze the positive and negative effects of microtransactions in games. We also present our perspective on the continued evolution of microtransactions in the gaming industry.

**How Important Is Artificial Intelligence**

**in the Modern World?**

Yasmeen E. Hart

Sponsor: Dr. Jin Wang

Artificial intelligence has become an essential part of most people’s standard routine. Through virtual assistants, spam filtering systems, and personalized advertisements, most people don’t even notice what is artificial intelligence and what’s not. It is currently a highly debated topic, rooted in a lot of fear and misconception around what AI really means for technological progression within our lifetimes. This video examines the importance of artificial intelligence in the modern world as it relates to different facets of daily life. By looking into the algorithms used to create artificial intelligence, this study is able to delineate how AI is being used today, and how it might lead to more advancements in the future. The algorithms and programs that create this intelligence are the first step to deciding the importance of the technology in our lives, but this video also takes a look at how those algorithms are being used currently. By looking at the current uses and projected usage, we are able to analyze the vitality of the programs in our modern day to day lives.

**Pilot Project for Future Experiential Learning:**

**Building Raspberry Pi Clusters**

Walker Hayes and

David Joyner

Sponsor: Dr. Zhiguang Xu

Heterogeneous parallel programming is an integral part of the exploding world of AI (Artificial Intelligence), both in research and in implementation. This approach to realizing neural networks relies on being able to competently spread the computations done by an AI across multiple processors in order to dramatically increase the speed at which an AI’s tasks are executed. Our project is a pilot for future course material/experiential learning that aims to pave the way for students to practice multiple disciplines (parallel programming-centric software development, hands-on clustered processor construction and team-based task management). Over the beginning of the semester, we have been building a cluster of four Raspberry Pi. As the Parallel Programming course continues, we will be assisting the students in building their own Pi clusters. These miniature multi-purpose computers are networked together in such a way that the cluster can be accessed and used either through direct connection or wirelessly. Our networked Raspberries allow us to not only develop and execute software of our own but grants exposure to industry-standard tools like OpenMP (Open Multi-Processing), MPI (Message Passing Interface) and NFS (Network File System) while still attending university, increasing our viability in the workforce now and for the future.

**Department of Mathematics**

**Predicting the New Number of**

**HIV Cases in Georgia Per Year Using**

**Mathematical Models**

Adasia McClinton

Sponsor: Dr. Andreas Lazari

The first known cases of HIV/AIDs in the U.S. emerged in June of 1981 among 5 homosexual men in Los Angeles, California. Since the early 1980s, HIV/AIDS has taken the lives of many people, especially men of the LGBTQ+ community. There is still not a cure to this virus, however, there have been medications and treatments curated to prevent the virus from spreading more. Certain medications like nPep, Prep, and vaccines as well as social measures such as unprotected sex and sharing needles have an effect on the decreasing number of new cases per year. In this paper, we will study the epidemic patterns of this virus from a mathematical modeling perspective. A mathematical model to predict the number of new HIV cases in Georgia is presented.

**Predicting a Mammal's Sleep Pattern**

**Based on a Mammal's Weight**

Callie N. Reid

Sponsor: Dr. Andreas Lazari

Each mammal has attributes pertaining to their lifestyle. Of particular interest are their hunting, eating, and sleeping habits. Every mammal engages in these activities differently, and these differences are related to a variety of factors. A few of these are body weight, brain weight, life span, and overall danger index. All animals do not sleep for the same number of hours each night. Smaller mammals tend to sleep more compared to larger mammals. Their living conditions also play a big role. Mammals in dangerous living conditions tend to sleep less to be aware of potential threats that may arise.

In this paper, we look at the relationship between sleep patterns and body weight for 62 different mammals. A linear regression model is introduced to predict the amount of sleep a mammal needs based on their weight (kg), brain weight (g), sleep (hours per day), maximum life span (years), and overall danger index (1-5). This paper provides insight between mammals’ body weight and their sleep patterns. This research is useful in understanding how these 5 variables correspond with one another.

**Predicting the African Penguin Population Using Mathematical Models**

Crishawn Tyrik Monroe

Sponsor: Dr. Andreas Lazari

The African Penguin population number has been decreasing steadily over the last few decades. That decline has resulted in a reduction of about 72% of the penguins since 1991. Climate change plays a major part in the decline. As climate change happens the ocean temperature begins to rise which is not suitable for the African species as they live in cooler habitats. This also causes penguins to lose out on food supply, which is significant for survival. Climate change and other environmental conditions like pollution, oiling, and competition for the habitat also contribute to their decline. I will introduce a mathematical model that will predict the number of African Penguins at any given year. As a result, it will be decided if the African penguin population will be critically endangered or extinct in coming years.

**Cervical Cancer and Its Disproportionate**

**Effect on POC Women**

Elysse N. Camp

Sponsor: Dr. Andreas Lazari

In the United States, approximately 14,000 women are diagnosed with cervical cancer. Cervical cancer claims the lives of 4,000 women in the United States. Women of color are disproportionately affected by cervical cancer. Women of color are more likely to contract cervical cancer and more likely to die from cervical cancer. Cervical cancer is a cancer that starts in cells of the cervix. (CDC, 2022) The number of cervical cancer cases over a five-year period will be recorded and used for white women, Black women, and non-white Hispanic women. The most recently reported number of cervical cancer cases for these three groups of women will also be recorded and used. In this paper, I will introduce a mathematical model to predict the number of cases for each group of women using data from 2015 to 2018. This prediction will then be compared to the actual number of cases for each group of women, and significant differences between each group will be recorded.

**A Mathematical Study of**

**Popular Music**

Tristin Sahagun, Caleb Epps

and Michael Cartier

Sponsors: Dr. Denise Reid

and Dr. Lorena Aguirre Salazar

We are researching the changes in pop music over the decades in order to predict future music trends. We are using the Billboard Top Hits from 1950 to 2020. Using Python, we pulled aspect data for each song from *Spotify*. Utilizing R, we are applying statistical computing techniques and equation fittings to identify trends within the data. This research is a work in progress.

**Topological Data Analysis of SARS-COV-2**

**Variant Surges over the Top 50 Most**

**Populated Countries Based on Their**

**Stringency of Policies**

Shyra LaGarde

Sponsors: Dr. Shaun Ault

and Dr. Jia Lu

This research explores an innovative approach for recognizing indicators of policy change employed to counter surges of COVID-19 variants across the 50 most populous countries, which represent various geographical regions. The study encompasses all continents affected by the coronavirus and examines the correlation between variant surges and policy modifications. Our qualitative investigation employs Topological Data Analysis and Persistent Homology to detect salient topological structures such as 1-cycles in the data and use them to infer the effects of policy shifts. We use topological data analysis (TDA) algorithms to analyze the dataset and capture homological details using the R statistical computing environment to extract the topological insights. Our preliminary results have yielded a collection of scatterplots that displays the correlation between new COVID-19 cases and deaths. The plots provide a visual representation of the topological features, which vary across different countries and within countries during further variant surges. Additionally, the scatterplots have an accompanying persistent diagram that displays significant topological features in the datasets of each country, which may be related to policy changes.

**Visualization of Fraction Concepts in**

**School Mathematics**

Adariah J. Holloway

Sponsor: Dr. Arsalan Wares

The purpose of this poster is to illustrate how concepts of fractions can be explained visually to school students. The topic of fractions is considered one of the most challenging topics in school mathematics. Researchers in mathematics education claim that a sound understanding of fractions is essential for success in algebra and higher mathematics. Research suggests that visual or pictorial models of fractions can help students understand the concepts involving fractions better. This poster illustrates how challenging problems involving fractions can be solved visually or pictorially. This poster is also an illustration of how research in mathematics education can be implemented in mathematics classrooms.

**Key Applications and Challenges**

**with Big Data Analytics**

Adasia N. Mcclinton

Sponsor: Dr. Jin Wang

Big Data has proved to be successful in various areas such as social media, the economy, finance, healthcare, agriculture, etc. This includes companies such as Netflix, Amazon, Capital One, and more. The exponential growth of the Internet, media usage, and the digital economy have increased the demand for data storage and analytics. Businesses are exploring new methods of data storage because their businesses depend on it. Data created in media can be considered structured, semi-structured, or unstructured. Big Data is a way of extracting value from these large pools of data and using it to maximize customer retention. The rapid rise of technology makes it harder to protect and analyze the increased influx of data. This paper will highlight and discuss several technologies that work cohesively to help predict future business growth and insights in order to make better decisions. Furthermore, this paper will analyze Big Data tools such as Hadoop and MapReduce when working with large data sets and discuss their shortcomings and key innovations. Additionally, we will discuss challenges faced by Big Data analytics such as recruiting adequate professionals, managing data, data privacy, and a few other components.

**A Study on the Unemployment**

**Rates in the U.S. during the**

**COVID-19 Pandemic by Using
Topological Data Analysis and**

 **Persistence Theory**

Callie N. Reid

Sponsor: Dr. José Velez-Marulanda

We use tools from Topological Data Analysis (TDA) and Persistence Theory (PT) such as persistence diagrams, persistence landscapes and bottleneck distances to analyze data obtained from the U.S. Bureau of Labor Statistics concerning unemployment rates in all the states in the U.S. during the year 2021. We use the package TDA in the statistical computing software R to obtain our conclusions. We are in particular interested in comparing the topological features of the unemployment rates between the state of Georgia and its neighboring states.

**A Study in the Usage of Social Media**

Jasmine Freeman and

Leslie Hunt

Sponsor: Dr. Denise Reid

Using the Economics Bass Model, this activity examines how technological innovation spreads. The condition is a first-request, two-boundary divisible condition and the arrangement has a trademark S-molded bend or sigmoid bend. We used the approach described here to investigate another technological innovation, estimate the parameters using the least squares method, and derive the model's solution.

**Department of Physics, Astronomy, Geoscience,**

**and Engineering Technology**

**Perception of Shared Autonomous**

**Vehicles in Public Transit**

Caroline R. Blanton, Jazmin M. Borges,

Destiny A. Adams, Kelis T. Bell, Cooper W. Andolsek,

Mackenzie B. Jones, Kaleb J. Woodruff,

Kaleb J. Woodruff, John I. Watts,

T. Bruch, Grier G. Rogers,

Bre'niah T. Hare and Davis T. Baldwin

Sponsor: Dr. Jia Lu

Autonomous vehicles (AVs) apply new technology that promises to enhance transportation equity, accessibility, and safety; thus, their acceptance by consumers, as well as their future performance is important for future city planning. The city of Valdosta started a new on-demand public transit in 2021 and it has had some successes and challenges. The objective of this project is to gather public opinions on how the public perceives potential shared AVs in our current transit. We developed specialized surveys for the Valdosta residents and studied SAV applications in other cities in the world. Our analysis reveals public opinions and ideas for SAVs in public transit. Suggestions will be made to the Valdosta transit system along with specific strategies for implementation as well.

**Valdosta as a Smart City:**

**Public Opinion on Smart City Applications**

Alma Diaz, Mackenzie Jones,

Fredricka Laguerre and Amber Saunders

Sponsor: Dr. Jia Lu

A smart city increases efficiency and sustainability for its community using technological methods. These cities consist of some key components: analytics, transportation, health, and environment. Without these key components, a smart city cannot reach maximum success. Valdosta is currently using forms of smart technology by preemption of green lights for emergency vehicles and using apps for public transportation such as Valdosta OnDemand. Due to the increasing amount of smart city technology usage around the world, students of the fall 2022 Regional Planning and Environmental Planning course decided to conduct this study to evaluate the overall public opinions of smart city applications in Valdosta. Students asked members of the community to fill out anonymous surveys pertaining to their knowledge and opinions of smart city technology. In-person interviews were also conducted. The survey helped to establish whether Valdosta should incorporate more applications of these techniques to uplift the community. The results showed that most people knew what a smart city was, and if they did, a large portion are worried about privacy security and funding for a smart city. Policy suggestions were given to improve our smart city applications.

**Petrographic Determination of the Metamorphic**

**Grade of Metamorphic Rocks from**

**the Marble Hill, Georgia Area**

Arthur Jay Adams

Sponsor: Dr. Mark Groszos

The *Murphy Belt* is a northeasterly trending sequence of metasedimentary rocks in the Western Blue Ridge (WBR) of Northern Georgia and Western North Carolina. It is geologically significant because it includes some of the youngest rocks in the WBR. This study examines metamorphic conditions in the area near Marble Hill, Georgia. This area was chosen because previous workers have suggested it may be an area of high-grade metamorphism. Workers recognize that metamorphic grade in the *Murphy Belt* varies significantly from low-grade to medium-grade both across and along the *Belt*. The study examines six thin sections to search for high-grade index minerals. Sillimanite is the best index mineral to establish high-grade metamorphism. Previous workers have tentatively identified sillimanite at depth in drill core from this area, but they used SEM-EDS analysis, that technique does not allow accurate mineral identification.

Detailed thin section analysis, or XRD analysis, are the best tools for this task. Point counting of the thin sections is currently underway. Importantly, preliminary analysis of these thin sections indicates at least one thin section does contain abundant sillimanite. Thus, the area east of Nelson, Georgia, is an area of high-grade metamorphism. Work on this study is in-progress.

**Bike Compatibility Ratings of the**

**Roads in Lowndes County**

Caroline R. Blanton

Sponsor: Dr. Paul Vincent

GIS is the main tool used for finding and evaluating the bike compatibility in the roads of Lowndes County, Georgia. The BCI (Bike Compatibility Index) equation to show the bike ability was created by A.George Ostensen; who is the director of the Office of Safety and Traffic Operations, Research and Development. The road features that are required to evaluate the BCI equation are as follows: presence of a bike lane, bike lane width, curb lane width, curb lane volume, speed, presence of parking, type of roadside development, truck volume, parking turnover, and right-turn volumes. Based on the BCI scale range, it was concluded that the roads in Lowndes County are not bike-friendly. Some of the roads are safer than others for bike riders, but Lowndes County does not have the road conditions for a safe transport of car, truck, and the bike commuters effectively.

**Analyzing the Continuous and**

**Absorption Spectrum to Determine**

 **the Components of Stars**

Jasmine Freeman

Sponsor: Dr. Martha Leake

Studying the stars in the sky and trying to determine the continuous spectrum requires patience and persistence. This project uses the continuous spectrum of 6 selected stars to calculate the gases that make up the star. The six stars were selected because of their range of temperature and the expectation of having different spectra and spectral classes. We are using a Nikon COOLPIX L5 (digital) camera, a 6-inch Orion SkyQuest Dobsonian telescope, and Rainbow Optics Star Spectroscope, with spectrum widening lens and 1.25-inch grating cell. The next step of this project is using a spectroscope or spectrometer at the telescope while tracking the star, thus obtaining a more detailed and diagnostic spectrum. Calculating the elements makes it easier to calculate the density and temperature of stars. We expect to see absorption lines (gaps in the absorption spectrum), mostly indicating excited hydrogen and helium in hot stars. In some cooler stars we expect to see traces of metallic lines.

**Wearable Technology and**

**CAD Applications**

Kamryx R. Davis

Sponsor: Dr. Barry Hojjatie

Globally, fashion is over a trillion-dollar industry. With innovations such as new manufacturing techniques, chemical solutions, and integrations with technology, clothing is becoming more fashionable and functionable. Apparel-based solutions such as wearable technology have been making a huge impact on the medical field. There are many positive aspects of wearable tech, however, improvements need to be made for future applications. Computer-aided design (CAD) software is being used throughout the concept to creation process of wearable technology to enhance this field. This research explores the evolution of wearable technology for medical purposes, specifically smart fabrics and e-textiles as well as how CAD modeling and simulation tools and techniques apply to this domain. Different devices and research from the past and the present will be discussed along with findings from these endeavors.

**The Adaptation of a Natural Wetland**

 **to a Storm Water Detention Zone**

Michele D. Dowdy

Sponsor: Dr. Donald Thieme

The construction of Interstate-75 was meant to be an improvement in the infrastructure of the highway system and an economic boost for the cities and towns it went through. It was completed in the 1960s. Such a large project would need to pass over multiple waterways and channels. One such system is one that stems from Franks Creek. Franks Creek flows into the Little River and then joins the Withlacoochee River. The focus area for this paper will be a tributary waterway east of Franks Creek, in its upstream basin. This research examines the effects of interstate Interstate-75 construction on the surrounding fluvial areas. The main area of interest will be a small series of lakes around and in the Northlake subdivision. Evidence from USDA soil maps and descriptions, google earth imaging, and field data were included in this study. We can conclude that the construction of Interstate-75 has played a part in changing the landscape of its surroundings.

**Future Transitability of the**

**Circumbinary Planet Kepler-16b**

Ralph Avery

Sponsor: Dr. Billy Quarles

Observations with the Kepler Space Telescope revealed a special planetary class: a planet that orbits a pair of stars instead of just one, or a circumbinary planet (CBP). The first bona fide CBP (Kepler-16b) was confirmed via photometry in 2011 by the Kepler Mission using only the first two years of observations. In subsequent studies and discoveries of CBPs, it became apparent that these worlds are detectable through transit photometry only temporarily due to the fast precession of planetary orbit relative to our line-of-sight (i.e., limited transitability). We re-evaluate the photodynamical modeling of Kepler-16b using the full four years of observations from the Kepler mission, which includes four additional transits by the CBP. Our photodynamical model mostly agrees with the previous results, except it requires a slightly more massive CBP. Using our best-fitting models, we will estimate when Kepler-16b will again transit its host stars relative to our line-of-sight and whether these transits would be detectable using data from the Transiting Exoplanet Survey Satellite. The potential transitability of the other Kepler CBPs will also be discussed.

**A Stable Isotopic Landscape of**

**Southern Georgia Surficial Waters**

**and Its Implications on the**

**Regional Groundwater Recharge Process**

Riley Griffin Thomason

Sponsor: Dr. Weimin Feng

The spatial distribution of δD and δ18O patterns in surficial waters are proxies of hydrological processes and important climatic indicators. To date, there is no systematic data from southern GA in the Global Network for Isotopes in Precipitation (GNIP) data. In this study, 15 rainfall, river, and groundwater samples were collected in southern GA in summer 2022 (May to September, during which period the area receives half of its annual rainfall) in Lowndes, Berrien, and Tift Co for the study of stable hydrogen and oxygen isotopic compositions. During sampling time, the HySPLIT model indicated the predominant source of moisture arrived from the Atlantic Ocean or the Gulf of Mexico. The rainwater has a δD range from -43.2 ‰ to -4.7 ‰ (average –13.5 ‰) and a δ18O range from -7.26 ‰ to -2.06 ‰ (average –3.17 ‰). The river water has a δD range from -15.8 ‰ to -10.7 ‰ and a δ18O range from -3.27 ‰ to -2.6‰. The groundwater has a δD range from -19.1 ‰ to -13.7 ‰ and a δ18O range from -3.97 ‰ to -2.52‰. Despite signs of amount effects, the LMWL for river water and rainwater are similar: δD=7.3δ 18O+8.6 and δD=7.1δ 18O+7.3. LMWL for Groundwater, however, has a lower slope δD=3.7δ 18O-4.3. This is possibly due to evaporation, although the Rayleigh model suggests proportional evaporative loss is insignificant during the recharge process.

**Asteroid Data Analysis:**

**Finding Rotation Rate of**

**Various Asteroids**

Sam A. Panzica

Sponsor: Dr. Martha Leake

In this study, I will be using the Mira Prox64 program to perform photometric analysis of CCD images of asteroids taken by Dr. Martha Leake. The goal is to take several observations of the same asteroid over different phase angles and create a light curve showing the change in brightness over time, thus enabling us to find the orientation axes of the asteroid. This light curve will allow us to determine the rotation rate of these asteroids. To perform the analysis, I will employ a combination of image processing techniques and mathematical models to extract relevant information from the CCD images. During the image processing stage, I ran into a few difficulties that I was able to overcome with the help of Dr. Leake and the Mira Pro Guidebook. Once the issues were resolved, I was able to fully process the image sets and begin analyzing the brightness of various moving asteroids. The results of the study provide new insights into the motions of these asteroids, finding their rotation rates and their change in brightness over time. Additionally, the methods developed in this study can be applied to future studies of asteroids and other small bodies in the solar system.

**An Overview of the Valdosta Smart City**

**Project and Its Impact to Traffic**

**Safety and Efficiency**

Shyra L. LaGarde and

Carmen R. Perry

Sponsor: Dr. Barry Hojjatie

Valdosta, Georgia is a thriving city that is continuously expanding in both infrastructure and population. Its strategic location along the major highway of I-75, in addition to its connectivity to the other state roads, provides easy access to the city. However, the high volume of traffic that results from these factors presents a challenge to the community. To address this issue, a traffic monitoring and communications system is being developed, implemented, and evaluated. The Valdosta Smart City Project aims to improve traffic management and increase road safety by connecting travelers to the traffic infrastructure using the TravelSafely App and centrally controlled traffic lights. Engineering and researchers from various organizations, including Valdosta State University, Georgia Institute of Technology, and two engineering companies, are collaborating to connect all 128 signalized intersections in Valdosta.

The effectiveness of the project will be determined through the response to the app and the traffic light communication system. Students developed AutoCAD drawings and simulations used to analyze traffic flow, specifically at intersections heavily influenced by pedestrians and other modes of transportation. The project aims to enhance traffic safety by monitoring traffic before and after deploying the app in collaboration with the City of Valdosta's Engineering Department.

**Signal Processing Techniques for**

**Audio Improvement**

Uchechuwku Michael Onwukeme

Sponsor: Dr. Qingsong Cui

Signals have many forms, and one of them being audio signal. Audio Signal Processing is very attractive for many real applications one of them being noise control. One of the interesting applications is using signal processing to improve hearing. If a person is an avid headphone user, they may find it convenient to not have to hear distracting noises from the outside world, and enjoy the audio that they are listening to. Another situation where active noise control leaks its importance is a firing range. Weapons are indeed a dangerous tool, but they cause harm to one's hearing abilities. In this project, we use different signal processing methods to suppress the noise level for multiple sound sources. The results show the process of destructive interference, which would allow the people to enjoy their audio.

**Host Stars Effect on**

**Exoplanet Atmospheres**

Ian P. McLean

Sponsor: Dr. Martha Leake

The discovery of exoplanets and the factors that influence their evolution is crucial to developing the theory of the origin of life. Understanding the evolution and activity of a host star is crucial to accurately characterizing exoplanets and assessing their habitability. The host star influences the atmosphere of the exoplanet in several ways, including but not limited to; UV and X-Ray bombardment, distance, gravitational potential, properties of the stellar winds, etc. This review will examine the ways in which host stars can impact exoplanetary atmospheres, including the mechanisms by which atmospheric escape occurs, the effects of ionizing radiation, and the role of star-planet interactions in altering exoplanetary atmospheres. By understanding the host star's evolution and its influence on the exoplanet, we can gain a deeper understanding of the conditions required for life to arise and survive beyond our solar system.

**Measurements and Analysis of Vehicles Speed near**

 **Valdosta Middle School: A Collaborative Study between the**

**VSU Engineering Program and the City of Valdosta**

Alexander P. Fouraker

Sponsors: Dr. Barry Hojjatie and

Mr. Larry Ogden (Valdosta Traffic Manager)

Speeding has the potential to be very dangerous, especially near congested areas like schools. Pedestrian intersections are generally the most dangerous areas near any school. Our collaborative studies related to a successful Valdosta Smart City project have resulted in a major improvement in the pedestrian crossing near Valdosta Middle School (VMS), but it appears that there are many speeding violations by various vehicles near VMS at Patterson Street. The objectives of this study were to perform measurements and analyze traffic patterns and speed patterns near the VMS to improve efficiency and safety. We performed measurements of speed at various locations near VMS using a pneumatic system that automatically recorded data related to the speed and type of vehicles at various times of the day for a twenty-four-hour period. Our analysis of results indicated that a higher proportion of people speed during school zone hours than the rest of the day, Southbound traffic has higher average speeds than Northbound traffic, and Southbound traffic is almost double that of Northbound traffic.

**Honors College**

**The *Cocomelon* Effect:**

**The Dangers of Unprecedented**

**Baby Media Consumption**

Addeline S. Wright

Sponsor: Leigh Bryan, M.A.

*Cocomelon*, a *YouTube* channel turned television show that features nursery rhymes and songs has become popular since its creation in 2017. The American Academy of Pediatricians states children should not experience any screentime, except for video chatting, until the age of two. Developmental concerns associated with early screentime such as cognitive delays, executive function issues, and behavioral issues raise questions about the safety of the show. A mixed method approach with both quantitative and qualitative data is suggested to evaluate the potential damages of the show. Research is proposed to study more deeply the possible impacts that the show *Cocomelon* could incur in children aged birth to two years old. Through data collection, evidence will be compiled supporting the hypothesis that *Cocomelon* negatively impacts viewers over time, while focusing on the effects and dangers of underage media usage.

**The Mental Health of Collegiate**

**Athletes Due to Athletic Demands**

Madeleine Rae Mayer

Sponsor: Dr. Christine A James

Mental health is an essential ingredient to one's success within any demographic, but specifically, it is a significant component of life for collegiate athletes. Mental health has been largely overlooked when considering the relevance and severity of the impact that it has on the athlete's sport performance, academic success, and physical health. Through my research I will consider these topics as well as the various factors impacting a collegiate athlete’s mental health. I will also discuss research that suggests collegiate athletes and non-athletes are not different from one another regarding the mental health pressures they are experiencing. Denny and Steiner (2009) mention a dichotomy between internal and external factors within the athlete's life that potentially impact their happiness, and therefore their overall mental health. I will refute the dichotomy presented by this study that the mental health challenges in a collegiate athlete's life can be expressed as a matter of strictly internal or external factors. Instead, I will defend the argument that factors impacting collegiate athlete's mental health cannot fit into two simple categories and must be assessed on a different scale than non-athletes due to the different stressors in their lives.

**College of Nursing and Health Sciences**

**The Cost of Healthcare**

Chloe E. Brevaldo, Sarah M. Pirkle and

Julia M. Rafferty

Sponsor: Dr. Michele Blankenship

In America, the healthcare industry prioritizes making money over the wellbeing of patients. This three-minute video brings to light how people are taken advantage of by the lack of regulation of the healthcare industry. Additionally, this three-minute video answers why healthcare is so expensive and how this leads to patients getting over diagnosed. The research revealed that rather than health insurance, healthcare professionals, such as doctors and the pharmaceutical companies are the reason that the cost of healthcare is so high. Free health insurance has a direct correlation to a higher chance of being diagnosed with diabetes and depression. It is important to understand that people are being taken advantage of by America's current healthcare system so that patients can make an informed decision when looking for care. The research revealed that one of the ways to fix the over diagnoses and high pay in the
healthcare industry is to pay physicians fixed salaries rather than for individual services. Ultimately, it is imperative that the high costs in the healthcare industry be addressed in order to lower the prices.