

TOGETHER,

**BE HEARD**



25TH ANNUAL  
**STETSON  
SHOWCASE**

APRIL 16TH, 2024

## **STETSON SHOWCASE**

**Together, Be Heard**

**APRIL 16, 2024**

***A Celebration of Achievement at Stetson University***

### **About the Undergraduate Research and Creative Arts Symposium Showcase:**

Welcome to the twenty-fifth Stetson Showcase. This event, with its debut in 1999 and former names of Undergraduate Scholarship and Performance Day (USAPD) and later Undergraduate Scholarship Day (USD) and Stetson Undergraduate Research and Creative Arts Symposium (SURCAS), has grown to be one of the oldest and most distinctive comprehensive Undergraduate Research Days in the United States. Our theme this year, Together, Be Heard, celebrates one of the iconic structures on campus, the Hulley Tower. Originally over 140 feet high before storm damage almost twenty years ago forced the removal of all but the tombs of President Lincoln Hulley and his wife Eloise, the tower was famous for the bells that rang out every night, reminding us that we were a community that shared a history and basked in the sounds of the chimes. Today there is a campaign to restore the tower with a full carillon that will once again ring out to remind us of our shared community. The Bell on the cover is one of the original chimes. Today it is “Big Green” that rings out at athletic events. For more information, see the back cover of this program.

You are free to go in and out of sessions all day, attend a music recital, see the art exhibit, and in the evening, listen to Dr. Judith Bense, President Emeritus and Professor of Anthropology of the University of West Florida.

### **JUDGING CRITERIA AND PRIZES:**

Each group of judges for each specific location will be deciding among themselves appropriate and consistent criteria that will help them decide which presentations were most effective. In general, students are asked to discuss their projects at a level that anyone not knowing the area can understand. Part of an effective presentation is effective communication, and the judges keep this as consistent criteria for choosing the best presentation for all involved. The winners of each of the locations or poster sessions will receive a Maris Prize of \$200 and a certificate of excellence. Eligible pre-selected candidates will also be judged for the Dr. Leonard Nance Award for Excellence in Social Justice Research,

### **ARTWORK AND PHOTOGRAPHY**

The poster art has been designed by Caitlyn Alvarado, in the Department of History. The cover art was designed by Nicole Alonso, Showcase intern and Caitlyn Alvarado. Both celebrate Hulley Tower.

**Cultural Credit:** A maximum of three cultural credits can be earned for the symposium event. At each venue, students must take a QR code photograph at the end of a presentation. A

cultural credit will require three QR codes logged. Cultural credit can also be earned by attending the Keynote address in the early evening.

**THE 2024 JUDGING PANEL:**

Dr. Olusola-Ige Adetoro, Visiting Asst. Professor of Environmental Science and Studies

Rina Arroyo, Chief of Staff & Senior Development Officer,

Dr. Elizabeth Boggs, Instructor, Honors Program

Jennifer Certo, Executive Assistant to the Vice President of Campus Life and Student Success,

Stacy Collins, Executive Director of Career and Academic Services

Dr. Elizabeth Congdon, Associate Professor of Biology, Bethune-Cookman University

Dr. Kristine Dye, Assistant Professor of Health Sciences and Biology

Dr. Christopher Ferguson, Professor of Psychology

Dr. Elizabeth Galloway, Assistant Professor of Practice in Business Law

Dr. Sarah Garcia-Beaumier, Associate Professor of Psychology

Terry Grieb, Assoc Professor Emeritus of Instructional Media

Dr. Matthew Imes, Assistant Professor of Finance

Dr. Lyda Kiser, Executive Director & Title IX Coordinator, Campus Life and Student Success

Cory Lancaster, Assistant Vice President of University Marketing Media Relations,

Dr. Alexander Martin, Assistant Professor of Music Theory

Dr. Meghan McGreal, Assistant Professor of Chemistry

Dr. Nathan Munson, Professor of Music

Dr. Carolyn Nicholson, Chair and Professor of Marketing

Dr. Delphine Pinet, Assistant Professor of Practice, Dept. of Chemistry

Alicia Scott, Director of Internal Communications

Dr. Rajni Shankar-Brown, Professor and Jessie DuPont Ball Chair of Social Justice Education

Dr. Jocarol Shields, Assistant Professor of Health Sciences

Dr. Amy Smith, Assistant Professor of Education

Kevin Taylor, Assistant Professor of Entrepreneurship and Management

The Rev. Reginald Williams, African American Museum of the Arts in DeLand.

# PROGRAM

## POSTER PRESENTATIONS

### **Brown Hall of Health and Innovation**

Dr. Melissa Gibbs, Morning Session Chair

Dr. Holley Lynch, Afternoon Session Chair

### **Judges**

Morning I: Dr. Amy Smith, Dr. Christopher Ferguson, Dr. Sarah Garcia

Morning II: Dr. Rajni Shankar-Brown, Dr. Elizabeth Boggs, Dr. Meghan McGreal

Afternoon I: Alicia Scott, Stacy Collins, Dr. Jocarol Shields

## **Morning I (9 a.m. – 12 p.m.)**

**P-1 Koiya Rymer, Kemari R. Cosby and Kaira R. Thevenin** The Development of Merkel Cell Carcinoma may be Dependent on the Non-Canonical Nuclear Localization Sequence TLKDY in the Merkel Cell Polyomavirus Small Tumor Antigen

**P-2 Madeleine Boyd** Developmental Effects of MSG on Axolotl Embryos

**P-3 Isabella Recanzone** An Investigation Into Heart Disease Prevalence Concerning Sex in Florida in 2020

**P-4 Kathryn King** The Invasive Aquatic Snail, *Melanooides Tuberculata* was Observed to have a Greater Biomass Relative to the Native Snail Population in Blue Spring State Park, Volusia County, Florida

**P-5 Cheyenne Haines** Molecular Analysis of Arbuscular Mycorrhizal Fungi (AMF) in Native Sandhill Species

**P-6 Melanie Wright** Barbie Unboxed: A Feminist Critique of the *Barbie* Movie

**P-7 Elayna Rauscher** Effects of Intra-Oral Infusion of Sucrose+Quinine on Taste Reactivity Behaviors and Fos-Immunoreactive Neurons in the Gustatory Cortex in Rats

**P-8 Jack Gazil** Testing the diagnostic effectiveness of three fecal floatation methods for the invasive pentastome, *Raillietiella orientalis*

**P-9 Cayla Skeete** Social Media Campaigns to Reduce Mental Health Stigma Across Racial Groups

**P-10 Kelly Ashley Odonata** Abundance and Diversity Loss in Polluted Deland, Florida Environments

**P-11 Madison Fields** Taste Reactivity and Consumption of Sodium Carbonate in Rats and the Effect on Fos-IR Neurons in the Parabrachial Nucleus

**P-12 Noureen Saeed** عقدة الخواجة في مصر / O'kdet El Khawaaga in Egypt: The Effects of English Language Proficiency on Self-Esteem in a Non-Native Developing Country

**P-13 Justine Horne** Infection experiments with the invasive pentasome (*Raillietiella orientalis*) in invasive cane toads (*Rhinella mariana*)

**P-14 Hayle Morgan** "Draw a Circle, It's the Earth": Rhetorical Analysis of *Hetalia*

**P-15 Gabriela De Cárdenas** A comparison of the impacts of caffeine and energy drinks on embryonic development in *Ambystoma mexicanum*

**P-16 Madeline Strojje** Analysis of a PRM1 mutation on *Saccharomyces cerevisiae* cell fusion

## **Morning II (9 a.m. 12 p.m.)**

**P-17 Tristan Evans** Birth Weight and College Student Anxiety: Impact of Socioeconomic, Race and Sex Factors

**P-18 Alaila Champion** The effect of Arbuscular mycorrhizal fungi on growth of *Argnoglssom floridanum* at varying soil nutrient concentrations

**P-19 Hannah Swartz** Analyzing a Plasma Membrane Fusion Protein in Fungi

**P-20 Richelle Eastridge** Analyzing the Relationship Between Distance of Occupational Migration and Mental Health in Military Members

**P-21 Jordan Calderara** Documenting the Spread of an Invasive Pentastome (*Raillietiella orientalis*) Throughout Southwest, Central, and Northern Florida.

**P-22 Bella Parker** Selective Disruption of Mitochondrial Thiol Redox Homeostasis by MitoCDNB Exaggerates Macrophage NLRP3 Inflammasome Activation

**P-23 Jadielyn Cruz-Bianchi** Psychopathic Traits, Adverse Childhood Experience, and Criminal Behavior

**P-24 Kaitlyn Boyle** *Carphephorus corymbosus* shoot investment increases when inoculated with Arbuscular Mycorrhizal Fungi along a soil nutrient gradient

**P-25 Kaci Kruglewicz** Parasitic Coinfection in *Leiocephalus carinatus*: Nematode Presence Does Not Significantly Impact Pentasomic Infection

**P-26 Colleen Coughlin** Drowning in Doubt: The Connection Between Health Anxiety, Source Credibility, and Misinformation

**P-27 Jennifer Hanco** The Effect of Storage on the Accuracy of Fecal Flotation Technique for Detecting *Raillietiella orientalis* Infection and Severity in Native Florida Snake Species

**P-28 Alicia Ollie Baith** Effects of fragment size and urbanization on the frequency of pollinator visits to parks in DeLand, Florida

**P-29 Kylah Collins** Parental Divorce and Young Adult Romantic Relationships

**P-30 Velyncia Smith** Odonate Larvae Behavior in Water

**P-31 Emilie Wiltz** The effects of antacids on developing axolotl embryos, *Ambystoma mexicanum*

**P-32 Justin Madrigal** Negative phototaxis in late-stage larvae of mangrove tree crabs provides insight into dispersal strategy

## **Afternoon I (1 p.m.-4 p.m.)**

**P-33 Mia Dowling, Emma Hudgins and Isabella Tieche** The Amino Acid Sequences YQCFI and LWFGF of the Merkel Cell Polyomavirus Small Tumor Antigen May Contain the Non-Canonical Nuclear Localization Signal Necessary for the Development of Merkel Cell Carcinoma

**P-34 Ashley Baccus** Does Social Media Use Affect College Students' Mental Well-being?

**P-35 Emily Thompson** Invasive fish biomass equals native fish biomass at Volusia Blue Spring

**P-36 Sarah Cancilla** Mangrove Resilience to Climate Change Based on Fungal Presence in Vascular Systems

**P-37 Spencer Skittenhelm** Health impacts of an Invasive Pentastome (*Raillietiella orientalis*) on the Northern Curly-tailed lizard (*Leiocephalus carinatus*)

**P-38 Victoria Vasquez** Cytotoxic Activity of Methanol-based Simpson's Stopper (*Myrcianthes fragrans*) Leaf Extract on Jurkat Leukemia Cells

**P-39 Jordan LaRoche** Calculating the Aerodynamics of a Fixed Wing Model Plane

**P-40 Christina Knowles** Investigating Parasitic Dynamics: Coinfections of *Rhabdias pseudosphaerocephala* and *Raillietiella orientalis* infections in Invasive Cane Toads

**P-41 Ryan Mossell** A tale of two habitats: Why are copepods larger in Mosquito Lagoon than in Halifax River?

**P-42 Michael Leitelt** Characterizing and Forecasting the Effects of Major Events on Private Aviation Demand

**P-43 Madison Niederriter** Seeing through blue tinted glasses: Spectral sensitivity during late larval development in a semi-terrestrial crab

**P-44 Alexa Nikituk** Investigating the Anticancer Properties of *Myrcianthes fragrans* Stems on E6-1 Jurkat Leukemia Cells

**P-45 Ilya Deadoff** Synthetic and Computational Analysis of Possible Carbon-Oxygen and Carbon-Carbon Bond Formation in 2-(Methoxy-4-(2-phthalimidinyl)phenylsulfonyl Chloride

**P-46 Robbi Jones** Parents' Education, Anxiety, and Depression in College Students

**P-47 Janetlin Mendoza, Frederico C. Van Ness, Emily Basdeo, Cody E. DiBenedetto** Elucidating the Non-Canonical Nuclear Localization Signal that Allows for the Merkel Cell Polyomavirus Small Tumor Antigen to Perform Merkel Cell Carcinoma Tumorigenesis

**P-48 Halle Block** Bioplastic Decomposition and Compost Fertility

**P-49 Catherine Nunes** Predicting Counterproductive Academic Behaviors with Moral Foundations and the Dark Triad

**P-50 Arianna Miller** The Effect of Spilanthol on Consumption, Taste Reactivity Behavior, and Neural Responses to NaCl in *Rattus norvegicus*

## **ART PRESENTATIONS AND EXHIBITIONS**

**Homer and Dolly Hand Art Center,**

10:00 am-3:00 pm

Session Chair: Dr. Melinda Hall

Judges: Jennifer Certo, Elizabeth Lew

## **HAND ART CENTER GALLERY**

**ART-1- 10:00-10:15 K Mauser “Self Obsessions”**

VIRTUAL PRESENTATION

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**ART-2 1:00-1:15 Ariana Klein “Take Me With You”**

**ART-3 1:20-1:35 Ciara Kelley Experimental Ekphrasis**

**ART-4 1:40-1:55 Maddie Higgs When the Earth Burns, We Burn Too**

**ART-5 2:00-2:25 Jodi-Ann Taylor Exploring the Interconnectivity Between Nature, Technology, and the Arts**

2:25-2:35 **BREAK**

## **SAMPSON GALLERY**

**ART-6 2:35-2:50 Grant Wolf The things that were here before the rest of us were**

## **JUNIOR MUSIC RECITALS**

**Lee Chapel, Elizabeth Hall**

9:00 am-4:00 pm

Recital Manager: Dr. Chadley Ballantyne

Judges: Dr. Jamie Clark, Dr Alexander Martin

Repertoires are to be found in Abstracts at end of program, pp. 69=71

**M-1 9:00-9:30 Madelyn Munley Violin**

**M-2 9:45 -10:15 Zachary Frankowiak Flute**

**M-3 10:30-11 Justin Bockstege Tuba**

**M-4 11:15 -11:45 Rachel Castillo Soprano Voice**

**11:45-12:45 Lunch**



**M-5 1:00-1:30 Josiah Hall** Clarinet

**M-6 1:45-2:15 Nicholas Dieux** Baritone Voice

**M-7 2:30-3:00 Sydney Holder** Oboe

**M-8 3:45-4:00 Michael Fantaro** Saxophone

## **ORAL PRESENTATIONS – SESSION A**

**25 Library Auditorium – Media Center**

*10:00 am - 3:00 pm*

*Dr. Kevin Riggs, Morning Session Chair*

*Dr. Matthew Shannon, Afternoon Session Chair*

*Judges: Dr. Olusola-Ige Adetoro, Dr. Corie Charpentier*

## **SCIENCE ACROSS THE SPECTRUM I**

**A-1 10:00-10:15 Megan Brinton** Copper Biogeochemistry in Stormwater Ponds in the Victoria Park Community, DeLand, Florida

**A-2 10:20-10:35 Alicia Bronson** The Effect of *Myrcianthes fragrans* Flower Extract on Jurkat Leukemia Cells: Comparing Collection Sites in Florida

**A-3, 10:40- 10:55 Amanda Molina** The Effects of the Ginseng Panax on Reactive Oxygen Species and Troponin Levels after Induced Hypoxia in Cardiac Myocytes

**A-4 11:10-11:25 Halle Block** Axolotl Cell Shape Analysis During Tissue Spreading

**A-5 11:30-11:45 Coral Kehm** Infection of Curly-Tailed Lizards (*Leiocephalus carinatus*) with the Pentastome Parasite, *Raillietiella orientalis*

### **11:45-1:00 LUNCH**

**A-6 1:10-1:25 Briana Robinson** Investigating protein-protein interactions required for yeast *Saccharomyces cerevisiae* cell fusion

**A-7 1:30-1:45 Emily Blizzard** Abundant microplastics within two species, *Panopeus herbstii* and *Crassostrea virginica*, in Coastal Northeast Florida

**A-8 1:50-2:05 Jackson Hodor** Spilanthol alters the consumption of, reactive taste behaviors to, and neural responses to NaCl solutions in Male Wistar Rats

**A-9 2:10-2:25 Christian Berberich** Progress Towards the Synthesis and Analysis of Bis( $\mu$ -oxo) Dicopper (II) Complexes

**A-10 2:30-2:45 Nicholas Suarez** Complex Relationships Between Groundwater Contamination, Hydrogeological Process, and Historic Land Use in Volusia County, Florida

## **ORAL PRESENTATIONS - SESSION B**

**John E. Johns Room 315, Elizabeth Hall**

*9:00 am-3:00 pm*

*Sidney Johnston, Morning Session Chair*

*Dr. Ken McCoy, Afternoon Session Chair*

*Judges: Dr. Lyda Kiser, Cory Lancaster*

## **STRIVING FOR IDENTITY**

**B-1 9:15-9:30 Joshua Griffin** Why the Right Went Wrong: An argument for classical conservatism against modern conservatism

**B-2 9:35—9:50 Ciara Kelley** Experimental Ekphrasis: The Romantic Experiment and the Limits of Representation

**B-3, 9:55-10:10 Phobelen A. Luders-Burley** Power, Manipulation, and Love: A Rhetorical Analysis on the 1999 Cult Classic Film *Cruel Intentions*

**B-4 10:15-10:30 Tristyn Rampersad** Analyzing Racial Disorientation Through Predictive Processing

10:30-10:40 **BREAK**

**B-5 10:40-11:05 Phoenix Medley** Balancing Authenticity and Adaption: Differences in the Portrayal and Preparation of Chinese and Korean Food for an American Audience

**B-6 11:10-11:25 Jazlyn Gregory** Meaning of Indigeneity to Saraguro

**B-7 11:30-11:45 Tanner D'Errico** Philosophy of Bodybuilding and Beauty

**11:45-1:00 – Lunch**

## **DEALING WITH LIFE AND DEATH**

**B-8 1:00-1:15 Hosanna Folmsbee** Traumatic Medicines: Victor Frankenstein's Catastrophic Creation

**B-9 1:20-1:35 Alexis Trapp** Evaluating the Effectiveness of Prison Programs and Their Influence on Inmates' Perception of Optimism

**B-10 1:40-2:00 Jake Catha** The Value of Materialistic Possessions and Wisdom: A Cultural Comparison

**B-11, 2:05-2:20 Alex Higbee** The Worth of William's Words: A Study of William Wordsworth's *Surprised by Joy* and Its Relation to Thomas Wordsworth

2:20-2:30 **BREAK**

**B-12 2:30-2:50 Hailey Jones, Delicia Bent, Izais Ocasio, Robin Roberts, Ijeoma Ogbuike, Naomi Schuster and Elizabeth Miller** Mind Games: An Original Theatre Arts Production, written and produced by Senior Theatre Arts Majors

**B-13 2:55-3:10 Eleanor King** Navigating Mental Health Communication as a Collegiate Student-Athlete: a Qualitative Study

**B-14 3:15-3:30 Devin Hernandez** Two Steps Forward, One Step Back. The History of Methadone, 1947 to 1974

**B-15 3:35-3:50 Audrey Best, Laura Cheshire, Payton Benjamin, and Zane Hair** Italy Study Abroad: Mental Health Reform

## **ORAL PRESENTATIONS – SESSION C**

**257 Sage Hall**

*9:00 am-3:00 pm*

*Dr. Jeremy Posadas, Morning Session Chair*

*Dr. , Susan Peppers-Bates, Afternoon Session Chair*

*Judges: Terry Grieb, Rev. Reginald Williams*

### **COMMUNITY BASED RESEARCH**

**C-1, 9:00-9:15 Abria Doe** Efficiency Enhancement Initiative

**C-2, 9:20-9:35 Ana Beatriz Queiroz** How and Why Diabetes affects the Volusia County Community

**C-3, 9:40-9:55 Anuket Goins** Parks and Perspectives: Unraveling the Connection Between Urban Green Space (UGS) Access, Life Satisfaction, & Subjective Well-being (SWB) in Deland and Nishinomiya

**C-4, 10:00-10:15 Chukwunonso Okeke and Tella Adegbola** Strategies for Sustaining a Nonprofit Organization

**10:15-10:30 BREAK**

**C-5, 10:30-10:45 Jackie Maze** Pantry what you Preach: Hispanic Health Initiatives Natural Food Pantry Program

**C-6 10:50-11:05 Megan Clark** Resource Stewardship Action Plan: How Christians Should Act on Climate Change

**C-7, 11:10- 11:25 LillyAnna Zaleon** Bridging Educational Gaps Between Teachers and Tutors for Student Benefit

**11:25-1:00 LUNCH**

**C-8, 1:00-1:15 Natalie Brooks** The Bigger Meaning Behind the Lunchable

**C-9 1:20-1:35 Laura Cheshire** Embedding Community Engagement into a Self-Defined Major

**C-10 1:40-1:55 Rodrigo Pereira** Community Through Lenses

**C-11** 2:00-2:15 **Veronica Pinero** From Farm to Table is Never Simple: Stories from Florida CSA Farmers

2:15-2:25 **BREAK**

**C-12**, 2:25-2:40 **Simon Doku** Enhancing Design Efficiency for BHCFL

**C-13**, 2:45—3:00 **Selah Williams** Red, Brown, and Blue: how minority-led environmental organizations influence climate policy adoption in US states

## **ORAL PRESENTATIONS – SESSION D**

**Room 213 Sage Hall**

8:30 am-4:00 pm

*Dr. Harry Price, Morning Session Chair*

*Dr. Michael Schroeder, Afternoon Session Chair*

*Judges: Dr. Delphine Pinet, Dr. Elizabeth Congdon*

### **SCIENCE ACROSS THE SPECTRUM II:**

**D-1**, 10:00-10:15 **Sebastian DeLeon** Assessing the Relationship Between Macrophyte Presence and Feeding Behavior of *Pachydiplax longipennis* Nymphs

**D-2**, 10:20-10:35 **Orion Gonzales** OX-r Trail, a XR wireless Network Mapping tool that scans and maps out nearby networks within an Augmented Environment to find useful data or detect dangerous sources.

**D-3** 10:40-10:55 **Christian Berberich** Rodent species in a Midwestern prairie ecosystem serve as potential reservoirs of ehrlichiosis-causing bacteria

**D-4**, 11:00-11:15 **Taylor Huffard** Hypoxic water conditions lead to an increase of respiration rate and surface breathing in Bluegill Sunfish, *Lepomis macrochirus*

**D-5**, 11:20-11:35 **Bella S. Tieche a, Kaira R. Thevenin, Cody E. DiBenedetto, Mia A. Dowling, Emma L. Hudgins, Koiya M. Rymer, Kemari R. Cosby, Frederico C. Van Ness, Janetlin Mendoza, and Emily Basdeo** Investigating the Mechanism and Role of Merkel Cell Polyomavirus Small Tumor Antigen Nuclear Localization in the formation of Merkel cell carcinoma

### **11:40-1:00 LUNCH**

**D-6** 1:00-1:15 **Rebeka Kosmulski** Invasive Parasite, *Raillietiella orientalis*, Infections in Curly Tail Lizards, *Leiocephalus carinatus*

**D-7 1:20-1:35 Kaira Thevenin, Isabella S. Tieche, and Cody E. Di Benedetto** The TLKDY Domain of Merkel Cell Polyomavirus May Contain the Nuclear Localization Signal Necessary for the Development of Merkel Cell Carcinoma

**D-8 1:40-1:55 Velyncia Smith** The Effect of Common Medications on Cell Migration during Embryonic Development in *Ambystoma mexicanum*

**D-9, 2:00-2:15 Erin Newman** The Effect of Beta-Adrenergic Receptors on Cardiac Myocyte Contractility Using *C. intestinalis*

**D-10, 2:00-2:15 Alyssa Fernandez** *Myrcianthes fragrans* Displays Dose-Dependent Cytotoxic Effect on Acute Lymphoblastic Leukemia Jurkat Cell Proliferation, Metabolism, & Apoptosis

**D-11 2:20-2:35 Chinaemelum R. Okoye** The Impact of Temperature on Butterfly Embryogenesis

## **ORAL PRESENTATIONS – SESSION E**

**317 Flagler Hall**

*9:00 am-3:00 pm*

*Dr. Lori Snook, Morning Session Chair*

*Dr. Margaret Venzke, Afternoon Session Chair*

*Judges: Alicia Scott; Rina Tovar Arroyo*

## **BIAS: INCLUSION, EXCLUSION, ACTORS AND OTHER SHADY CHARACTERS**

**E-1a 8:40-8:55 Alejandra Correa** Connected Like Never Before: How Do Individuals Use Social Media to Develop Parasocial Relationships With Celebrities

**E-1 9:00-9:15 Courtney Cormier** Disrupting Utopia: Reinterpretation of the Cuban Revolution's Ideals Through Dystopian Narratives

**E-2 9:20-9:35 Grant Wolf** The Unflinching Gaze: The Don Smith Archive

**E-3 9:40-9:55 Della Vaughan** The Show Must Go On: How Acting Companies Influenced Theatre and Life in Elizabethan London, 1577-1603

**E-4 10:00-10:20 Leonidas Gonzalez** The Writers Room: A Character Study

**10:25-10:40 BREAK**

**E-5, 10:40-10:55 August DuPuis** Stolen Language, Stolen Spirit: An exploration of Indigenous Two-Spirit language loss and its impacts on gender expression

**E-6 10:45-11:00 Haley Stinebrickner** Examining Bias in NCAA Women's Basketball

## **CORRUPTION, CRIME AND CONFLICT**

**E-7, 11:05-11:20 Victoria Vicente Martinez** Corruption in Latin Countries

**E-8, 11:25-11:40 Christa Assi** Understanding State Fragility through Media: Why Hezbollah Thrives in Lebanon and Not Jordan

**E-9 11:45-12:00 Grant Ellington** What is the Price of Your Vote?: An Experimental Analysis of Vote-Buying in Florida

## **12:00-1:00 Lunch**

## **WAR: REALITY AND ROMANCE**

**E-10 1:00-1:15 Jonah Campbell** Pirates or Patriots? The Social Acceptance of Privateers During the American Revolution, 1775-1789

**E-11 1:20-1:35 Lilinoe Sheridan** Scottish "Perspective" in Novel Series *Outlander*: Falling in Love with Jaime of the Outlander Highlands

**E-12 1:40-1:55 Mary Brandt** American Airpower. Historical Narratives, Museum Aircraft, and World War II in Asia

**E-13 2:00-2:15 Yuliia Balan** Echoing the Past: How Conflict Shapes Denuclearization Discourse in Post-Soviet Nations

**E-14 2:20-2:35 Wyatt Sise** Ghosts of Guernica. The German Luftwaffe and the Development of Modern "Terror Bombing", 1937-1942

## **SESSION F**

### **THE SCHOLARSHIP OF BUSINESS**

**Lynn Business Center 108**

*Dr. Augustus Scarlato, Morning session chair*

*Dr. Matthew Imes, Afternoon Session Chair*

*Morning Judges: Dr. Carolyn Nicholson, Dr. Matthew Imes*

*Afternoon Judges: Kevin Taylor, Elizabeth Galloway*

## COLLEGE OF ARTS AND SCIENCES

**F-1 8:30-8:45 Audrey Berlie** Taking Sustainability to Infinity and Beyond: The Ethical Gap Plaguing Space Policy

**F-2 8:50-9:05 Carlye Mahler** Mrs. Crocker, Mrs. Consumer, and Mrs. Chef: Women's Agency and Perceptions of Convenience Food 1950-1970

**F-3 9:10-9:25 Christian Guerrero** Exploring the Impact of Expanding Tourism Industries on Economic Inequality in the Caribbean/Latin American Region

**F-4 9:30-9:45 Conrad Voigt** The interaction of signaling and matching markets: an analysis of the market for higher education

9:50-10:00 **BREAK**

**F-5 10:00-10:15 Conrad Voigt** The effect of employment protection on unemployment: a panel data analysis on OECD countries

**F-6 10:20-10:35 Nolan Lappin** Econometric Analysis of Federal Government Spending

**F-7, 10:40-10:55 Jacob Robinson** Reinvesting in Clean Energy: Analyzing Florida Policy and Power Plant Efficiency to Identify Areas of Improvement

**F-8, 11:00-11:15 Ryan Mason** Factors affecting improved agricultural output under Khrushchev versus Stalin in the Soviet Union

**F-9 11:20-11:35 Hannah Quenga** From Dump to Destination: A Review and Redirection of a Local Brownfield Redevelopment Plan

### 11:40-1:00 Lunch

**F-10 1:00-1:15 Rosemary McHugh** The Emotional Labor and Identity Sensemaking in Recruitment: It's Not For Everyone

**F-11, 1:20-1:35 Miranda Bihler** Data-Based Modeling Predicting 6-Year Graduation Rates

## SCHOOL OF BUSINESS

**F-12, 1:40-1:55 Graham Jump** Unraveling the Development of Business Incubators: A Qualitative Cross-Country Analysis in the Philippines, Thailand, and Australia

**F-13 2:00-2:15 Paige Goodman** Manna Garden



2:20-2:30 **BREAK**

**F-14** 2:30-2:45 **Rosa Vega** Inclusive Startups

**F-15** 2:50-3:05 **Atalia Hopkinson** Virtual Reality Exposure Therapy for Agoraphobia

**F-16** 3:10-3:25 **Robert Choate, Dakota Phillips and Valen Brown** National Collegiate Sales Competition Presentation

**F-17** 3:30-3:45 **Jackson Hockenberry, Andrew Permenter, Steven Vetter** USF Investment Tournament Presentation: BLBD

## 5: 45 EVENING RECEPTION AND AWARDS

### Welcome Center

#### 6:15: 2023 Grady Ballenger Lecturer

#### Dr. Judith Bense

President-Emeritus and Professor of Anthropology, University of West Florida

## Human Curiosity: An Unstoppable Force

Curiosity is the result of human intelligence that has and continues to drive research of all kinds. Our curiosity and problem-solving ability have resulted in remarkable advances in all



areas of human endeavor such as technology, science, engineering, art, and music. This illustrated lecture will highlight the development of human intelligence and some remarkable problem-solving episodes that propelled human culture to what it is today and the challenges facing us in the near future.

**Dr. Judith Bense** is President Emeritus and Professor of Anthropology/Archaeology at UWF. She joined UWF in 1980 and built an Anthropology/Archaeology program at UWF from scratch. This program today is one of the leading programs in Florida and the country known for its active research in Florida archaeology and outreach to the public.

Bense has held almost every leadership position in UWF archaeology over the decades and led the program in the direction of historical archaeology and shipwreck research. In 2004, she worked to pass legislation and obtain funding for the Florida Public Archeology Network (FPAN), which is housed at UWF and operates eight regional public archeology centers throughout Florida. In 2008, she was appointed interim President of UWF, selected president in 2010 and served as its president through 2016. During her presidency, enrollment grew by 30%, six new buildings were constructed, visibility dramatically increased, athletic teams won four national championships, and the football program was started. As University of West Florida's first female president, she continues to inspire women to achieve both professionally and academically.

Bense was inducted in the 2019 Florida Women's Hall of Fame and is the first woman from Northwest Florida to receive this honor. She has received several prestigious awards from professional organizations, the state of Florida, and Spain. These include the Evelyn Fortune Bartlett Award, a lifetime achievement award from the Florida Trust for Historic Preservation, the JC Harrington Medal, a lifetime achievement award from the Society for Historical

Archaeology, the Senator Bob Williams Award for Outstanding achievements in Public Archaeology from the Florida Department of State, and inducted into the Order of Isabella de Catholica by the King of Spain for advancing Spain's contribution to the Americas. She has held leadership positions in state, regional and national professional archaeological organizations, capped off by the presidency of the Society for Historical Archaeology in 2005.

Her most recent book, "On the Edge of the Spanish Empire: The West Florida Presidio Era 1698-1763" (2021) synthesizes almost 40 years of research on the Spanish Presidios of West Florida 1698-1763.

Bense currently is Vice Chair of the Florida Historical Commission, Chair of the Board of Directors for the Florida Public Archaeology Network, is a founding board member of the Center for Excellence in Local Government and is active in local civic and service organizations. She and her brother Allan, manage the family hay farm in Bay County.

## Awards Ceremony

### Maris Awards for Excellence in Showcase

### Dr. Leonard Nance Award for Excellence in Justice Research

### 2024 SURE Scholars

# Abstracts

## POSTERS

Kelly Ashley (Dr. Haleigh Ray)

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### **Odonata Abundance and Diversity Loss in Polluted Deland, Florida Environments**

Understanding the exact impacts of pollution in our local ecosystems is essential to protecting the Earth. Odonates can be used as bioindicators to inform us of the level of pollution and its impact on the environment they inhabit. In downtown DeLand, Florida multiple retention ponds exist between busy roads and highly trafficked areas that are very susceptible to pollution, as any chemicals left by traveling vehicles will be washed down into the ponds with rainfall. Artificial landscaping and the usage of fertilizer furthers the risk of pollution within the ponds. DeLand ponds had significantly larger concentrations of nitrogen and phosphorus pollution compared to Ocala National Forest, Florida (ONF). Additionally, the invasive population of Muscovy Ducks (*Cairina moschata*) that inhabit local Deland ponds contribute to pollution as they excrete *Escherichia coli* into the water and surrounding vegetation. On the other hand, many ponds in ONF are largely untouched by humans and therefore are much less polluted. The invasive Muscovy Duck population does not reach ONF, however *E. Coli* is equally as concentrated in ONF as DeLand. We found that Odonate nymph genera were less diverse and less abundant in DeLand than ONF. We found a larger concentration of damselflies in DeLand, in fact, the sample population of damselfly *Ishnura* in DeLand had longer body lengths than the *Ishnura* in Ocala National Forest. This indicates that some Odonate genera are more urban-adaptable than others.

Ashley Baccus (Dr. Scott Semenyina)  
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### **Does Social Media Use Affect College Students' Mental Well-being?**

Social media use such as Twitter (X), Instagram, Facebook, Snapchat, and TikTok are major factors in people's lives. People utilize these types of social media networks to stay connected to their peers and families worldwide. The present study sought to determine if there was a relationship between social media use and mental health concerns such as anxiety and depression. It was predicted that more social media use would correlate with higher levels of generalized anxiety and depression. A sample (n = 105) of undergraduate students (Mean age = 20.6 years, SD = 4.27) was recruited from Stetson University using the online platform SONA. It was found that time spent on social media had a positive relationship with generalized anxiety and depression levels. It was also found that females tend to use social media more often than males (which coincides with previous studies), and that females tend to score higher on the anxiety and depression measure.

Alicia Baith (Dr. Cynthia Bennington)  
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### **Effects of fragment size and urbanization on the frequency of pollinator visits to parks in DeLand, Florida**

In the face of habitat loss for pollinators due to urbanization, it is crucial to grasp the intricate relationships between flowering plants and pollinators in urban environments. Studies show a decline in pollinator abundance with increasing human land use, emphasizing the urgent need to preserve native ecosystems. The implementation of green spaces in urban design presents opportunities to enhance pollinator abundance and improve air quality. I investigated the impact of urbanization on pollinator abundance and diversity in DeLand, Florida. Through field surveys, pollinator visitation in sites impacted by varying levels of urbanization was studied. I found no correlation between insect abundance and the size of green spaces, highlighting the complexity of urban ecological dynamics. Although no strong relationship was found between air quality data and size of green space, there was a tendency for Hymenopteran abundances to decline with declining air quality. These results contribute to our understanding of the intricate interactions between urbanization, environmental factors, and pollinator communities, emphasizing the need for proactive conservation efforts to protect pollinator diversity in urban landscapes.

Halle Block (Dr. Holley Lynch)  
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### **Bioplastic Decomposition and Compost Fertility**

As a leading cause of pollution, petroleum-based plastics are facing competition from new eco-friendly alternatives. Novel materials known as 'bioplastics' have emerged, claiming to be the solution to the plastic pollution crisis. With any new product, there is room to better understand its limitations - especially when the breakthrough innovation claims to solve an environmental threat. Throughout my research, I simulated the decomposition of different biobased products, before using the compost as soil in different variations. With this method, I was able to prove that not only did biobased products not hinder the growing process of soybean sprouts, but in some instances, actually benefited the sprout success rate compared to trials with no biobased products present.

Madeleine Emilia Boyd (Dr. Melissa Gibbs)  
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### **Developmental Effects of MSG on Axolotl Embryos**

Known for its keen ability to make any food intensely savory, monosodium glutamate (MSG) is the prize of the processed food industry. Despite its widespread use, a growing sentiment of unease is gathering around MSG as the developmental consequences have not been extensively studied. In this study, axolotl embryos were exposed to MSG at varying concentrations to determine if MSG had a negative effect on growth. Several body measurements were taken following exposure and analyzed to determine any significant difference in body size. Contrary to my hypothesis, axolotl heads were found to be significantly larger than the control, and at the highest concentration of MSG, there was no change in head size. The data showed that low salinities are ideal for axolotls, and further research would be beneficial to discover the impact of low salinities on other amphibians.

Kaitlyn Boyle (Dr. Cynthia Bennington)  
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### ***Carphephorus corymbosus* shoot investment increases when inoculated with Arbuscular Mycorrhizal Fungi along a soil nutrient gradient**

Sandhill ecosystems are found on well-drained, low nutrient soils, where native plants are adapted to these conditions. Through a mutualistic association with arbuscular mycorrhizal (AM) fungi, plants can better acquire the necessary nutrients and resources from the soil. Our study observed the effect of AM fungi on the sandhill plant, *Carphephorus corymbosus* along a nutrient gradient. We measured leaf number and size, as well as final biomass of both root and shoot structures for plants grown in sterile and live soil along a nutrient gradient. I found that, across all nutrient treatments, there was no difference in leaf length or number between plants grown in sterile soil compared to live soil. I did find an increase in final shoot biomass of plants in live soil treatments when compared to sterile soil, suggesting that AMF inoculated plants invest more in shoot structures than root structures. My findings suggest that the soil microbiome affects plant growth of *C. corymbosus*, highlighting the need for a better understanding of belowground processes in restoration of sandhill communities.

Jordan Calderara (Dr. Terence Farrell)  
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### **Documenting the Spread of an Invasive Pentastome (*Raillietiella orientalis*) Throughout Southwest, Central, and Northern Florida.**

The introduction of invasive species to Florida, such as the Burmese python, *Python bivittatus*, have initiated the geographical spread of the invasive pentastome, *Raillietiella orientalis*. Although not very much research has been done investigating this specific species of pentastome, *R. orientalis* is known to infect a variety of intermediate hosts ranging from lizards, anoles, and cockroaches. These infected intermediate hosts are then consumed by a reptilian definitive host, such as a snake. *Raillietiella orientalis* causes reduced fitness in snakes and can even result in its death, potentially contributing to a decline in Florida's native snake species. To monitor the spread of *R. orientalis*, we dissected 14 road-killed snakes from the Central Florida region and received *R. orientalis* data from collaborators in North and Southwestern Florida. We found that there was a significant association between pentastome infection status between each region, therefore snakes may be more likely to contract pentastomiasis in some location in Florida. Southwest Florida showed higher prevalence and average infection intensity than in specimens collected in Central and Northern Florida. Lastly, we found a significant positive correlation between pentastome prevalence and infection intensity across Southwest, Central, and Northern Florida combined. This indicated that areas with a higher infection intensity also showed a larger proportion of the population to be infected with pentastomes. This

correlation makes the uninfected population more susceptible to contracting pentastomiasis. This data suggests that pentastomiasis caused by *R. orientalis* is becoming a high prevalence endemic disease, at least in Southern Florida, rather than a brief intense epidemic. Therefore, Florida's native snake populations are at continued risk, which puts Florida's biodiverse ecosystems in jeopardy. Further monitoring of the spread of *R. orientalis* is crucial for retaining Florida's environment that relies heavily on these native snake populations.

Sarah Cancilla (Dr. Olusola Adetoro)

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### **Mangrove Resilience to Climate Change Based on Fungal Presence in Vascular Systems**

This research focuses on *Rhizophora mangle* and investigates their relationship with arbuscular mutualistic fungi (found in their vascular structures). Additionally, historical population data (via orthoimagery) is explored to understand community resilience to anthropogenic climate change. Three different localities (Port Orange Causeway Park, Caroline Park, and Ocean Bay Riverside Park) were visited to collect three leaves from three different trees. Tests of soil, light, temperature, moisture, humidity, pH, Nitrogen, Phosphorus, and Potassium levels were also measured (Reef et al 2010). Leaf samples were cut into cross sections and examined under a binocular microscope to identify any arbuscular mutualistic fungi found in plant structures. The data was transferred into Microsoft Excel for use in SPSS and ArcGIS software. The results showed a correlation between increased frequency of fungi in mangrove trees and overall historical mangrove community resilience. These findings are the first of their kind to be studied at these locations and adds to the ongoing research regarding the link between mangrove population health, arbuscular mutualistic fungi, and climate change (Wu K. 2023).

Alaila Champion (Dr. Cynthia Bennington)

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### **The effect of Arbuscular mycorrhizal fungi on growth of *Argnoglssom floridanum* at varying soil nutrient concentrations**

Sandhill communities in the southeastern US have been fragmented and reduced in area. With a diverse understory that includes many endemic species, effective restoration includes consideration of the physical and biological properties of soil. This study aims to understand the unique relationship between arbuscular mycorrhizal fungi (AM) and *Argnoglssom floridanum* at varying soil nutrient concentrations. Our goal was to understand how AM could benefit *A. floridanum* growth and additionally how this benefit may vary along a nutrient gradient. We grew *A. floridanum* seedlings in a greenhouse in potting soil inoculated with either "live" or sterile native sandhill soil. In addition, each pot received one of five concentrations of nutrient solution. We found that seedlings had more leaves when grown in "live" (i.e., containing AM fungi) soil compared to those grown in sterile soil. However, this advantage did not depend upon nutrient level. These findings suggest there is a positive relationship between the presence of AM fungi and *A. floridanum* and is the first study to demonstrate the importance of soil biota on the growth of a sandhill understory species.

Kylah Collins (Dr. Danielle Lindner)

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### **Parental Divorce and Young Adult Romantic Relationships**

The purpose of this study is to understand if the marital status of a participants' parents can predict attachment type, based on Bowlby & Ainsworth's (1988) theory of attachment as well as general attitudes towards marriage. Additionally, the study incorporates perceptions of interparental conflict and parental divorce to determine if they impact attitudes towards marriage within young adult relationships. Perception of interparental conflict will be used as a predictor for general attitudes

towards marriage. Both predictors will be examined (parental divorce and perception of interparental conflict) in conjunction as well as separately to investigate the possibility of a relationship between attachment type and general attitude towards marriage in young adult relationships. This study was approved by the Stetson University Institutional Review Board (IRB) and includes data from 66 young adults who attend Stetson University. Participants after completing the informed consent completed a demographics survey, the Children's Perception of Interparental Conflict Scale (CPIC; Grych et al., 1992), the Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994), and the General Attitudes Towards Marriage Scale (GAMS; Park & Rosen, 2013). The multivariate correlational study uses a cross sectional design to determine relationships between variables. There was no association found between parental divorce and attachment type. There was also no differences found in participants parents' marital status and their general attitudes towards marriage. There was no association found between levels of IPC and general attitudes towards marriage. There was also no relationship found between parental divorce, IPC, and general attitudes towards marriage. The results of this study and extended research in family psychology will hopefully allow young adults to understand how they function in romantic relationships and how they adopt their attitudes towards marriage based on their upbringing.

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### **Drowning in Doubt: The Connection Between Health Anxiety, Source Credibility, and Misinformation**

In an age dominated by digital information, the internet offers both accurate knowledge and a breeding ground for misinformation. This study explored the relationship between susceptibility to health misinformation and health anxiety and whether that relationship varies when misinformation is presented on social media or government sources. Ninety-eight people volunteered to participate in this study. Participants were randomly assigned to read three different panels of information either from the CDC or from a Facebook friend. The panels of information were about Monkeypox and were manipulated to be accurate, exaggerated, or downplayed. Participants were asked to rate how much they trust each panel and rank them from most to least believable. Finally, participants completed the Short Health Anxiety Inventory to measure their health anxiety levels. It was expected that individuals with higher levels of health anxiety would rate exaggerated misinformation as more believable than downplayed misinformation. Data were analyzed using a multiple linear regression with moderation. Results indicated that participants trusted the downplayed condition more than the exaggerated condition when it was presented on Facebook, but they trusted the exaggerated condition more than the downplayed condition when it was presented by the CDC. However, overall, a repeated measures ANOVA indicated that trust was highest in the accurate condition both in the Facebook and CDC conditions. Health anxiety was unrelated to trust and did not interact with condition. Overall, results indicate that the type of information we believe varies by the type of source. The research holds implications for public health policies and informs strategies to mitigate the impact of misinformation.

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### **Psychopathic Traits, Adverse Childhood Experience, and Criminal Behavior**

The interplay between adverse childhood experiences (ACE), psychopathic traits (PT), and criminal behavior remains a pivotal area of investigation within the realm of psychology and criminology. This study aims to explore the potential correlation among these variables within a college population, a demographic less studied in this context compared to populations with a criminal record. I predicted that adverse childhood experiences would be positively correlated with both psychopathy and criminal behavior. In addition, the relationship between ACEs and criminal behavior was predicted to be strong among people with high levels of psychopathy, but a smaller relationship would exist among people

with low levels of these traits. A cross-sectional correlational study design will be employed, utilizing a sample of 101 participants from Stetson University's Psychology Department. Participants will be assessed through online platforms (SONA or Qualtrics), with instruments measuring ACE (Childhood Trauma Questionnaire-Short Form, CTQ-S), psychopathic traits (Youth Psychopathic Inventory-Short, YPI-S), and criminal behaviors (Self-Report Crime checklist). This study seeks to contribute to understanding how these variables interact and influence each other in a non-criminal population, potentially illuminating pathways for prevention and intervention strategies. The expected outcomes could challenge or expand upon existing theoretical frameworks regarding the development of criminal behavior, highlighting the importance of early interventions in mitigating the impact of ACE and psychopathic traits on later criminality.

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### **Comparing the effects of caffeine and energy drinks on embryonic development in *Ambystoma mexicanum***

Caffeine is used in many products, ranging from over-the-counter medications to ubiquitous energy drinks. The popularity of caffeine beverages has increased the general concern regarding its impacts on human health, especially developing embryos. In this study, I observed how pure caffeine and Red Bull energy drink influence development in axolotl embryos by comparing measurements of head width and body length in exposed hatchlings. To ensure the only difference between Red Bull and caffeine were the additional ingredients, I created solutions with identical caffeine content: 11 mg/L, 22 mg/L, and 44 mg/L. My experimental results indicate pure caffeine had an independent impact solely on head width, but Red Bull had no independent effect on either head width or body length. While comparing sizes between Red Bull versus pure caffeine, the difference was significant indicating that Red Bull had a smaller overall size. This suggests that small dosages of Red Bull causes more stunted growth in comparison to caffeine. While further research is needed to determine the impacts of additional ingredients in energy drinks on development, my study highlights the risks of consuming energy drinks during pregnancy.

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### **Synthetic and Computational Analysis of Possible Carbon-Oxygen and Carbon-Carbon Bond Formation in 2-(Methoxy-4-(2-phthalimidinyl)phenylsulfonyl Chloride**

Photoreactivity of 2-(methoxy-4-(2-phthalimidinyl)phenylsulfonyl chloride(MPS-Cl) was utilized as a fluorescent probe to expose different contaminants for substituted compounds of the chlorine group. Previous work by Tracy-Lynn Cleary in which MPS-Cl was found to be prone to minimal fluorescence at a certain wavelength of UV-light, however by itself MPS-Cl was and is not fluorescent. The fluorescence of MPS-Cl at a specific wavelength has provided a new scope of investigation towards identifying a potential in the variety of aromatic substitution through photodecomposition. This decomposition has been studied to find an alternative and develop a new methodology for aromatic substitutions. Through the substitution of the chlorine analog, synthetic and computation analysis yielded to explore the photodecomposition in hopes of forming new carbon-oxygen and carbon-carbon bonds through photodecomposition. Despite the lack of success in synthetically creating new carbon-oxygen and carbon-carbon bonds through photodecomposition, additional Gaussian computations offered a quantum perspective. These calculations elucidated the reasons behind the unsuccessful attempts to form these bonds and prompted further investigation. The focus shifted towards exploring the use of alternative halogen analogs and derivatives of MPS-Cl as potential starting materials.



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**The Amino Acid Sequences YQCFI and LWFGF of the Merkel Cell Polyomavirus Small Tumor Antigen May Contain the Non-Canonical Nuclear Localization Signal Necessary for the Development of Merkel Cell Carcinoma**

Merkel Cell Carcinoma (MCC) is a rare and deadly skin cancer that was first defined in 1972; however, in 2008, it was found that 80% of MCC cases are caused by the integration of a novel virus, Merkel Cell Polyomavirus (MCPyV), into the host genome. Several transformation assays found the Small Tumor Antigen (ST) of MCPyV to be responsible for cellular transformation, and that transformation was dependent on the nuclear localization of MCPyV ST. Interestingly, MCPyV ST does not contain a known nuclear localization sequence (NLS) necessary for nuclear localization and consequent transformation. To identify the non-canonical NLS of MCPyV ST, 7 of 21 MCPyV ST alanine scan mutants were created, and their localization was determined via Subcellular Fractionation (SCF). Alanine substitutions of amino acids 150-154 (YQCFI) and 155-159 (LWFGF) led to ST cytoplasmic sequestration and therefore may contain the non-canonical NLS of MCPyV ST. Successful identification of the non-canonical NLS of MCPyV ST will broaden our view of cellular nuclear transport, as well as significantly contribute to the medical treatment of MCPyV-caused MCC cases through the innovation of MCPyV ST therapies targeted at MCPyV nuclear import.

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**Analyzing the Relationship Between Distance of Occupational Migration and Mental Health in Military Members**

The U.S. military relocates service members every two to four years, showing the pattern of occupational migration. Occupational migration may lead to homesickness, which is strongly associated with greater emotional instability. To expand on previous literature, this study surveyed U.S. military members (n = 139) on their distance from home and their overall mental health. It was predicted that as distance from home increased, so would participants' score on the Patient Health Questionnaire (PHQ-9). In addition, participants were also surveyed on biodemographic categories to determine if there is a subpopulation (age, specific rank, component (full-time vs part-time) and relationship status) who is at the greatest risk of worsened mental health when placed further from home. Results showed a significant positive correlation between distance from home and total PHQ-9, and suggested senior-enlisted soldiers as having the highest PHQ-9 score/greatest risk for Depression.

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**Birth Weight and College Student Anxiety: Impact of Socioeconomic, Race and Sex Factors**

Previous research has shown a relationship between birth weight and mental health, with low birth weight being associated with various mental health outcomes. This research aims to determine whether birth weight is associated with anxiety levels, while considering the influence of other variables such as socioeconomic position, race, and biological sex. Considering these variables also allows us to examine whether individuals lower in socioeconomic position are more prone to anxiety, whether racial background is related to anxiety and whether there are sex differences in anxiety levels. It was predicted that individuals that reported a low birth weight, were non- white, and lower in socioeconomic position, would have the highest level of anxiety. A sample of undergraduate students at Stetson University (n = 87) were recruited. Pearson correlation analysis was conducted to determine the relationship between birth weight, socioeconomic position, race, and sex. The analysis indicated that there was no relationship between birth weight and anxiety. There was no relationship between anxiety,

socioeconomic position, and race. This research allows for a better understanding of the relationship between birth weight and anxiety.

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### **Taste Reactivity and Consumption of Sodium Carbonate in Rats and the Effect on Fos-IR Neurons in the Parabrachial Nucleus**

Sodium is an essential mineral that aids in important bodily functions such as conducting nerve impulses. All living organisms require some amount of sodium intake to survive and in humans, the average daily sodium intake is grossly exceeded which can lead to severe health issues. In this study, we aimed to investigate a table salt alternative, called sodium carbonate ( $\text{Na}_2\text{CO}_3$ ), which we believed could provide a saltier taste without an increase in sodium intake. To do so, we administered solutions of either NaCl (table salt) or  $\text{Na}_2\text{CO}_3$  to 12 adult Wistar rats, who were either in a sodium-replete or sodium-deplete state and observed the behavioral and neurological effects of the solutions. Taste reactivity behaviors were recorded as the rats were administered the solutions to measure for palatability. The neurological effects of the solutions were quantified by counting Fos-IR neurons located within the “waist” region of the parabrachial nucleus (PBN), activated by intra-oral infusion of solutions. The main subareas of the PBN include the main waist area, the EL and the EM. Our results showed only a few differences between NaCl and  $\text{Na}_2\text{CO}_3$  test groups, but many identifiable trends were observed within the data. Specifically, we observed a statistically significant difference between salt solutions in the replete test group of the right EM. Additionally, some trends that were observed included fewer Fos-IR neuron counts for the NaCl test groups on average, as well as a trend in the behavioral data indicating that the NaCl solutions had higher palatability than the  $\text{Na}_2\text{CO}_3$  on average. There are a few factors that may have influenced the outcome of experimentation, including small sample size and human error. However, as this study has built upon knowledge found in previous studies, whether significant or not, we hope that the information found in the current study will act as a foundation for future research on sodium carbonate as a possible alternate sodium source

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### **Testing the diagnostic effectiveness of three fecal floatation methods for the invasive pentastome, *Raillietiella orientalis***

*Raillietiella orientalis* is an emerging, invasive pentastome that is becoming a conservation threat to native snake species in Florida. Due to the lack of research of the pentastome, there is no standard method for determining infection status and severity. Our research aimed to find the best fecal floatation solution for *R. orientalis* by comparing three common veterinary solutions, zinc sulfate, sodium nitrate, and Sheather’s sugar solution, between each other and a control wet mount. All three solutions had high rates of successful parasite detection. We found that sodium nitrate, had a higher percent egg yield than the others, performing three times better than Sheather’s and two and a half times better than zinc sulfate. These results advance our understanding of *R. orientalis* diagnostics and makes it easier for veterinary professionals and ecologists to assess infection and continue to track the pentastome as it spreads. We also hope this study will further aid in inspiring legislation to ensure that all imported and exported hosts of *R. orientalis* from highly effected areas are tested using a standard diagnostic method, such as sodium nitrate fecal floatation, to reduce the spread of *R. orientalis*.

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### **Molecular Analysis of Arbuscular Mycorrhizal Fungi (AMF) in Native Sandhill Species**

Upland sandhill habitat in the coastal plain of the southeastern US has been fragmented and disrupted by human alterations. Those disruptions can impact the soil microbiome, yet sandhills have been neglected as subjects of studies incorporating soil microbiota. One crucial component of the soil microbiome is arbuscular mycorrhizal fungi (AMF), which increase nutrient and water uptake in plants in exchange for a carbon source. In this study, rhizospheres from a local sandhill ecosystem were collected in May and September of 2023. Root samples were analyzed in each of five plant species: *Aristida stricta*, *Arnoglossum floridanum*, *Balduina angustifolia*, *Carphephorus corymbosus*, and *Pityopsis graminifolia* for the presence of AMF colonization. Of 30 root segments sampled, 93% were confirmed to have AMF specific DNA present. The existing AMF species were identified using the BLASTn database and were found to contain different associations during different seasons. Although the samples from May were predominantly composed of *Rhizophagus*, the September samples highlighted a plant preference of associating with other AMF genera. Our results implied there is a diverse presence of AMF in semi-conserved sandhill rhizospheres, yet the question of whether AMF is important to plant establishment or community composition in sandhill ecosystems remained inconclusive. The reestablishment of local microbiota may be a potential solution to improve current restoration efforts in the sandhill ecosystem.

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### **The Effect of Storage on the Accuracy of Fecal Flotation Technique for Detecting *Raillietiella orientalis* Infection and Severity in Native Florida Snake Species**

The invasion of non-native parasites can threaten populations of naive native species that become infected through spillover. Emerging parasites are often difficult to study because of a lack of well-established diagnostic techniques. Fecal flotation is a common method for detecting parasites in reptiles, but little is known about the effect storage can have on accuracy of the diagnostic test. Also, it is unknown if storage of the fecal sample affects the accuracy of the fecal flotation in detecting the infection and severity of invasive pentastome parasite *Raillietiella orientalis*. We tested fresh and aged (dried at room temperature for two weeks) fecal samples produced by three species of pentastome-infected snakes (*Coluber constrictor*, *Nerodia fasciata*, *Thamnophis sauritus*) using passive fecal flotation in sodium nitrate solution. Fecal flotation was 97% accurate in infection detection across fresh and aged samples. There was, however, significantly lower mean egg density in the aged samples. There was great variability of fresh egg counts between sequential fresh samples produced by each study snake suggesting that, while our results demonstrate that fecal flotation can be used to determine *Raillietiella orientalis* infection status in both fresh and aged fecal samples, it should not be used to determine infection severity.

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### **Infection experiments with the invasive pentastome (*Raillietiella orientalis*) in invasive cane toads (*Rhinella mariana*)**

Florida is a hotspot for invasive species, including parasites which are major conservation concern. A poisonous and large invasive anuran, the cane toad (*Rhinella mariana*), has successfully established populations in South Florida. The pentastome parasite (*Raillietiella orientalis*) caused a decline in native snake populations in Florida. *Raillietiella orientalis* uses multiple intermediate hosts before reaching the terminal host, typically a snake. Little is known about which species serve as an

intermediate host. We determined if cane toads contract *R. orientalis* after consuming infected roaches and anoles. The cane toads contracted *R. orientalis* at a significantly lower rate than three other species involved in lab experiments. Post-infection dissections indicated that cane toads had lower infection intensity than three other species involved in lab experiments (*Leiocephalus carinatus*, *Lithobates pipiens* and *Anolis sageri*.) The cane toads do not serve as terminal hosts to *R. orientalis* and through their poor performance as intermediate hosts indicate that they do not facilitate the spread or increase the abundance of *R. orientalis* in Florida.

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### **Parents' Education, Anxiety, and Depression in College Students**

Levels of depression and anxiety have increased dramatically over the past 20 years, especially in college students (Beiter et al., 2015). Parents play an important role in preparing students for college. For example, parents with a higher education are more involved, supportive of a child's education, and set standards and expectations that are within reach for the child (Acharya & Joshi, 2009; Davis-Kean, 2005; Nelson, 2009). Therefore, the purpose of this study was to investigate whether parental education moderates the relationship between academic self-efficacy and anxiety and depression in college students. Data were collected from 73 student who completed the College Academic Self-Efficacy Scale, the State-Trait Anxiety Inventory, and the Beck Depression Inventory-II. Data were analyzed using multiple linear regression with moderation. Although there were significant negative relationships between academic self-efficacy and anxiety and depression, parents' level of education did not moderate this relationship. This research provides new and interesting insights into the role of parents in the development of their children and we hope that this research assists in understanding the influences of anxiety and depression in college student.

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### **The Invasive Aquatic Snail, *Melanooides Tuberculata* was Observed to have a Greater Biomass Relative to the Native Snail Population in Blue Spring State Park, Volusia County, Florida**

Invasive species have the potential to affect novel ecosystems once introduced through multiple means such as competing with native species, predation, nutrient recycling, and hybridization. In our study, we hypothesized that the Asian aquatic snail, *Melanooides tuberculata*, would have a higher biomass than the native species in Florida's Volusia Blue Spring. We collected native and exotic snails from the spring run and created length-mass regressions to represent both populations. We used these regression models to calculate biomasses for samples of the native and exotic species collected from upstream and downstream sites of the spring. *M. tuberculata* had a significantly larger biomass relative to the native snails in the spring. These findings suggest that *M. tuberculata* is a dominant species in the spring, which has potential to disturb the freshwater ecosystem. The prevalence of *M. tuberculata* could be problematic as invasive species can be disruptive and cause declines in plant and animal biodiversity. This could take place as the introduction of an exotic species may disturb fragile predator-prey relationships, causing native species imbalances that amplify and damage overall environmental balance.

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### **Investigating Parasitic Dynamics: Coinfections of *Rhabdias pseudosphaerocephala* and *Raillietiella orientalis* infections in Invasive Cane Toads**

Since the 2000s, the pet trade in the United States, particularly in Florida, has increased the introduction of invasive species. These new interactions pose a significant threat to Florida's fragile ecosystems, as invasive species can result in a parasitic spillover and disrupt established host-parasite interactions. Cane toads (*Rhinella marina*) is a primary example of invasive species that may contribute to a spillover event, given their ability to harbor multiple parasites including the nematode *Rhabdias pseudosphaerocephala* and the pentastome *Raillietiella orientalis*. We collected 36 cane toads from Jupiter Florida, exposed them to pentastome larvae and later dissected them to access parasite burdens. There was no statistically significant association between *R. pseudosphaerocephala* and *R. orientalis* infection status in the cane toads. The correlations between toad size or toad sex and *R. pseudosphaerocephala* abundance were also tested, but no significant correlation were found. This experiment helps create a clearer understanding of the complexity of parasitic interactions and illustrates the need for further research to understand their ecological implications.

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### **Parasitic Coinfection in *Leiocephalus carinatus*: Nematode Presence Does Not Significantly Impact Pentasomic Infection\***

Parasites have experienced massive habitat expansion because of climate change. This, in combination with the habitat expansion of invasive species, has widespread cascading effects across multiple ecosystems and their components, with potential major consequences related to wildlife health. Parasitic infection often lowers host fitness, leaving them more susceptible to consequent infections. We investigated the cooccurrence of the parasitic pentastomes and nematodes in the invasive lizard species *Leiocephalus carinatus*. We hypothesized that curly-tailed lizards infected with nematodes would be more susceptible to concurrent pentastome infection. We collected curly-tailed lizards from around central Florida. Lizards were infected with nematodes in the field (prior to collection) and infected with pentastomes in the lab (through ingestion of infected intermediate hosts). We determined parasitic load by dissecting each lizard and counting the number of pentastomes in and near the body cavity and the number of nematodes in the gastrointestinal tract. We found that there was not a significant relationship between pentastome and nematode infection in *L. carinatus*. Future studies could look specifically at components of immune system function that each parasitic infection targets, the transmission and ecological distribution of these parasites, and the prevalence of other parasitic infections amongst *L. carinatus* and similar species. The result of this study provides insight into the expanding relationship of parasites, their hosts, and the greater environment. \*2023 SURE recipient

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### **Calculating the Aerodynamics of a Fixed Wing Model Plane**

During this project, we measured the drag force and lift of a model plane using a force transducer and a wind tunnel. Our main goal was to predict the speed of the plane for level flight by use of Newton's second law. We did this by measuring the thrust force of a blue-tooth controlled propeller system at various percentages of full thrust. Since the net horizontal force for constant speed level flight is zero, we then set the thrust force equal to the drag force as a function of speed and solved for the predicted speed. We compared this to the actual speed obtained using motion capture and good agreement was

obtained. We also measured the lift at various angles below the predicted stall angle and saw the increased lift was roughly linear with increased angle, as predicted by theory.

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#### Characterizing and Forecasting the Effects of Major Events on Private Aviation Demand

Demand forecasting is essential for air travel providers to effectively allocate resources to address consumer needs. In particular, the luxury private aviation consumer base generates challenging needs, such as short notice before requesting flights, which can be prepared for by analyzing previous flight data. While there are many models accounting for factors like seasonality and location to predict flight volumes, major events can reduce their predictive power. In this study, we aim to find how major events affect the demand for private aviation in Europe. Through a dataset of every private flight that either arrived to or departed from Europe in 2018 and 2019 and its associated aircraft, this presentation documents methods for exploring the data to generate insights. This research presentation showcases findings in defining these events' signatures and approaches in statistically characterizing the effect major events have on flights in conjunction with geographical, temporal, and economic factors.

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#### **Negative phototaxis in late-stage larvae of mangrove tree crabs provides insight into dispersal strategy**

The dispersal of coastal larvae depends on their depth, as coastal currents tend to be faster at the surface. Light cues can induce depth regulation through phototaxis or directional responses to light. For example, some coastal crabs exhibit negative phototaxis in late larval development, reside deeper in the water, and thereby avoid export offshore. Historically, coastal Florida represented the northernmost limit for mangrove tree crabs (*Aratus pisonii*). Recent work supports a poleward migration of *A. pisonii*, likely due to climate change; however, we do not understand the role of larval dispersal in this geographic shift. In this study, we examined the phototactic responses of *A. pisonii* larvae in their final zoeal stage and hypothesized that larvae would exhibit negative phototaxis in response to downwelling light. We used a custom laboratory apparatus that mimics the angular distribution of underwater light, and larvae were subjected to downwelling light stimuli of varying intensities. As predicted, larvae descended in response to light, regardless of light intensity. Hence, these larvae likely reside deep in the water column, particularly during the day. This vertical swimming response adds to our understanding of larval dispersal in *A. pisonii*, which may contribute to their recent northward expansion.

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#### **Elucidating the Non-Canonical Nuclear Localization Signal that Allows for the Merkel Cell Polyomavirus Small Tumor Antigen to Perform Merkel Cell Carcinoma Tumorigenesis**

Merkel cell carcinoma (MCC) is a rare and aggressive skin cancer with less than a 45% survival rate, making it three times as lethal as melanoma. About 80% of MCC cases are caused by the infection and integration of Merkel Cell Polyomavirus (MCPyV) into the host genome. Due to its recent discovery, the mechanism by which MCPyV leads to the development of virus-positive MCC remains largely unknown. However, in MCC, MCPyV only expresses two out of six proteins encoded in its genome, the Large and Small Tumor Antigens (LT and ST, respectively). ST has been found to be the dominant transforming protein of MCPyV, primarily through nuclear localization, despite the absence of a nuclear localization sequence (NLS). As MCPyV ST is unique in its ability to transform cells and enter the nucleus when compared to other non-oncogenic human polyomaviruses, ST structural comparisons were performed

and structurally dissimilar loops were identified that likely contain the NLS MCPyV ST uses to uniquely enter the nucleus. Various mutations within these dissimilar loops were created, and their localization was assessed through subcellular fractionation. Identification of the NLS of MCPyV ST will broaden our understanding of nuclear import, and advance the development of MCC therapeutics.

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**The Effect of Spilanthol on Consumption, Taste Reactivity Behavior, and Neural Responses to NaCl in *Rattus norvegicus***

Excessive salt (NaCl) intake is often linked to the development and progression of hypertension, which can lead to life threatening cardiovascular diseases. A potential plant-derived salt taste enhancer, spilanthol, was prospectively tested to enhance the salty taste of NaCl, allowing a decrease in salt usage without a taste sacrifice. Specifically, we tested whether spilanthol altered the volume of salt solutions consumed, or the taste reactivity (TR) behaviors and neural responses elicited by NaCl solutions in 12 male Wistar rats. While an increase in NaCl concentration led to a significant increase in consumption of solutions by the rats, there was minimal variance in the average volume consumed when both NaCl and 6  $\mu$ M spilanthol were offered suggesting that the salt taste was not altered. The results of the TR analysis showed no effect of the addition of spilanthol on aversive behaviors (gapes) performed, while the addition of spilanthol significantly decreased the average ingestive TR behaviors (mouth movements and tongue protrusions) following intra-oral infusion of solutions. Active neurons were identified using immunohistochemistry for the Fos protein. Fos-immunoreactive neurons were present in all subareas of the gustatory cortex (granular, dysgranular, and agranular) and were higher in rats receiving low salt concentrations and increased by spilanthol. In conclusion, varying the concentration of salt and/or the addition of spilanthol did alter some aspects of salt solution consumption, TR behaviors, and active neurons in the gustatory cortex in rats. So, it is possible that spilanthol enhances the taste of NaCl, but additional studies are necessary to confirm this contention.

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**“Draw a Circle, It's the Earth”: Rhetorical Analysis of *Hetalia***

Originally based on a webcomic, the controversial Japanese anime series *Hetalia* garnered both accusations of reinforcing nationalistic views and a devoted online fanbase that called the show satire. This study is a rhetorical criticism that seeks to interrogate what satirical messages about national identity can be derived from how the anime specifically constructs national stereotypes. Having made use of ideological criticism and visual rhetorical analysis, this study analyzed episodes from *Hetalia: Axis Powers* and *Hetalia: World Series*. To get at the anime's specific meaning, the study compares certain episodes to the original webcomic strips that they are based on. This study found that stereotypical images are constructed into the show's nation characters work to assert the agency of a national group of people and form an environment where the process of cross-cultural communication takes place. The constructed stereotypes create contradictions that reveal an expansive view of national identity and argue for pursuing interests that benefit the entire world instead of just one nation. In doing so, it argues for multiculturalism, internationalism, and cosmopolitanism.

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**A tale of two habitats: Why are copepods larger in Mosquito Lagoon than in Halifax River?**

Copepods provide an essential link in estuarine food webs. These crustacean zooplankters feed on phytoplankton and thereby transfer energy from small primary producers to higher trophic levels,

including predatory fish. We predicted that copepod body size would be positively related to nutrient levels, since growth of larger phytoplankton species is limited by nutrients. We compared water quality and body size of a calanoid copepod, *Acartia tonsa*, from two neighboring estuaries: Mosquito Lagoon, FL and Halifax River, FL. Although nitrate and phosphate concentrations were higher in Halifax River, the prosome length and width were nearly 20% larger in *A. tonsa* from Mosquito Lagoon, relative to those from Halifax River. The observed difference was similarly surprising in the context of dissolved oxygen concentration, which was > 2x higher in Halifax River than in Mosquito Lagoon. The surprising differences in size could be attributed to Mosquito Lagoon historically being the more productive estuary and the salinity concentration being more than 2x the Halifax River, both of which are favorable for growth

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### **Seeing through blue tinted glasses: Spectral sensitivity during late larval development in a semi-terrestrial crab**

Visual systems often relate to the light available in an animal's environment. For example, the compound eyes of several marine zooplankters are most sensitive to wavelengths that penetrate furthest through water, including blue and blue-green light. Larval stages of crustaceans are planktonic and use pelagic light cues to regulate depth and thereby avoid predators in deeper water. Although semi-terrestrial as adults, the larvae of mangrove tree crabs (*Aratus pisonii*) are planktonic and include four zoeal stages. In this study, we evaluated the spectral sensitivity of late-stage *A. pisonii* larvae, using electrophysiology to measure extracellular retinal responses in larvae presented with three light stimuli: 440 nm (blue), 550 nm (green) and 640 nm (red). We found a significant difference in sensitivity between the three light stimuli; larvae were most sensitive to light with a wavelength of 440 nm, followed by 550 nm and then 640 nm. In addition, we observed faster retinal responses after flashes of 440 nm light, compared to responses following flashes of 550 nm and 640 nm light. Hence, the visual system of *A. pisonii* is most sensitive to wavelengths available in pelagic environments during larval development.

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### **Investigating the Anticancer Properties of *Myrcianthes fragrans* Stems on E6-1 Jurkat Leukemia Cells**

Acute Lymphocytic Leukemia (ALL) is a cancer of the lymphocytes, and it is the most common form of childhood cancer. Certain plant-derived compounds are offered as cancer treatments, while other compounds work synergistically with current cancer therapies. The myrtle family induces apoptosis and cell cycle arrest in cancer cells. Although, there has not been much research on a myrtle called *Myrcianthes fragrans*. We investigated the impact of two different concentrations of *M. fragrans* stem extract on cell cycle arrest and apoptosis. We predicted a dose-dependent decrease in live cell concentration and percentage viability. A Trypan Blue assay was conducted to examine these impacts on E6-1 Jurkat Leukemia cells after treatment for 24 and 72 hours. Jurkat cells exhibited a dose-dependent decrease in percent viability when treated with 10  $\mu$ L of *M. fragrans* stem extract for 72 hours, supporting the hypothesis for percent viability. Since only the 0.17 g/mL *M. fragrans* extract showed decreases in live cell concentration, the hypothesis for cell concentration was partially supported. Future studies studying the impact of *M. fragrans* on proliferation, apoptosis, protein levels, and healthy cells could be a next step in determining its anticancer properties.



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### **Selective Disruption of Mitochondrial Thiol Redox Homeostasis by MitoCDNB Exaggerates Macrophage NLRP3 Inflammasome Activation**

Cardiovascular disease, caused mainly by atherosclerosis, is a leading cause of death worldwide. Persistent stress and inflammation underlie the pathophysiology of atherosclerosis. Mounting evidence suggests that abnormal activation of macrophage NLRP3 inflammasome accelerates atherosclerosis. It is well known that mitochondrial dysfunction and oxidative stress are central to NLRP3 inflammasome activation. However, it remains less clear whether and how mitochondrial glutathione (GSH) and thioredoxin (Trx) systems regulate the NLRP3 inflammasome activation. In the study, we hypothesize that selective disruption of mitochondrial thiol redox state promotes NLRP3 inflammasome activation in macrophages. To test our hypothesis, we disrupted mitochondrial thiol redox homeostasis by treating macrophages with MitoCDNB, which selectively depletes mitochondrial GSH and directly inhibits mitochondrial Trx reductase 2 and peroxiredoxin 3, in NLRP3 inflammasome-activated murine bone marrow-derived macrophages. Next, we replenished the mitochondrial GSH pool by treating macrophages with GSH ethyl ester (GSH-EE) before activating NLRP3 inflammasome to assess whether the effect of MitoCDNB on NLRP3 inflammasome activation is dependent on GSH depletion. Our results demonstrate that 1) MitoCDNB enhances LPS+ATP-induced NLRP3 inflammasome activation; 2) MitoCDNB alone triggers IL-1 $\beta$  secretion in LPS-primed macrophages; 3) MitoCDNB has a minimal effect on the transcript expression of LPS only-induced IL-1 $\beta$  and non-NLRP3 inflammasome cytokines; and 4) glutathione repletion partially abolishes the effect of MitoCDNB on NLRP3 inflammasome activation. We conclude that selective disruption of mitochondrial glutathione and thiol redox homeostasis exaggerates macrophage NLRP3 inflammasome activation primarily by increasing caspase-1 cleavage without affecting LPS priming. Our data suggest that disrupting glutathione and thioredoxin systems promotes macrophage inflammation and cell death, likely accelerating atherosclerosis progression.

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### **Effects of Intra-Oral Infusion of Sucrose+Quinine on Taste Reactivity Behaviors and Fos-Immunoreactive Neurons in the Gustatory Cortex in Rats**

Responses to single tastes have previously been well-documented, but less is known about how the brain reacts to binary mixtures. This study examined taste reactivity (TR) behaviors and Fos-immunoreactive (Fos-IR) neurons in the gustatory cortex (GC) of male Wistar rats after an infusion of either: 1.0M sucrose with 1.5mM or 3.0mM quinine (QHCl), 1.0M sucrose, or 3.0mM QHCl through an intra-oral cannula. The number of Fos-IR neurons in three sections along rostral-caudal extent of the GC were counted and divided into three subareas: the granular (GI), dysgranular, (DI), and agranular (AI) insular cortices. Rats given 3.0mM QHCl had significantly more neurons elicited than 1.0M sucrose for all three sections and was significantly more than rats given 1.0M sucrose+1.5mM QHCl or 1.0M sucrose+3.0mM QHCl in the rostral section. There was no significant difference in the number of Fos-IR neurons elicited between sections (rostral, intermediate, and caudal) for any tastant. TR behaviors were summed and categorized as ingestive or aversive. Rats given 1.0M sucrose performed significantly more ingestive TR behaviors than all other tastants. Rats given 3.0mM QHCl performed significantly more aversive TR behaviors than 1.0M sucrose and 1.0M sucrose+1.5mM QHCl. Linear regression analyses

revealed there is a potential positive relationship between the number of Fos-IR neurons in the GI region of the caudal GC or the overall GI of the GC and aversive TR behaviors.

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### **An Investigation Into Heart Disease Prevalence Concerning Sex in Florida in 2020**

In 2020, heart disease was responsible for about one in four deaths in the United States. Nationally females are observed to experience more heart disease risks, yet males continue to have a higher prevalence of disease. But is this true for Florida? To understand this, responses to questions about demographics, general health, and medical care were observed to get a picture of how male and female Floridians lived their lives. By understanding what gender has the highest heart disease prevalence it is possible to continue tailoring prevention techniques for optimal efficacy. Heart disease is a public health epidemic, and understanding the problem on a smaller scale allows for more effective care.

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### **The Development of Merkel Cell Carcinoma may be Dependent on the Non-Canonical Nuclear Localization Sequence TLKDY in the Merkel Cell Polyomavirus Small Tumor Antigen**

Merkel Cell Carcinoma (MCC), a cancer caused by the integration of the Merkel cell polyomavirus (MCPyV) genome into the host genome, is a cancer three times more deadly than melanoma. The small tumor antigen (ST) of MCPyV has been found to be the dominant transforming protein, but also it is uniquely transforming when compared to the small tumor antigens of other human polyomaviruses. Surprisingly, it was found that the transforming abilities of MCPyV ST were dependent on its nuclear localization despite the absence of a nuclear localization signal (NLS). As the non-transforming ST proteins from other human polyomaviruses are cytoplasmic, the nuclear localization of MCPyV ST may be responsible for its unique transforming abilities. In an effort to identify the non-canonical mechanism of MCPyV ST nuclear localization, several mutants were created and assessed for localization. Interestingly, alanine substitution of amino acids 90 – 94 (TLKDY) led to cytoplasmic sequestration, and therefore likely contains the non-canonical NLS of MCPyV ST. The identification of this noncanonical NLS will reshape and improve treatment for MCPyV-associated MCC patients using MCPyV ST nuclear import targeted strategies.

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### **عقدة الخواجة في مصر / O'kdet El Khawaaga in Egypt: The Effects of English Language Proficiency on Self-Esteem in a Non-Native Developing Country**

The prioritization of English over native languages can have serious psychological effects on its speakers as it leads to a sense of inferiority known as cultural cringe or O'kdet El Khawaaga as it is known in Egypt. The purpose of the current study was to investigate the effects of English proficiency on self-esteem, fear of negative evaluation, and internal and external shame (feelings of inferiority, exclusion, uselessness and judgment) in Egypt. Ninety-two participants aged 18 to 66 years old were recruited from the Cairo metropolitan area. English proficiency was measured and then participants filled out surveys in Arabic measuring self-esteem, fear of negative evaluation, and internal and external shame after being randomly assigned to a manipulation to influence feelings of English proficiency. It was hypothesized that (1) the difficult manipulation will induce feelings of low English proficiency (2) low English proficiency will be related to low self-esteem levels, and (3) shame and fear of negative evaluation will be predictive of self-esteem. This study reveals that feelings of English proficiency can influence self-esteem. As an Egyptian resident becomes more proficient in English, their self-esteem

increases. However, along with this boost in self-esteem, the shameful feelings of inferiority, exclusion, uselessness and judgment increase. That is a contradiction to the perceived positive effects of high self-esteem resulting from high levels of English proficiency in a non-native country. These findings offer a thought-provoking view on the fragility of high self-esteem resulting from higher levels of English proficiency in non-native developing countries.

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### **Social Media Campaigns to Reduce Mental Health Stigma Across Racial Groups**

This purpose of this study was to investigate whether social media campaigns can reduce mental health stigma across different racial groups. Mental health stigma remains a barrier to seeking and receiving support, and disproportionately affects marginalized individuals. Data were collected from 121 participants, and 38% of this sample came from a marginalized background. Participants were randomly assigned to one of three experimental conditions: positive, negative, or control. In the positive condition participants were exposed to affirming messages about mental health, in the negative condition participants were exposed to critical messages about mental health, and in the control condition participants were exposed to images that were unrelated to mental health. After observing the social media posts, participants filled out surveys to measure demographics and mental health stigma. A 3 (Race) X 3 (Condition) factorial ANOVA was conducted to determine whether experimental condition, race, and their interaction impacted mental health stigma. Results indicated that there was an interaction between race and condition such that marginalized individuals had higher mental health stigma in the negative condition but lower mental health stigma in the positive condition. However, white participants had consistent levels of mental health stigma across all three conditions. These results demonstrate the necessity of specific interventions for different racial groups to reduce mental health stigma, as well as the potential usefulness of social media platforms to reduce mental health stigma.

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### **Health impacts of an Invasive Pentastome (*Raillietiella orientalis*) on the Northern Curly-tailed lizard (*Leiocephalus carinatus*)**

Invasive species, like *Raillietiella orientalis*, pose ecological threats to native and non-native species. This study investigates the northern curly-tailed lizard's (*Leiocephalus carinatus*) role as a secondary host for *R. orientalis*, an invasive lung parasite that has rapidly spread throughout Florida. We divided 47 *L. carinatus* into three groups including: control, anole fed (infected), and roach fed (infected). Exposure to infected roaches results in a 100% infection rate, while anole-fed lizards exhibit a 75% infection rate. Physiological parameters, including  $\Delta$  mass, fat mass, and  $\Delta$  SVL, show no significant differences among control and exposed groups, but a consistent increase in fat mass suggests potential impacts on energy metabolism. This study contributes to understanding invasive species' ecological consequences, emphasizing the need for comprehensive research in managing these threats to biodiversity and ecosystem health.

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### **Odonate Larvae Behavior in Water\***

Odonate larvae are aquatic animals that live in mostly wetlands (Marco et al., 1999). These larvae are predators and have six legs, large eyes, and spines on their carapace (Marco et al., 1999). The two most common nymphs that we worked with were *Tramea carolina* and *Pachydiplax longipennis*. We collected

at Ocala national forest and collected grass, dollar weed, and sticks. We conducted three experiments. Experiment one was to see where the odonates would prefer to live. The second experiment was to see if the small or large *Tramea carolina* would like the dark or light background. The last experiment conducted was to see if the large or small *Tramea carolina* would like to be on an artificial plant or in a cup with a hole in the middle. The results are as followed: 1) The *Tramea carolina* preferred the stick, while the *Pachidiplex longipennis* preferred the dark detritus. 2) The small *Tramea carolina* preferred the light background, while the large *Tramea carolina* preferred the dark background. 3) There was no data collected as neither the big or small *Tramea carolina* went to neither variables. \*2023 SURE

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### **Analysis of a PRM1 mutation on *Saccharomyces cerevisiae* cell fusion**

Cell fusion is a critical biological process in eukaryotes, responsible for fertilization, production of skeletal muscle fibers, and the formation of the placenta. However, it is severely understudied. The simplistic unicellular structure of *Saccharomyces cerevisiae* facilitates ease of manipulation and has numerous conserved eukaryotic processes, which makes it an ideal model organism for understanding life processes. Key proteins have been identified as playing a role in fusion, including Prm1, a 4-pass transmembrane protein involved in plasma membrane fusion. In previous studies, a conserved disulfide bridge, made by cysteines at positions 120 and 545 have been suggested to play crucial roles in the protein's function. While Prm1 is not considered a fusogen, expanding our understanding of its mechanism will help reveal more information about plasma membrane fusion. To analyze the role of Prm1p and the disulfide bridge, we mutated C120 and its neighboring leucine (L121) to alanine, Prm1-CL120AA, using site-directed mutagenesis on plasmids containing *PRM1*. When a mutated cell was crossed with a *prm1Δ*, we observed a significant decrease in cell fusion as all well as an increase in lysis of the mating pair. When localization of Prm1-CL120AA was analyzed via fluorescence microscopy, we found a significant increase in mislocalization compared to its wildtype counterpart. Our study is among three examinations analyzing the critical disulfide bridge and its functionality of Prm1p, with findings indicating this structure is crucial for fusion. Additional investigation into Prm1's molecular structure could provide insight into the role of in membrane fusion.

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### **Analyzing a Plasma Membrane Fusion Protein in Fungi**

Cell fusion is an essential process in the development of multicellular organisms and occurs in numerous contexts within the human body, such as egg fertilization and muscle formation. This process is difficult to study in multicellular organism because it is difficult to link inherited gene alterations to specific observable traits or characteristics. Budding yeast, or *Saccharomyces cerevisiae*, can be used to study cell fusion as their DNA is easily manipulated. *Ashbya gossypii* and *Saccharomyces cerevisiae* are closely related fungal species. While a well-documented fusion event occurs in yeast, the process remains unobserved in *A. gossypii*. However, there is supporting evidence indicating the potential for fusion in *A. gossypii*. Notably, homologues of key yeast fusion proteins, such as the plasma membrane protein Prm1, have been identified in *A. gossypii*, hinting at their involvement in the fusion process. Understanding the mechanisms underlying fusion in *A. gossypii* could provide valuable insights into conserved cellular processes and the evolution of fungal reproductive strategies. Prm1 is a 4-pass transmembrane protein thought to help stabilize the plasma membrane. To explore the role of Prm1, we performed mating assays to investigate expression and function of AgPrm1. We found that AgPrm1 does have partial function since we saw a lower death rate but an inability to fuse, suggesting that AgPrm1 may be able to stabilize the plasma membranes, but it is not able to promote cell fusion itself.

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### **Invasive fish biomass equals native fish biomass at Volusia Blue Spring**

In Florida, invasive fish are abundant due to the interconnected waterways and exotic fish trade throughout the state. The native fish populations of Volusia Blue Spring in central Florida have adapted to the unique physical and chemical properties of the spring environment, and as such may be especially vulnerable to disruption by invasive fish. To determine the relationship between native and invasive fish species in the spring, we measured species specific biomass at two locations along the run. Using seine techniques to catch and measure small fish, and a GoPro camera with mounted laser pointers to record and measure large fish, we were able to determine the quantities, lengths, and biomass of each fish species we observed at blue spring. We found that native fish dominated the sampling numerically, but the biomass of exotic fish was equal to that of the native fish. The large biomass of invasive fish species in Volusia Blue Spring could impact the native populations as well as the environment of the spring by altering resource availability and nutrient dynamics of the spring.

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### **Cytotoxic Activity of Methanol-based Simpson's Stopper (*Myrcianthes Fragrans*) Leaf Extract on Jurkat Leukemia Cells**

While there have been strides in cancer treatment, the disease remains a significant health challenge, promoting the search for alternative solutions. We explored the potential of a natural leaf extract from the *Myrcianthes Fragrans*, commonly known as Simpson's Stopper, against leukemia cells. Despite progress in traditional treatments, cancer survival rates still pose a problem. Hence, we sought less harmful yet effective alternatives. Recent chemical analyses of *Myrcianthes Fragrans*, a tropical tree found in the Caribbean and South Africa, revealed abundant bioactive compounds, suggesting its potential as an anticancer agent, consistent with its use in the traditional medicine. Testing the extract on leukemia cells showed a dose-dependent decrease in cell viability, indicating promising cytotoxic effects across various concentrations and conditions. Further research in this direction could lead to innovative cancer treatments.

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### **The effects of antacids on developing axolotl embryos, *Ambystoma mexicanum***

Pregnant women commonly turn to antacid medication when experiencing gastroesophageal reflux disease because they think these medications are safe to take during pregnancy. Doctors recommend taking low doses of certain antacids in spaced-out intervals, however the effects of antacids on fetal development are unknown. To test the safety of these products on fetal development, I exposed axolotl embryos to five different concentrations (1/4x, 1/2x, X, 2x, 4x) of Pepto Bismol and Equate Maximum Strength which were made around the recommended 30 mL of antacid per 5L of blood volume (X), for 24 hours. After the embryos hatched, I measured and compared the head width, head length and body length of each vs. the concentration and drug type. My results indicated that there was no dose-dependent effect on axolotl growth with Pepto Bismol however, there was a significant relationship between higher concentrations of Equate Maximum Strength and larger head width. Overall, the effects on antacids on axolotl morphology were relatively small, suggesting that it is safer for an expecting mother to take up to four times the recommended dosage of Pepto but not Equate without negatively impacting the developing fetus.

Melanie Wright (Dr. Jelena Petrovic)

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### **Barbie Unboxed: A Feminist Critique of the *Barbie* Movie**

This study is a rhetorical feminist criticism of the *Barbie* (2023) film. It was inspired by the recent release of the film that contributed to a larger societal conversation around feminism and its representation in media. This created an opportunity for me to interpret the film from a rhetorical angle. My study aims to identify the use of a feminist lens in *Barbie* (2023) to challenge gender stereotypes and roles that promote a conversation around feminist activism. While the film may suggest some contemporary conversation through the rhetorical messages about gender dynamics, it was observed that some ideas from intersectional feminism were not included within this feminist lens. Using rhetorical methods of note-taking, interpretation, and evaluation, this study will analyze the film's potential purpose and its success or failure in contributing to feminist activism through its use of the feminist lens. To understand the analysis drawn from the research, context is provided through the introduction, background, and literature review supporting all findings.

## PAPERS

Name: Christa Assi (Dr. Elizabeth Plantan)

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### **Understanding State Fragility through Media: Why Hezbollah Thrives in Lebanon and Not Jordan**

What explains variation in state fragility? For some states, this can be attributed to a transnational violent non-state actor, such as Hezbollah in the most similar cases of Lebanon and Jordan. This study utilizes the media to understand how it frames Hezbollah and, in turn, how that impacts public opinion in each state. Data from news articles between August 2020 to October 2023 are examined to track media coverage of Hezbollah and how the group is framed by the media in each state. This study offers a new approach to examining state fragility in these cases. I expect to find that a negative portrayal of Hezbollah would lead to negative public perception. Which would shed light on how public perception interlinks with the general nature of a transnational violent non-state actor's presence in a state. Overall, this research contributes to literature on state fragility, transnational violent extremism, and Middle Eastern politics.

Yuliia Balan (Dr. Elizabeth Plantan)

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### **Echoing the Past: How Conflict Shapes Denuclearization Discourse in Post-Soviet Nations**

Russia's war in Ukraine in 2014 and the full-scale invasion in 2022 raised a discussion about violations of the 1994 Budapest Memorandum when Ukraine, Belarus, and Kazakhstan were promised security guarantees in exchange for giving up their nuclear arsenal. Many scholars in this field agree on the historical reasons for denuclearization. However, the question arises whether the leaders of these states still see denuclearization as a positive phenomenon even after the conflicts have arisen. I conducted content analysis of Ukrainian, Russian, and Kazakhstan Presidents, Ministers of Foreign Affairs, and Ministers of Defense annual statements (1994-2024) to document changes over time. I find that while Kazakhstan maintained its positive stance on denuclearization, Ukraine experienced shifts in rhetoric from viewing it as a moral choice to considering it a security threat, especially post-2014 conflict. Meanwhile, Russia exhibited heightened nuclear rhetoric, emphasizing perceived threats from NATO as

a potential nuclear guarantee of Ukraine. This research serves as an up-to-date analysis of the change in the post-Soviet space's national discourse for scholars focusing on the nuclear component in international relations.

Ana Beatriz Queiroz (Pete Willems)

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### **How and Why Diabetes affects the Volusia County Community?**

The research focus on how diabetes is such a common issue at the Volusia County community and why is it so recurrent with the resources available.

Christian Berberich ( Dr. Corie Charpentier)

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### **Rodent species in a Midwestern prairie ecosystem serve as potential reservoirs of ehrlichiosis-causing bacteria**

Ehrlichiosis, a tick-borne disease caused by *Ehrlichia spp.*, affects humans and companion animals. While the ticks transmitting these pathogens are known, the rodent reservoirs remain less understood.

*Peromyscus leucopus* (white-footed mice) are a known reservoir of *Ehrlichia spp.*, but they do not inhabit Midwestern prairies where cases of ehrlichiosis have been increasing recently. We investigated non-*Peromyscus* rodents as potential reservoirs of *Ehrlichia canis* and *Ehrlichia ewingii*. Tissue samples (n=472) were collected from three rodent species in Boone County, Illinois, from 2014-2018: *Ictidomys tridecemlineatus* (thirteen-lined ground squirrel; n=136), *Microtus pennsylvanicus* (eastern meadow vole; n=209), and *Zapus hudsonius* (meadow jumping mouse; n=127). Nested PCR and DNA sequencing revealed *E. canis* and *E. ewingii* in all species. Pathogen prevalence varied significantly among species, with *I. tridecemlineatus* and *M. pennsylvanicus* more likely to be infected with either pathogen than *Z. hudsonius*. Moreover, coinfection rates were significantly higher than expected by random in *I. tridecemlineatus* and *M. pennsylvanicus*. These data suggest *I. tridecemlineatus* and *M. pennsylvanicus* are potential reservoirs for *Ehrlichia spp.* in Midwestern prairie ecosystems.

Christian Berberich ( Dr. John York)

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### **Progress Towards the Synthesis and Analysis of Bis( $\mu$ -oxo) Dicopper (II) Complexes**

Researchers believe bis( $\mu$ -oxo) dicopper cores allow metalloproteins to oxidize hydrocarbons. Although synthesis techniques exist to create these complexes, only Cu(II) complexes have been made. This study aimed to create and characterize bis( $\mu$ -hydroxo) dicopper (II) complexes to serve as a framework for comparison's sake between hydroxo complexes and the deprotonated version: the bis( $\mu$ -oxo) dicopper (II) complex. Through extensive computational analysis, M06L and BVP86 were determined to be optimal functionals to model these systems. Furthermore, computational results showed that deprotonating the bridging ligand from the hydroxo form to the oxo form resulted in a drastic decrease in inter-copper distance (0.34 Å). Experimental research showed that [Cu(TMEDA)OH]<sub>2</sub> triflate<sup>-2</sup> has a straightforward synthesis procedure, and the salt it produces is soluble in THF and acetone. Finally, the complex is paramagnetic, with an effective number of unpaired electrons of 1.40. This study serves as a precursor to future studies looking to create bis( $\mu$ -oxo) dicopper (II) complexes.

Audrey Berlie (Dr. Jason Evans)

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### **Taking Sustainability to Infinity and Beyond: The Ethical Gap Plaguing Space Policy**

The recent growth of the space sector in the 21st century has raised questions about the ethical nature of private enterprise. The largely unregulated expansion of the private space sector has

prompted objections towards its unsustainable use of space. Despite our activity in space becoming an extension of our present terrestrial economy, there is inadequate policy to regulate private and public space actors. This paper argues that the lack of space policy directly results from a deficient understanding of the underlying ethic for human intrusion in the outer space environment. Defined as the “ethical space gap,” this article evaluates how lack of ethical insight into the rights and wrongs of human space development is hindering policy. Thus, we find ourselves in a situation in which legislative action is not matching the pace of our technological advancements and development. By not having a thorough understanding of space ethics, we risk implementing inadequate and futile policies that fail to consider every stakeholder impacted by the space sector. As the space industry takes giant leaps forward, this research concludes how we may define what is ethical human conduct in space to inform our policy for orbital development. Only by doing so, can we ensure that private and public sector actors are shaping a future where the benefits of space are continuously protected for future generations, preserving both the Earth and the outer space environment.

Audrey Best, Laura Cheshire, Payton Benjamin, and Zane Hair (Dr. Melinda Hall and Dr. Michael Eskenazi)

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#### **Italy Study Abroad: Mental Health Reform**

During Stetson University’s 2024 Spring Break, a group of students and professors partook in a study abroad trip to Italy, largely funded through the Rinker Global Scholars Program, during which we visited several cities to engage deeper in our course content pertaining to the history and ethics of mental health. Each of us gained a richer perspective about the challenges surrounding mental health reform because of the trip that we will be exploring throughout this showcase presentation. Students attending our presentation will learn about what a study abroad experience with Stetson entails and hear a brief history on the mental health reform initiated decades ago in Italy that has called into question the way mental health is dealt with not only in Italy, but around the world.

Miranda Bihler (Dr. William Miles and Dr. Michael Schroeder)

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#### **Data-Based Modeling Predicting 6-Year Graduation Rates**

Data-driven decision-making is playing an integral role in business strategy within today’s society, and educational institutions are no exception to this. We partner with the Office of Institutional Research and Office of Admission at Stetson University to model 6-year graduation rates and determine variables that are significant predictors of graduation rates. We research these variables by implementing four machine learning model types -- K-nearest neighbors, logistic regression, decision trees and random forests, and neural networks. We clean the dataset received from the Office of Institutional Research, apply each model type to the dataset, and evaluate each model based on certain criteria, such as accuracy. This allows us to compare model applicability for the dataset as well as determine the model of best fit.

Emily Blizzard (Dr. Kirstin Work)

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#### **Abundant microplastics within two species, *Panopeus herbstii* and *Crassostrea virginica*, in Coastal Northeast Florida.**

This study follows an investigation to the amount and classification of microplastics with two species, *Panopeus herbstii* and *Crassostrea virginica* between two sites in Coastal Northeast Florida, Halifax Harbor Park in Daytona Beach, Florida and Callalisa Creek in New Smyrna Beach Florida. Significant differences in total microplastic number were found based on date, site and taxa respectively ( $p=0.007$ ,



$p < 0.001$ ,  $p = 0.023$ ), and a significant interaction between date and site ( $p = 0.093$ ). Fibers were the predominant form of microplastic found. Research provides implications to bioaccumulation, anthropogenic impact on marine systems and public health.

Halle Block (Dr. Holley Lynch)

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### **Axolotl Cell Shape Analysis During Tissue Spreading**

In this experiment, we studied the thinning and spreading of tissue collected from axolotl embryos as part of a larger study on the physics that underlies the vast cell and tissue movements during early development. Similar research has been conducted involving other amphibians, but the tissue spreading behavior of cell layers from axolotl embryos during tissue spreading has not been widely studied. Specifically, we analyzed how cells change shape during an early developmental stage characterized by large scale tissue spreading. By using microscopy, image capturing, and time lapse sequences, we were able to collect images before, during, and after this stage. With these captures, we then used a scientific, image analysis software to collect image segmentation, including area measurements and cell counts to determine tissue spreading rates and the density of cells before and after tissue spreading. Our research is contributing needed information to adapt an existing mathematical model to determine the physical causes of tissue spreading, including individual cell shape changes, for axolotl tissues.

Mary Brandt (Dr. Leander Seah)

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### **American Airpower. Historical Narratives, Museum Aircraft, and World War II in Asia\***

In 1984, the National Air and Space Museum announced its impending restoration and display of the Enola Gay, the B-29 Superfortress that dropped the atomic bomb on Hiroshima. This was the beginning of the well-known public controversy about which narrative to assign to this historic aircraft. Because no one could agree on which narrative to present, the display of the restored Enola Gay opened with no controversial narrative. The question of historical narrative has been debated globally. Beyond the analysis of the Enola Gay controversy, there is no research about public history narratives of American airpower in Asia as studied through museum aircraft. So, how and why have certain historical narratives been prioritized in U.S. museums, particularly aviation museums and those revolving around American airpower during World War II in Asia? Aviation museums' common purpose is to serve and educate the public through the display of aircraft as their primary educational tool. I highlight the lesser-known narratives of World War II, as museums and academic narratives adopt occasionally Western-centric, even American-centric perspectives. As evidenced by the case studies of American airpower in Asia during World War II, museums do not prioritize historical objectivity and nuance due to space, time, and funding constraints. Museums deal with the difficult balancing act of providing adequate historical context and attracting visitors. The choice of historical narrative is a part of the collective national memory of World War II, and the aircraft serve as a powerful reminder of the war.

\*This study was funded in part by the 2023 SURE Grant

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### **Copper Biogeochemistry in Stormwater Ponds in the Victoria Park Community, DeLand, Florida**

More than 76,000 stormwater ponds across Florida, designed to prevent flooding in streets and communities and to mitigate pollutants, can also provide habitat to many species of wildlife. However, copper-based algaecides and road runoff can accumulate in pond sediments over time, and little research has been conducted on the movement of pollutants through stormwater pond food webs. In this study, 12 ponds located in the Victoria Park Community in DeLand, FL were selected to represent

three categories of water storage with different copper-based algaecide loads: reclaimed (high), stormwater (moderate), or conservation area (low). Throughout the summer of 2023, samples of sediment, water, and fish were collected from ponds and analyzed for total copper. Water quality was also measured with a multiparameter sonde. Results show statistically significant differences ( $p < 0.05$ ) between conservation and reclaimed ponds, and between reclaimed and stormwater ponds for pH, Total Dissolved Solids, and Salinity. While the mean sediment copper concentrations between categories were not statistically different due to variation among ponds within categories, mean reclaimed pond sediment copper was nearly 2.5 times higher than that of conservation pond sediment, and mean stormwater pond sediment copper was 3.7 times higher than that of conservation pond sediment. This suggests that stormwater runoff from roads may be a more important copper source in community stormwater ponds than even copper-based algaecides. Copper concentrations in fish samples were inconclusive, but also point to other sources or processes beyond copper algaecide treatment being at play for copper uptake by fish. Future studies should enhance statistical power by sampling from more ponds, and should evaluate fish samples across ponds to trace copper transport pathways through pond food webs.

Alicia Bronson (Dr. Roslyn Crowder)

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### **The Effect of *Myrcianthes fragrans* Flower Extract on Jurkat Leukemia Cells: Comparing Collection Sites in Florida**

Acute lymphatic leukemia (ALL) is diagnosed most frequently among children. All current treatments for ALL have a long list of side effects that are detrimental to patients. Research is currently being done on plants to find new cancer treatments with fewer side effects. Anti-cancer compounds have been found in the leaves and fruits of *Myrcianthes fragrans*, a plant commonly found in tropical areas and is native to Florida. This study examined the effect of *Myrcianthes fragrans* flower extracts on Jurkat human leukemia cells and found that the flower extracts cause statistically significant cell death in Jurkat leukemia cells. Our data suggest cytotoxic and cytostatic potency of *Myrcianthes fragrans* flowers may be controllable through environmental plant growth manipulation

Natalie Brooks (Dr. Sarah Cramer)

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### **The Bigger Meaning Behind the Lunchable**

The problems within America's modern food system are embodied by the modern Lunchable. With guidance from Dr. Sarah Cramer from the Sustainable Food Studies department, I analyzed the Lunchables' impact on personal food choice in children and adults, specifically within the Stetson University community. In this project I utilized several theoretical concepts to frame my research question: How have Lunchables affected the Stetson community and how does this reflect consumer culture within the United States? By reviewing multiple media sources in relation to the Lunchable, the history of the Kraft-Heinz corporation, convenience foods, "kids' food", a brief history of school food, the Real Food Lite movement, and an overview regarding the industrialization of the American food system and agriculture I have generated a collection of literature reviews about the aforementioned topics. This is followed by a description of the methods I utilized to collect and analyze data, then a review of my results, and lastly, a discussion and conclusion

Jonah Campbell (Dr. Kimberly Reiter)

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### **Pirates or Patriots? The Social Acceptance of Privateers During the American Revolution, 1775-1789**

This paper will cover the social acceptance of American privateers during the American revolution. With an emphasis on three captains who showed a great amount of patriotism to further showcase that regardless of their willingness to serve their country they would remain on the outer fringes of society. Although they greatly impacted the American Revolution the American privateers often could not escape being labeled as pirates. John Paul Jones, Gustavus Conyngham, and John Barry would all contribute great victories for the colonies with little praise till long after their death. The same is true for the many crews who would sail for both the continental navy and as American privateers. With the most likely outcome being their death, they would continue to serve for those who did return they would still carry the stain of piracy. Many without any formal training would have their motives constantly called into question throughout the revolution. Unlike the captains many of the common soldiers have been lost to history often not mentioned in textbooks or outright forgotten. With this paper those who were hung as pirates or died on the high seas fighting for a new nation will once again be a part of the collective history of the American Revolution.

Jake Catha (Dr. Carmen Palmer)

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### **The Value of Materialistic Possessions and Wisdom: A Cultural Comparison\***

People throughout time have hunted to the ends of the earth to find and define wisdom. While there are innumerable amounts of proposed paths to this fabled insight, a few of these philosophical adventurers have gained particular followings and fame, a small portion of which are Christianity, Islam, and Buddhism. The particular focus of this paper is one of the simultaneously deep yet narrow divisions in these roads to wisdom, that of the value of earthly possessions and money. For example, Islam promotes monetary gain, but not economic stagnation, while Christianity has dedicated sects of ascetics, set upon achieving closeness to God through the forsaking of possessions, and even further, Buddhism promotes a "Middle Way" that proposes the best path is through equality of both. This paper looks to draw some of the many similarities and differences among these main religions, with hopes to draw further attention to the aforementioned paradoxical divides that both separate and unify humanity's many ideas.

\*1<sup>st</sup> place 2024 Library FSEM Research Competition

Laura Cheshire (Dr. Nathan Wolek)

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### **Embedding Community Engagement into a Self-Defined Major**

Stetson University offers many opportunities for students to partake in experiential learning throughout their college career. It is through these hands-on experiences that students can make a meaningful impact on the local community while experiencing personal and academic growth. Community engagement can even be incorporated into one's senior project as a way to contribute positively to society. My showcase presentation will discuss the way I structured my own senior project around a community engagement program that allowed me to gain experience related to my self defined major in art therapy. Students attending this presentation will gain a better understanding of what a self-defined major's senior project can look like as well as how experiential learning opportunities can further one's own academic trajectory while creating a positive effect on the community

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### **National Collegiate Sales Competition Presentation**

Megan Clark (Dr. Wendy Anderson)  
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#### **Resource Stewardship Action Plan: How Christians Should Act on Climate Change**

Churches have been behind the curve when it comes to sustainability. In fact, some churches have rejected the need for sustainability. In recent years, the Creation Care movement has encouraged many churches to be more sustainable. It is important for churches to act sustainability to better care for Creation as God commanded. This project worked with a local church and its leadership to see what actions they should take to be more sustainable and save money. The main areas focused on were Energy and Waste Management and Education. In each of these areas, steps have started to be made, but there are other projects still in the works.

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#### **Disrupting Utopia: Reinterpretation of the Cuban Revolution's Ideals Through Dystopian Narratives**

My research analyzes the responses of two Cuban authors, Anna Lidia Vega Serova and Maielis González Fernandez, to the utopian ideologies of Fidel Castro and Che Guevara. Through their dystopian short stories "Misericordia" and "Como Ser Ciberpunk y Disfrutarlo," the figures and aesthetics of cyberpunks, hacking, and cyborg subjectivities as theoretical frameworks. Drawing on the themes from Castro's speech, such as "the transformative power of the Cuban Revolution" and "the struggle against ignorance and oppression," these Cuban authors expand the radical "bubble" to include those systematically excluded throughout the history of Revolutionary Cuba (Castro, 1961). Their works serve as a critique and reinterpretation of the Revolution's ideals, ultimately providing alternative visions of island futurity, as it further considers the role of "monstrous" bodies and punk aesthetics/politics in shaping the island's path forward, expanding inclusivity beyond the established norms and making room for those often marked as deviant under the patriarchy of the Revolution.

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#### **Connected Like Never Before: How Do Individuals Use Social Media to Develop Parasocial Relationships with Celebrities**

With social media being one of the number one ways we connect, create, and maintain relationships. This study aims to examine the nature and dynamic of interactions that occur within interpersonal relationships formed online using a phonetic iterative analysis of parasocial relationships with celebrities on social media. By conducting in-depth participant interviews with individuals that frequently use social media and stay updated on celebrity life, this research provides a nuanced understanding and context to scholars' current understanding of parasocial relationships and intimacy and bond creation through social media communication. A greater understanding of the structure and formation of parasocial relationships, and intimacy, can be reflected through analysis of how the complex process of bond creation occurs through communication on social media. By shedding light on the underlying concepts, and perspectives surrounding, the role of technology and social media in relationships. This research provides and insightful look into communication and closeness creation on the new and ever-developing frontier that is social media.

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### **Assessing the Relationship Between Macrophyte Presence and Feeding Behavior of *Pachydiplax longipennis* Nymphs**

The feeding behavior of *Pachydiplax longipennis* nymphs in relation to the presence of macrophytes was investigated to assess potential correlations. Dragonfly nymphs are aquatic predators that rely on visual cues to capture prey, primarily aquatic invertebrates. The study aimed to determine if the presence of macrophytes cover influenced nymph feeding behavior. Mosquito larvae were selected as prey due to their high activity levels and availability. Experimental setups included sandy-bottom tanks with and without macrophyte cover, with feeding conducted biweekly over several weeks. Data analysis revealed that nymphs consumed more prey in the absence of macrophytes within the first 15 minutes of prey introduction. However, over a 24-hour period, while total larvae consumption was higher in the absence of macrophytes, the difference was not statistically significant. Attack times did not significantly differ between treatments. The study suggests that macrophyte presence affects the short-term feeding frequency of nymphs, with nymphs capturing less prey with macrophytes present. Experimental limitations include difficulty locating larvae in tanks with organic plants and issues with the aeration system. Future research could explore similar experiments with larger dragonfly species and prey types, employing more reliable experimental setups, and considering nymph life stages' influence on prey choice progression and consumption frequency.

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### **Philosophy of Bodybuilding and Beauty**

Bodybuilding has been a physical event for more than a century now in its modern form. However, multiple internal and external factors have shifted the event to a form that in many ways is unrecognizable to the bodybuilding of the past. Open bodybuilding focuses on the extremities of pushing the human limit through the use of outside enhancements (steroids) as well as less of a focus on aesthetic virtues (health, symmetry, strength, etc.) while trying to maximize pure size. This shift in the focus of bodybuilding raises many questions as to the reasoning for awarding such athletes when much of the initial judgment of bodybuilding was focused on aesthetic principles. Within this research, I am claiming that aesthetic value is traceable in all art forms. Additionally, any form of art that has some traceability to a previous work that was considered aesthetic also is a candidate to be aesthetic. For example, the jump from classical paintings to contemporary avant-garde work has a direct lineage of traceability through influence that denotes avant-garde art as aesthetic regardless of subjective beauty. Through this understanding of aesthetics, bodybuilding can be deemed a sport, performance, and art and still be correct.

Abria Doe ( Rasheeda Denning)  
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### **Efficiency Enhancement Initiative**

This project will be highlighting prevalent issues at Black Homeschoolers of Central and how they have impacted the efficiency of the Bonner team since the beginning of their partnership 2021. Combat the decline in efficiency a phase one skill-based training curriculum has been designed to provide the preliminary skills needed at the site. The skills to be discussed include social media creation and management, document creation and record keeping, and entry level grant writing. The skills listed above correspond to the current positions and most needed positions at the site. This project is

designed to centralize need to know information, aid in the onboarding process of new Bonners, and provide a well-rounded skill set.

Simon Doku (Rasheeda Denning)  
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### **Enhancing Design Efficiency for BHCFI**

As an integral part of the Black Homeschoolers of Central Florida (BHCFL) team, Simon has played a crucial role as a graphics designer and marketing intern, contributing to the creation of essential promotional materials for organization events. This includes designing table tents, flyers, Silent Auction advertisements, presentations, promo videos, websites, brochures, and booklets—amounting to a total of 60 high-quality designs. While these materials are vital for advertising programs and events, the escalating demand poses a challenge to maintaining efficiency and meeting deadlines within the small organization. Recognizing the need for a more streamlined approach, the team transitioned from using PosterMyWall to Canva Pro, which provides a broader range of resources and a collaborative workspace for the graphics team, including Mrs. Denning. After speaking with Mrs. Denning, it was evident that the demand for promotional materials is on the rise, presenting challenges in efficiently delivering these products. Observing trends in advertisement needs, Simon identified potential areas for improvement to streamline work processes. In prioritizing the identified needs, two critical areas emerged: Advertisement Production Efficiency and Resource Utilization. While both are essential, Simon proposed focusing on enhancing the efficiency of the graphics team to ensure timely and high-quality deliverables.

August DuPuis (Dr. Joel Davis and Dr. Christopher Jimenez)  
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### **Stolen Language, Stolen Spirit: An exploration of Indigenous Two-Spirit language loss and its impacts on gender expression\***

The purpose of this project is to bring further attention to loss and colonization of language in North American Indigenous populations. This project focuses on the Two-Spirit identity and the impact its partial erasure has on Indigenous communities. Language loss significantly affects gender expression in this population. Two-Spirit is an Indigenous umbrella term that attempts to describe a complex range of identities. These identities can relate to gender and sexual identities as well as cultural and community roles. The term Two-Spirit is relatively new as it was proposed by elder Myra Laramee (Cree Nation) in 1990 at the Third Annual Inter-tribal Native American, First Nations, Gay and Lesbian American Conference. Two-Spirit was proposed in replacement of the commonly used slur 'berdache.' I argue that the colonization of Indigenous sexualities and genders is a central tactic of settler colonialism. By providing Indigenous perspectives on the detriments of the colonized gender system, my project is an act of resistance. Moreover, the project reveals the ways that colonialism as a global phenomenon hinders the expression of gender by compressing a broad gender spectrum into a rigid, binary systems.

\*This research was funded by a 2023 SURE Gran

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### **What is the Price of Your Vote?: An Experimental Analysis of Vote-Buying in Florida**

Democratic backsliding is the most crucial issue for the longevity of established democracies. The United States has banned vote-buying behaviors, citing it as a method to promote corruption and inequality. However, in this research project, a hypothetical scenario is created wherein vote-buying is allowed to return to legality. This project explores the effects of political polarization on democratic disengagement. The resulting disengagement and negative public opinion towards democratic systems is measured in the survey experiment by finding the willingness to sell one's vote as well as how much

the person values their vote in dollars. The survey employs a contingent valuation and choice experiment methodology with regression analysis to find the effective factors involved in the individual's vote-selling decision.

Alyssa Fernandez (Dr. Roslyn Crowder)

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### ***Myrcianthes fragrans* Displays Dose-Dependent Cytotoxic Effect on Acute Lymphoblastic Leukemia Jurkat Cell Proliferation, Metabolism, & Apoptosis**

Cancer remains a significant health concern worldwide demanding innovative treatment approaches. Acute lymphoblastic leukemia (ALL) remains one of the most common childhood cancers. This study explores the anticancer properties of *Myrcianthes fragrans* (Simpson's Stopper) root extract on Jurkat E6-1 leukemia cells under normal oxygen and low oxygen conditions. Through various assays, including Trypan Blue staining, CellTiter-Glo, and Annexin V Flow Cytometry, we evaluated the cytotoxic response of leukemia cells to different dosages of *M. fragrans* root extract. Under normoxic conditions, *M. fragrans* extract exhibited a dose-dependent increase in cell death and a reduction in cell viability and metabolism in Jurkat E6-1 cells. The highest dosage (10 $\mu$ L) demonstrated the most significant impact, leading to a substantial decrease in cell viability and metabolism, indicating a potent anticancer effect. Under low oxygen conditions, the *M. fragrans* extract displayed a dose-dependent cytotoxic response, albeit to a lesser extent compared to normoxic conditions. Overall, this study highlights the therapeutic potential of natural compounds like *M. fragrans* in combating leukemia, offering new avenues for cancer research and treatment development.

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### **Traumatic Medicines: Victor Frankenstein's Catastrophic Creation\***

Victor Frankenstein's narrative clearly portrays him as a traumatized subject. Psychoanalytic interpretations focus on developmental traumas, from the Oedipus complex to the originary trauma of subjectivity, but none have fully considered his trauma as stemming from an actual event. My paper seeks to reconstruct Victor's traumatic narrative, organizing its interpretation of Frankenstein from shock to overwhelm to inexpressibility, while acknowledging the paradox that reconstruction might lead back to the trauma itself. This attempt to give Victor a voice as an individual, not just a symbol, recognizes that no narrative reconstruction is completely adequate. Integrating trauma theory from critics like Shoshana Felman and Cathy Caruth, the paper emphasizes the therapeutic need to work through trauma, balanced with the ethical imperative to avoid perpetuating traumatic repetition. This approach allows for a nuanced understanding of trauma, its articulation, and the challenges of narratively reconstructing traumatic experiences without falling into endless cycles of re-traumatization.

\*This study was funded in part by the 2023 SURE Grant

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### **Parks and Perspectives: Unraveling the Connection Between Urban Green Space (UGS) Access, Life Satisfaction, & Subjective Well-being (SWB) in Deland and Nishinomiya.**

Climate change exacerbates the impacts of habitat fragmentation and urban sprawl. Preserved natural environments and planned outdoor recreation areas within cities, collectively called Urban Green Spaces (UGS), not only provide ecological benefits such as providing habitat for wildlife; mitigating flooding and heat island effects; and reducing air, water, and noise pollution; but also improve the well-being of city residents via enhancing their physical/mental health. One way to measure how access to UGS impacts well-being is via self-reported Life Satisfaction (LS) and Subjective Well-Being (SWB)

assessments. This study used surveys and interviews to assess how access to UGS affects resident LS and SWB in DeLand, Florida and Nishinomiya, Japan, and evaluated the relationship between these measures of well-being and the spatial distribution and accessibility of UGS in each location. UGS access was not as important for the LS and SWB for young adult residents of Nishinomiya as it was for young adult residents of DeLand. This could be connected to how widely dispersed and less accessible UGS are in Nishinomiya than DeLand. However, a small majority of international students and older Japanese residents of Nishinomiya believed it was important to their LS and SWB. Perception, access, and land planning of UGS, therefore plays a large role in whether UGS is considered valuable or necessary to a person's LS and SWB

Leonidas Gonzalez (Dr. Joel Davis and Dr. Lori Snook)

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### **The Writers Room: A Character Study**

What does it mean to be original? In a landscape dominated by AI and quick love stories, the quest for originality is complex. As a Sullivan writer and Producer, I'm spearheading 'The Writers Room,' a production exploring creativity and the struggle for originality in today's era. This production delves into the essence of creativity, probing questions surrounding the creation of truly unprecedented works within our contemporary era. Set to debut at the shoestring theatre from May 3rd to 5th, this community show fosters self-discovery and acceptance. It showcases narratives of queer love and existence devoid of prejudice, catering to our LGBTQ community. Through the synergy of inclusive and compassionate minds, we've crafted a nurturing space brimming with love and unity, where we collaboratively bring forth our collective spirit for the show like this. My project is to give existence without a lesson to be learned for the heteronormative audience while also discussing the challenges that come to creating a show from scratch. Without didacticism, it delves into the challenges of crafting a story solely from one's imagination.

Orion Gonzales (Dr. Dan Plante)

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### **OX-r Trail, a XR wireless Network Mapping tool that scans and maps out nearby networks within an Augmented Environment to find useful data or detect dangerous sources.**

The XR Wireless Network Mapper is an Augmented Reality Application built from Unity Engines and the Meta Quest 2. The purpose of this project is to gather information on the nearby networks that are detected by the VR headset and create a Mixed Reality (Both VR & AR) environment to display this information for easy visualization. Some of the information gathered is displayed by different Unity Objects such as Wifi Signal Strength, BSSIDs, security of networks, and more. With the mapping function of this application, users can simply travel inside buildings to find out where Networks lack signal or security. An additional Cybersecurity function has been added to track and pinpoint Rouge access points or Hidden Shadow ITs which are ssids that are set up without authorization or dangerous hidden ssids. Finally, this application can be set up with a boundless wireless Headset meaning any travel is not too far and multiple floors and different networks can be mapped out while scanning.

Paige Goodman

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### **Manna Garden 2G**



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### **Meaning of Indigeneity to Saraguro**

The essential content of my work is to be able to understand the meaning of indigeneity to the indigenous communities of Saraguro, Ecuador. I demonstrate this knowledge through a professional research process conducted through field research in Saraguro. I first propose my research question and hypothesis of what I thought the definition and limitations of indigenous identity meant based on a literature review. Then, I present my findings of what the indigenous peoples of Saraguro said to my original research question. These findings were created by directly interviewing people. However, through my field research, I changed my question and proposed a new question of the qualifications to be considered indigenous Saraguro. These findings are similar but different from my original findings. The important factor of indigeneity is the community and though physical factors such as long hair, clothes, and language are important, it is not what defines them. Emigration is a threat to losing this identity but the children of indigeneity are actively participating in their communities and continuing the indigenous identity despite the pushback from modern politicians.

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### **Why the Right Went Wrong: An argument for classical conservatism against modern conservatism**

This paper looks at the ideological drift from classical to modern conservatism, using Edmund Burke, a critical thinker in classical conservatism, as a comparative figure. Classical conservatism, as advocated by Burke, emphasizes the values of tradition, social cohesion, and a cautious approach to change, advocating for gradual adaptation rather than radical shifts in societal progress. In contrast, modern conservatism has increasingly drifted from these principles, often prioritizing rugged individualism, worship of the free market, and incredibly aggressive stances on social/political issues. This shift reflects important developments in the political and social landscape, influenced by globalization of markets, rapid technological advancement, and shifting demographic/group identities. Through a comparison of Burke's work and modern conservative thought, this piece argues for an embracement of classical conservatism's values. It posits that cherishing Burkean principles can give a more stable and balanced path forward, fostering harmony and continuation of good institutions. This research highlights the need for a conservatism that champions the general good, respects historical precedent, and approaches evolution with prudence, highlighting the importance of Burke's insights in addressing today's political crises.

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### **Exploring the Impact of Expanding Tourism Industries on Economic Inequality in the Caribbean/Latin American Region**

This paper investigates the intricate relationship between the tourism industry and economic inequality within the Caribbean/Latin American region. Employing a comprehensive analysis, it examines how the growth of tourism affects income distribution, employment opportunities, and socioeconomic disparities. Utilizing a mix of quantitative data and qualitative observations, the study delves into the nuanced dynamics at play, considering factors such as government policies, infrastructure development, and social welfare programs. Findings suggest a complex interplay between tourism expansion and inequality reduction, with both positive and negative implications observed across various dimensions. By shedding light on these dynamics, this research contributes to a deeper understanding of the

socioeconomic consequences of tourism development in the region, offering insights to policymakers and stakeholders striving for more inclusive and sustainable growth strategies.

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### **Two Steps Forward, One Step Back. The History of Methadone, 1947 to 1974\***

There is debate concerning continuity and change in punitive and medical responses to the “heroin question” across periods referred to by American drug historians as “the classic age of narcotic control” - from the twenties to the middle sixties - to the “therapeutic golden age” of the early seventies. Which raises the question, why did Richard Nixon go against the grain of long-standing United States drug policy by supporting methadone maintenance in 1971? This paper argues that Nixon's reversal of fifty years of U.S. drug policy was influenced by shifting demographic factors such as age, race, gender, and socio-economic status among heroin using groups, making "maintenance therapy," something once considered radical, appear more feasible. In terms of historiography, this paper will draw from social, medical, and legal commentaries from David Courtwright, David Herzberg, Nancy Campbell, and Michal Raz in order to analyze methadone's history up to what I call "Nixon's shift" in 1971 and will further elucidate the subsequent re-regulation of methadone in 1974. This project utilizes an array of primary source material ranging from Congressional Records found in the Federal Depository located under the DuPont Ball Library, to archival data culled from the "Harry Anslinger Personal Papers" housed at Penn State University, and the “Files of the Special Action Office on Drug Abuse Prevention” (S.A.O.D.A.P.), and the “Files of the Drug Enforcement Administration” (D.E.A.) located at the National Archives. And in addition to collected ethnographic and census data, court documents, interviews, and newspapers, this research will also present oral histories I have conducted with Nixon-Era policy makers.

\*This study was funded in part by the 2023 SURE Grant

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### **The Worth of William's Words: A Study of William Wordsworth's *Surprised by Joy* and Its Relation to Thomas Wordsworth**

The purpose of my senior project is to explore my thesis question: who is William Wordsworth's poem, *Surprised by Joy*, really about? It is universally agreed on that the speaker in this poem is him, and the subject he is speaking to is his late daughter Catherine. However, there has never been any presentation of evidence on why scholars believe Catherine is the subject. After extensive research, I have come to a contrary conclusion, supported by evidence: the subject of *Surprised by Joy* is not Catherine, and is instead Wordsworth's late son Thomas, who passed in the same year. In my essay, I discuss the significant events in each child's life and the relationship between the children and Wordsworth; the publication *Wordsworth in His Major Lyrics: The Art and Psychology of Self-Representation* by Leon Waldoff, and how this work proves that William Wordsworth was speaking from his own perspective; and then I argue that *Surprised by Joy* is not about Catherine, or, at least, not heavily pertaining to her; and instead about William Wordsworth's son: Thomas Wordsworth.

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### **USF Investment Tournament Presentation: BLBD**

The presentation comprises of fifteen primary content slides and about fifteen to twenty additional appendix slides about the team's research on Blue Bird Corporation (NASDAQ: BLBD) and its corresponding buy recommendation for its stock. The presentation includes sections on

recommendation catalysts, company overview, industry overview, financial analysis, valuation, and investment risks. The presentation will present a thesis that the company's stock, as of the closing price on April 1, is undervalued with 15% potential upside, backed by three valuation models and financial statement forecasting through 2029. The main thesis points are the company's improved management, growth positioning in a niche industry, and strengthening financial health.

This presentation was created for and will be presented at the USF Investment Tournament on April 6. The research and presentation for this project was completed without a faculty mentor.

Jackson Hodor (Dr. Michael King)

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### **Spilanthol alters the consumption of, reactive taste behaviors to, and neural responses to NaCl solutions in Male Wistar Rats**

Salt intake over a lifetime can lead to significant detrimental health risks, including cardiovascular disease and hypertension. Reducing salt intake while keeping salty flavor is challenging due to taste preferences. Spilanthol is a naturally occurring compound that has emerged as a salt taste enhancer. This study explores the effects of spilanthol used in sodium chloride (NaCl) solutions on sodium consumption, taste reactivity behaviors, and neural responses in male Wistar rats. Consumption amounts, reactive taste behaviors, and neural activity in the amygdala were observed for NaCl solutions with and without spilanthol. Rats were found to exhibit different consumption responses from different concentrations of NaCl, but not with the addition of spilanthol. Taste reactivity tests showed no significant differences in ingestive or aversive behaviors when NaCl with spilanthol was compared to NaCl alone. Fos protein activation in neurons in the amygdala showed significant differences among NaCl treatments, but not treatments of NaCl with spilanthol. Results suggest that spilanthol is not an effective taste enhancer for NaCl.

Atalia Hopkinson (Dr. William Sause)

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### **Virtual Reality Exposure Therapy for Agoraphobia\***

This research paper explores the use of Virtual Reality (VR), specifically Virtual Reality Exposure Therapy (VRET) to help effectively in the treatment of agoraphobia. VRET has been used for the treatment of mental disorders and phobias including agoraphobia for many years and VR technologies have vastly improved variety and accessibility of treatments for patients all over the world. During an extensive examination of reviewed literature, certain limitations were revealed. To address those constraints, a solution was rendered using the Mozilla Hubs application which has features to overcome the barriers in obtaining effective treatment. In this present research, patients diagnosed with agoraphobia will 1) respond to a survey that serves as a guide for the therapist to know which level of exposure would best be suited for them and 2) create a personalized character to enter and engage in a created 360-degree virtual environment with phobic stimuli that are controlled, immersive, multi-user and multi-platform friendly. This study reviews past research, proposes a solution, creates a virtual simulated environment, and contributes to the continued evolution of using VRET applications for the treatment of agoraphobia.

\*second place 2024 Library FSEM Research Competition

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### **Hypoxic water conditions lead to an increase of respiration rate and surface breathing in Bluegill Sunfish, *Lepomis macrochirus*.**

Dissolved oxygen concentrations in springs will fluctuate and drop in high temperatures. Many species of fish, including Bluegill, have adapted to be able to take oxygen from the very top layer of water. I recorded 15 minutes of 5 *L. macrochirus* in different DO concentrations. I determined the respiration rate by counting the number of gill movements in 10 second periods for every concentration between 2 mg O<sub>2</sub>/L and 8 mg O<sub>2</sub>/L. I found respiration rate increased as DO decreased and the lowest DOs had over 50% of fish at the surface. The more species of fish that have learned to surface breathe mean more surviving as global temperatures increase and DO levels change more frequently.

Hailey Jones, Delicia Bent, Izais Ocasio, Robin Roberts, Ijeoma Ogbuike, Naomi Schuster and Elizabeth Miller (Dr. Julia Schmitt)

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### **Mind Games: An Original Theatre Arts Production, written and produced by Senior Theatre Arts Majors**

The Senior Capstone Project in the Theatre Arts Program requires students to work collaboratively with one another on a singular production. The expectation is that the students work together to rehearse, produce, market, and stage an original mainstage play. This year, the students selected the theme of a “shattered-self”, and placed allegorical aspects of the human experience (such as Hope, Trauma, Fear, et.) into a murder mystery style play. This presentation will offer an overview of the production, from its earliest incarnation to the final polished product.

Graham Jump (Dr. Jon Carrick)

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### **Unraveling the Development of Business Incubators: A Qualitative Cross-Country Analysis in the Philippines, Thailand, and Australia\***

This study holistically examined the development of business incubator programs in Southeast Asia and Australia. To explore this phenomenon, the study used a three-step methodology. Within the three-step approach, I conducted an in-depth analysis using interviews of 8 case incubator. programs, 3 startup founders from incubation programs, as well as 4 meetings with diverse organizations that play a role in the entrepreneurial ecosystem of the regions I visited. A cross-country case approach was used because it provided a way to triangulate the findings from a different angle. The three-step study surfaced three key themes relating to how the development of business incubators are impacted by availability and access to government support structures, a country’s cultural risk orientation, and the unique motivations that drive the motives for establishing an incubator. This is one of the early studies that explores the development of the business incubator especially in this specific regional context, and the findings from the research have laid the foundation for the study of the development of business incubators.

\*This study was funded in part by the 2023 SURE Grant

Coral Kehm (Dr. Terence Farrell)

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### **Infection of Curly-Tailed Lizards (*Leiocephalus carinatus*) with the Pentastome Parasite, *Raillietiella orientalis***

Invasive species can cause great ecological damage to the environments they infiltrate, from over-predation of native species to interspecific competition. Invasive Burmese pythons (*Python bivittatus*) brought a pentastome parasite, *Raillietiella orientalis*, from Southeast Asia to Florida. This pentastome now poses a grave threat to Florida snakes. As *R. orientalis* progress from eggs, to larvae, to adults, they utilize a series of intermediate hosts, including insects, anurans, and smaller reptiles. So far, only a few lizard and anuran species have been confirmed to serve as hosts for *R. orientalis* in Florida; very little is

known about which other species the pentastome can infect. We performed a laboratory infection study to determine if curly-tailed lizards (*Leiocephalus carinatus*) may serve as hosts for *R. orientalis*. We found that *L. carinatus* were infected with *R. orientalis* larvae and experienced visceral pentastomiasis, regardless of the type of infected food the lizards consumed or the capture site from which the lizards originated. Our findings indicate that *R. orientalis* has numerous opportunities to infect *L. carinatus* and thereby expand its geographic range across Florida. Furthering knowledge of *R. orientalis*' hosts, life-cycle, and range is essential to understanding and predicting the parasite's spread, and in protecting native species.

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### **Experimental Ekphrasis: The Romantic Experiment and the Limits of Representation\***

This paper explores scenes of experimentation in Mary Shelley's *Frankenstein* guided by the literary term ekphrasis—the verbal representation of the visual. Shelley's linguistic descriptions of the perception and appearance of the creature communicates a paradoxically unimaginable image. Specifically, through her emphasis on light and color, Shelley's scenes of experimentation assume a painterly effect, reminiscent of historically artistic practices. As Alexandra Neel suggests, Shelley's "undeading" of her creature follows the practices displayed in still life, but also figuratively stills life to fasten the creature to not only a linguistic, but also a visual medium of perception. Though Shelley's portraits of Caroline and William are most often referred to in ekphrastic analyses of her text, I argue that Shelley's attempts at rendering the creature in her scenes of experimentation are examples of Neel's stilled life, and therefore, ekphrastic moments. As a result, I am able to apply a visual, artistically driven analysis of the elements in Shelley's descriptions to reveal that in her attempts to represent the creature, she inevitably fails to represent him. Through the visual dissection of actual oil paintings, I establish a framework in which I can analyze literary scenes, specifically those that deal with the ambiguity of life and death through modes of experimentation. Ultimately, the examination of the creature's overall unrepresentability against the backdrop of artistic renderings of experiments regarding the ambiguity of life and death, allows for more extensive questioning of the limits of art and literature.

\*This study was funded in part by the 2023 SURE Grant and a 2023 LaValle Grant for the arts.

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### **Navigating Mental Health Communication as a Collegiate Student-Athlete: a Qualitative Study**

The foundation of my research was built upon my own experiences as a Division 1 collegiate athlete. As a student-athlete entering college during the COVID-19 pandemic and taking over as a board member of the Student Athletic Advisory Committee, I had the opportunity to work closely with both other athletes and staff members within the athletic department. Based on observations within my own team, I developed my research with the goal of examining if other student-athletes in positions like my own have experienced similar communication issues when it comes to the topic of mental health. Using qualitative methodologies, this study looked into how student athletes at a small university in the south interpret communication about mental health from their athletic departments. A total of 15 participants were recruited to take part in in-depth interviews, based on a snowball sampling of student athletes reaching out to their teammates. The majority of participants were all from different teams, with a pretty even split of gender representation. Through a modified grounded theory approach, patterns were pulled from the data to develop my theory around how to improve the efficiency of communication between athletic administrators and student-athletes about mental health topics.

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### **Invasive Parasite, *Raillietiella orientalis*, Infections in Curly Tail Lizards, *Leiocephalus carinatus***

*Raillietiella orientalis* is an invasive pentastome parasite that has become a major conservation concern for native Florida snakes. Studies on *R. orientalis*'s life cycle are becoming needed, thus a study on a new potential intermediate host was performed on curly-tail lizards, *Leiocephalus carinatus*. Infection experiments were performed to determine if curly-tail lizards can be infected with *R. orientalis*, and if so, whether they exhibited visceral or pulmonary pentastomiasis. Parasite exposure was performed in two ways, an anole, *Anolis sagrei*, fed group and a roach, *Blaberus discoidalis*, fed group. Curly-tail lizards were successfully infected as intermediate hosts (visceral pentastomiasis) but not as definitive hosts (pulmonary pentastomiasis). They may be paratenic hosts as they added another stage to the parasite's lifecycle. Continued research on this subject would be important to conservation efforts to help with the decline of native snake populations. With a new intermediate host being found, there is a plethora of new data to be collected and studied with this new host and lifecycle of this parasite.

Nolan Lappin (Dr. Christopher de Bodisco)  
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### **Econometric Analysis of Federal Government Spending**

The analysis of federal government spending is a complex and multifaceted process, influenced by a variety of economic, political, and social factors. This report aims to unravel the dynamics of federal budget allocations and the underlying factors that can cause fluctuations in overall government expenditure. Through an extensive econometric time series analysis, this study will examine the effects of both exogenous shocks and endogenous policy decisions on the levels of federal spending. By applying sophisticated econometric techniques and models, as well as various tests for stochastic errors, the analysis seeks to provide a granular understanding of the causality and correlation inherent in federal spending patterns. The findings are intended to facilitate macroeconomic research for the Roland George Investment Program (RGIP) which is using much of my research to create a new macroeconomic model for fixed-income research.

Phobelien A. Luders-Burley (Dr. Michael McFarland and Dr. Emily Mieras)  
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### **Power, Manipulation, and Love: A Rhetorical Analysis on the 1999 Cult Classic Film *Cruel Intentions***

Power has been around us and shaped our everyday lives since the beginning of time. Power is ubiquitous, omnipresent, pervasive, and everywhere in society and shapes human experience. Drawing on Michel Foucault, power manifests through social structures, hierarchies, norms, and systems of knowledge that guide human behavior and relationships (Foucault, 1976). Power can be seen specifically through social institutions, religious groups, interpersonal relationships that we immerse everyday with like intimate relationships and friendships, knowledge, discipline, and surveillance. Social institutions like schools, governments, religious groups, corporations all exercise power by establishing social norms, controlling resource availability, and disseminating prevailing cultural beliefs. Their official and informal policies serve as frameworks that define what is possible in life (Foucault, 1997). Interpersonal Relationships see power dynamics and imbalances of social status, gender roles, sexual orientation roles, ethnic identifies create imbalances in personal interactions that happen on a daily basis. People in their specific societies perceive unspoken rules about degrees of influence they hold with peers based on cultural messaging about their group. Knowledge can be seen as social construction of power. What a society deems as truth or moral fact contains normative judgments policing the boundaries of influence. The authority to define problems/solutions, categorize groups, pathologize behaviors becomes basis for

systems of control (Foucault, 1980). Finally, internalized power through discipline and surveillance - As individuals, we check our behavior against internalized norms that have been shaped by exposure to culture and institutions of power (Foucault, 1980). In the absence of overt external policing, we control our behavior to conform to dominant societal messaging in order to avoid consequences such as shame or criticism. The 1999 film *Cruel Intentions* depicts acts of power through intimation, manipulation, and coercion tactics that are performed and exercised by the evil stepsibling duo Kathryn Merteuil (Sarah Michelle Gellar) and Sebastian Valmont (Ryan Phillippe), to help reinforce their status' in their New York City elite subculture and willing to do anything or hurt anyone to keep and control their power statuses'. Through the influence of mis en sense certain elements of the film like: camera angles, dialogue, music, etc *Cruel Intentions* shows the audience power and who controls it.

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### **Mrs. Crocker, Mrs. Consumer, and Mrs. Chef: Women's Agency and Perceptions of Convenience Food 1950-1970**

In 1950 Mason Haire published a study in the Journal of Marketing which asked focus groups to give descriptive words for a hypothetical woman based on two different shopping lists. The lists were identical except for the inclusion of instant coffee on one list and traditional ground coffee on the other. The study revealed that people had harsh judgements for the hypothetical woman who bought instant coffee. 20 years later in 1970 a replication of the study was published which revealed that people had far lower levels of judgment for the woman using instant coffee. Laura Shapiro is one of the biggest contributors to writing about convenience foods and women's role in their preparation. Specifically *Something from the Oven: Reinventing Dinner in 1950s America* addresses the process of presenting convenience foods in more elegant fashions. The advertising aspect is written about by Katherine J. Parkin in her book *Food is Love: Advertising and Gender Roles in Modern America* which addresses the emotional heartstrings that food advertisers pulled to influence women to buy their products. My work contributes to the existing literature on convenience foods and women's agency in their increased social acceptance by addressing women's role in food production, food purchasing, and food preparation in a thematic chronological timeline during the twenty years from 1950-1970. I believe that it is important to view this process through the tracing of how women influenced the acceptance of these foods and were not merely passive adopters of change forced by corporations.

\*This study was funded in part by the 2023 SURE Grant

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### **Factors affecting improved agricultural output under Khrushchev versus Stalin in the Soviet Union.**

Throughout this project, focus has been placed on the agricultural economy of the Soviet Union from 1950 to 1963. The driving question this project has posed is what lies at the root of the significant increases in agricultural output under Nikita Khrushchev's regime as compared to that of Joseph Stalin's. From the beginning of Khrushchev's regime, gross agricultural output in the Soviet Union increased drastically, such that by the end of his time in power the USSR was producing nearly double what it had been in 1953. Certain years during Khrushchev's regime were much lower, but these years have been shown to be outliers based on climatic variables, notably a significant drought in 1963. Explanations for this significant increase in output vary, but this project has settled on a few of them as most important for understanding the trend in output. Of note are the increased Sovkhoz numbers and consolidation of former Kolkhozes into Sovkhoz. This shift from peasant production into state-organized firms represents a significant part of the puzzle and demonstrates the power of economies of scale in Soviet

agriculture. Two other significant factors in the increased crop output currently seem to be the growth of hectares utilized for agriculture due to campaigns under Khrushchev, as well as mechanized factors.

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### **Pantry what you Preach: Hispanic Health Initiatives Natural Food Pantry Program**

Abstract: Historically, the main purpose of food pantries has been to increase caloric intake, but they neglect to improve nutrition, prevent diet-related illnesses, or transform the food environment. These abandoned issues have often caused food pantries to contain processed, convenient-to-store, unrefrigerated items such as bread, canned food, and rice. However, these items do not provide a well-rounded diet or suit the assorted food needs of individuals from diverse backgrounds. Many low-income families now consume processed foods with limited access to fresh fruits, vegetables, and meats. These habits put many communities at a disadvantage, as those who are struggling with food insecurity are also less likely to manage diseases well. According to the USDA, a staggering 30-40% of food in America is wasted. This project investigates a way to guide this excess of food to communities that can greatly benefit from it. Hispanic Health Initiatives (HHI) is a 501(c)3 non-profit organization that seeks to educate and empower the West Volusia County area with the ability to make informed decisions about their health, wellness, and care options. By disseminating accurate information in a culturally sensitive and linguistically competent manner, HHI is able to provide accessible, health-informed content to the community and offer free lifestyle coaching when requested. During this project, a natural food pantry was instated into the everyday operations of HHI by organizing existing resources and directing them to communities that have barriers to accessing fresh vegetables and meats. The targeted communities were low-income, historically underserved residents of West Volusia County. Providing access to sustainable healthy, free food options customized to each community so they can easily incorporate them into their daily diets was the mission of this project.

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### **The Emotional Labor and Identity Sensemaking in Recruitment: It's Not For Everyone**

Drawing upon Karl Weick's sensemaking theory, this study analyzes the multifaceted nature of recruitment, shedding light on the emotional labor involved in the talent acquisition profession; specifically, examining how recruiters navigate their individual identity and organizational responsibilities. Through a qualitative analysis of 12 in-depth interviews with recruitment professionals, the data demonstrated that recruiters use a variety of coping mechanisms to deal with the negative aspects of the field like rejection and unpredictability. These coping strategies include minimization, linguistic reification, remembering their impact, and separation. Furthermore, this study reveals the complex interplay between individual and organizational identity in the recruitment realm, as the two identities often blur together and sometimes clash against each other. These findings highlight the symbiotic relationship between the nature of the recruiter's role and the identity negotiation, shedding light on the emotional strain inherent in recruitment. By acknowledging and addressing the emotional labor of recruiters, organizations can foster healthier workplace environments, and improve the recruitment process for all stakeholders involved.

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### **Balancing Authenticity and Adaption: Differences in the Portrayal and Preparation of Chinese and Korean Food for an American Audience\***



The United States is often referred to as a melting pot of various cultures, cuisines and customs. Melting pot perhaps may be a more apt of a term than we realize, as many immigrant groups entering the US are forced to adapt and assimilate to the majority White culture in order to succeed economically and socially. Oftentimes, this has been in finding a niche in service—whether that be food, laundry, nailcare or cleaning—and creating a community that allows for immigrants of that group to have more stable opportunities for economic growth. By examining the history of Chinese and Korean immigration into the United States, we may be able to recognize the differences in how they prepare and portray their food to American audiences in restaurants and cookbooks. Are the differences significant and what impact do they have on how Korean and Chinese immigrants have managed to cement their culinary impact in America?

\*2<sup>nd</sup> place 2024 Library FSEM Research Competition

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### **The Effects of the Ginseng Panax on Reactive Oxygen Species and Troponin Levels after Induced Hypoxia in Cardiac Myocytes**

Ginseng panax is an Asian medical herb commonly utilized for cardiac protection due to its antioxidant properties. Cardiac conditions such as myocardial infarction cause oxidative stress through ischemia, limiting oxygen supply and producing reactive oxygen species (ROS) and myocardial necrosis. Following apoptosis, cardiac-specific troponins such as cTn1 and cTnT are displaced from the actin filaments in the myocardium. Therefore, cTn1 and cTnT are used as diagnostic tools for myocardial infarction. This study aimed to investigate the effects of ginseng panax on ROS and troponin levels after oxidative stress. A crude ginseng panax extract (25, 50, and 100 µg/ml) was administered to the H9C2 cell line 24 hours before and 15 and 25 minutes of induced ischemia. Cell homogenate and media supernatant samples were collected. Results demonstrated a significant difference between the different ginseng panax concentrations after prolonged periods of hypoxia in cell homogenate samples. Superoxide dismutase (SOD) enzymatic activity was calculated in the 25-minute treatment, also indicating a significant decrease in SOD activity at a 100 µg/ml concentration. Based on the obtained results, it can be concluded that ginseng panax affects ROS levels within cardiac myocytes at higher concentrations. The effects of ginseng panax on cardiomyocyte troponin levels were inconclusive.

Erin Newman (Dr. Ronette Lategan-Potgieter)

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### **The Effect of Beta-Adrenergic Receptors on Cardiac Myocyte Contractility Using *C. intestinalis***

Cardiovascular disease is a major contributor to the mortality rate of individuals within the United States population. One pathway that contributes to cardiovascular disease is the Beta receptor pathway. Improper regulation of the beta-adrenergic pathway will lead to continuous feedback of catecholamines back to the beta receptor. Constant signaling of this pathway leads to an increased heart rate which results in further complications with the heart such as increased left ventricular ejection fraction (de Lucia, Eguchi, & Koch, 2018). A common treatment that is used to manage beta-adrenergic dysregulation is beta-receptor blockers. Beta-blockers are antagonistic drugs that bind to beta receptors and reduce signaling in the pathway to decrease heart contractility (Woo & Xiao, 2012). Therapies using beta-receptor agonists are also used to increase signal in the beta-receptor pathway and therefore increase heart contractility (de Lucia, Eguchi, & Koch, 2018). *Ciona intestinalis* is a simple chordate that belongs to the same phylum as humans. The structure and cellular makeup of the *C. intestinalis* heart are comparable to human embryo hearts, making *C. intestinalis* a valuable model in research of human heart

mechanics (Davidson, 2007). The purpose of this study was to investigate the effect of betaadrenergic receptor antagonists and agonists on the contractility of cardiac myocytes in *C. intestinalis* hearts. The results found a significant difference between the treatment groups, isoprenaline, acebutolol, and the control group. There was also a significance between the isoprenaline and acebutolol group, as well as between the isoprenaline and the control group.

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### **Strategies for Sustaining a Nonprofit Organization**

The project outlines strategies for sustaining nonprofit organizations, emphasizing the importance of financial stability, organizational capacity building, program effectiveness, and stakeholder engagement. Diversifying revenue streams, investing in staff development, fostering strategic collaborations, and demonstrating impact through effective program design and evaluation are highlighted as key approaches. Cultivating strong relationships with donors and stakeholders is also emphasized. Overall, a comprehensive and proactive approach is essential for nonprofit sustainability and continued impact in addressing societal challenges.

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### **The Impact of Temperature on Butterfly Embryogenesis\***

A change in temperature results in various effects in poikilothermic (Cold blooded animals). This is no different during the period of fertilization to egg hatching in painted lady butterflies, *Vanessa cardui*. I studied and analyzed how temperature affects the development of this specie. I hypothesized that their embryo development will be at a slower rate at lower temperatures. I used the temperature to stage butterfly embryos, so that their collection times can be fixed at times that are convenient for researchers, and when the butterflies are prone to laying eggs. There were various processes involved in the embryo-prepping stage, which helped us to successfully set them up for imaging under the high magnification microscope. After that, we proceeded to test out the changes in this crucial stage, under room, hot, and cold temperatures. We compiled the results of the experiment into a chart to show the variations in embryogenesis because of temperature change.

\*This study was funded in part by the 2023 SURE Grant

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### **Community Through Lenses**

Rodrigo has been working with cameras throughout his life, but DeLand gave him the opportunity to use his skills as a resource for community programs. Since he first came to the USA three years ago, he has been involved in a variety of projects involving media production. It is hard to start when videographers don't have financial support for basic needs as a media producer (camera, lenses, editing software), but along the way, he was able to overcome this problem. He has seen the impact some of his videos have made in different projects and events. The question to be answered is: Is media production and social media necessary for the success of community programs?

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### **From Farm to Table is Never Simple: Stories from Florida CSA Farmers**

Community supported agriculture (CSA) is one of the many alternative food networks

presented in the last decades as a substitute for industrialized agriculture. However, it is a system far from perfect. Most of the CSA research based on the United States focuses in the northern part of the country, leaving questions for spaces like Florida. This study looks to examine the challenges and successes of CSA farmers when looking at personal and natural contexts. The data collection was done through interviews and qualitative analysis. The results show three main themes: fluctuations in community engagement during and after COVID-19, land management problems regarding weather and urbanization, and criticism of organic agriculture. The results did not reveal any unique connection between Florida's geography and the obstacles faced by CSA farms. However, Florida's susceptibility to extreme weather conditions and rapid urbanization does have a negative impact on how these farms, and many other small-scale agricultural productions, work.

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### **From Dump to Destination: A Review and Redirection of a Local Brownfield Redevelopment Plan**

Urban redevelopment projects are crucial for revitalizing neglected areas and promoting economic growth and environmental sustainability. This research focuses on reviewing and redirecting a local brownfield redevelopment plan in DeLand, Florida, specifically focusing on the former Sandhill Golf Course site (a.k.a. the proposed Beresford Reserve residential development). The site, once the DeLand City Dump then a golf course, presents both challenges and opportunities for redevelopment due to environmental contamination. Through a detailed review of environmental site assessments, stakeholder interviews, and sustainable redevelopment strategies, this research offers recommendations for a comprehensive remediation plan and proposes alternative future land uses, such as a commercial par 3 golf course and mixed-use community park. By prioritizing thorough soil and groundwater testing, proper remediation, and community engagement, the City of DeLand can transform this site into a vibrant, sustainable asset for the community, contributing to urban revitalization and enhancing the quality of life for all Deland residents.

Tristyn Rampersad (Dr. Joshua Rust)

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### **Analyzing Racial Disorientation Through Predictive Processing**

In *Disorientation: Being Black in the World*, Ian Williams explores the feeling of disorientation that individuals experience in the aftermath of racial encounters on racialized people. This disorientation is a whiplash effect that disrupts the reality and forward momentum of the individuals who experience it. In *The Experience Machine*, Andy Clark provides a new model for human perception. He explains that rather than experiencing the world directly through our senses and constructing a picture of the world from what we see and hear, the brain functions much more like prediction machines. Humans already have an expectation for our experiences prior to sensing anything. Our brains then subtracts that predictive model from our sensory data, leaving behind residual errors. I argue that racial disorientation is caused by a residual error in one's racially inflected encounters with another by way of the brain's comparison of its predictive model to actual sensory data. I explore this concept by using Williams as a case study, analyzing his experiences with Clark's predictive processing model.

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### **Investigating protein-protein interactions required for yeast *Saccharomyces cerevisiae* cell fusion**

Cell fusion is an essential eukaryotic process that includes fertilization and muscle development. Much of the fusion processes is under investigation. *Saccharomyces cerevisiae*, or budding yeast, provides a

model to study fusion. Fusion begins when two cells grow towards each other. The cell walls between the mating pair must degrade for membrane fusion. This step involves protein-protein interactions. Fus1 is hypothesized to act as a scaffold to bring other proteins to the zone of cell fusion. However, its protein-protein interactions and function have not been uncovered. Fus1 contains a highly conserved C-terminal SH3 domain that facilitates these interactions. To determine the function of this domain, we analyzed a point mutation where a histidine residue was mutated to alanine, H469A. Through multiple assays we found a decrease in fusion and a decrease in localization to the fusion zone. We hypothesized that this resulted from blocking protein-protein interactions, and investigated the genetic interaction between Fus1 and Fus2, another fusion regulator. We found a decrease in co-localization of Fus2 and Fus1-H469A and determined that the deletion of FUS2 had a smaller effect on Fus1-H469A. We propose the mutation alters Fus1's interaction with Fus2, meaning the SH3 domain serves a role for fusion.

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### **Reinvesting in Clean Energy: Analyzing Florida Policy and Power Plant Efficiency to Identify Areas of Improvement**

Given the existence of human driven climate change, actions must be taken to prevent burning additional fossil fuels while still providing for the needs of a growing population. Focusing on the energy production part of this issue, Florida power plant efficiencies and energy policies were compared to those of California, a state identified as having more policies in place than most in the United States currently do. By using these two pieces, Florida may identify areas of improvement in clean energy through policy changes that can be implemented and use funding through Energy Infrastructure Reinvestment within the Inflation Reduction Act to invest in solar and biomass power plants. Therefore, increasing reliance on clean energy and steering away from continued reliance on fossil fuels. From this study it was identified that California currently has invested more into solar production than Florida and an explanation for this largely rests on California's Renewables Portfolio Standard which provides a plan to shift energy production from fossil fuels to renewable energy sources. This standard as well as county level policy changes could be implemented by Florida to provide firm deadlines for shifting to renewable energy sources.

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**Skye Meraki**

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### **Scottish "Perspective" in Novel Series Outlander: Falling in Love with Jaime of the Outlander Highlands**

Diana Gabaldon's Outlander novel series captivates readers with its blend of historical fiction, sensual romance, and Scottish culture against the backdrop of the Jacobite uprising. Gabaldon's immersive portrayal of Scottish history has prompted critical examination regarding the ethical use of historical narratives. Dr. LuAnn McCracken Fletcher's *Inventing Scotland for Armchair Tourists* highlights Gabaldon's narrative mechanisms, emphasizing the interplay between literary tropes and historical discourse. However, my study seeks to extend Fletcher's analysis by exploring the centrality of the romance between English narrator Claire and Highlander Jamie in shaping a romanticized Scottish identity. It questions whether Gabaldon's portrayal romanticizes a "lost culture" and how it intersects with Scottish nationalism, particularly during the Jacobite rebellion and the Battle of Culloden of 1746.

By examining the role of steamy romance literature within the context of Scottish nationalism, this research sheds light on the complexities of authorial intention and historical narrative construction in Gabaldon's famous novel series, *Outlander*.

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### **Ghosts of Guernica. The German Luftwaffe and the Development of Modern ‘Terror Bombing’, 1937-1942**

The 1937 bombing of Guernica – perpetrated by the German Condor Legion during the Spanish Civil War, is often viewed as the inception of “terror bombing,” a military tactic involving deliberate targeting of civilians during aerial bombardments. However, by 1937, international military theorists in the interbellum era were undecided on the practice; legal agreements dating back to the 1899 Hague Convention somewhat forbade civilian bombardment, yet military doctrines explored the possibility of definitively ending wars with devastating attacks on noncombatants. Undoubtedly, Guernica was a tragic act of violence perpetrated by an evil regime. However, equating Guernica with the inception of terror bombing does little more than reinforce the fact that the Nazi regime was genocidal and terroristic. It belies the nuanced debates between interbellum theorists, the “norm of reciprocity” between belligerent powers in the Second World War, and the ease by which countries agreed to commit terror bombings against civilians during World War Two. While Nazi Germany was undoubtedly terroristic, its path to embracing terror bombing into Luftwaffe doctrine was less than straightforward, and while Germany was significantly motivated by Lebensraum racial ideology, it was also spurred on by the U.K., a country with its own complicated views on terror bombing. This path began not at Guernica, but at the bombing of Warsaw in 1939. Never before had the Luftwaffe designated sectors of a city to bomb in hopes of maximizing civilian deaths, and never before had such an act initiated the “norm of reciprocity.” Determining the 1939 bombing of Warsaw as the catalyst of this reciprocal violence allows for a nuanced understanding of the enduring debates over the morality and legitimacy of civilian bombardments during wartime, debates which persist in the modern-day world.

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### **The Effect of Common Medications on Cell Migration during Embryonic Development in *Ambystoma mexicanum*\***

Cell migration is essential for proper development, organ formation, immune response, wound repair, and tissue homeostasis, while aberrant cell migration is found in various pathologies. Currently, little is known about the effect of many common substances on cell migration and the safety of these for use by pregnant women is often understudied. The goal of this experiment is to see how two of these substances, Vitamin C and Vitamin A, affect cell migration and development in axolotl embryos. As of today, Vitamin C has not been studied in the context of development or pregnancy. As for vitamin A, it affects development but there have been no studies on how it affects cell migration. There is a desperate need of this experiment. Currently in the United States, one million miscarriages occur and about eighty percent of these miscarriages happen in the first trimester of pregnancy. Miscarriage is a traumatic event for women. Effects can include: grief, anxiety, depression, and even post-traumatic stress disorder. The physical effects can include vaginal bleeding, abdominal pain, an cramping for weeks.

\*I received funding for this research through the Stetson Undergraduate Research Experience.

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### **Examining Bias in NCAA Women's Basketball**

Bias is a crucial theme in many different elements of societal constructs, and the majority of the time, seen as a negative component to exist. Specifically, in sports, the outcomes of games, or matches, are weighted heavily on decisions made by referees. In an ideal world, bias would never exist, and the more deserving team would win. However, given that it is widely accepted that bias is prevalent in sports, I will be taking a deeper look into racial and gender bias of referees, correlating to the team's head coach. Various studies have investigated sports bias, with an emphasis on home advantage. It is suggested across a variety of literature that bias of some form does occur, with studies on Association Football, the National Rugby League, National Basketball Association, Major League Baseball, and National Collegiate Women's Basketball Referees. Although these various studies prove that bias is prevalent on various levels of sports refereeing, the focus is mostly on specific calls the referees make on the players, as opposed to a trend of calls that referees make on a certain team, and thus bias regarding the coach, which is what I will be investigating further. To do this I will be analyzing foul calls made by referees during numerous games throughout the last five women's basketball season, looking for potential correlations and differences by diversification of coach's race and gender, as well as home and away impacts.

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### **Complex Relationships Between Groundwater Contamination, Hydrogeological Process, and Historic Land Use in Volusia County, Florida**

This study investigates the dynamics of nitrate and chloride levels in wells within Volusia County, Florida, focusing on their implications for groundwater quality and potential impacts on public health and environmental sustainability. Using Geographic Information Systems (GIS) mapping techniques, comprehensive datasets on nitrate and chloride concentrations in wells were analyzed to assess temporal changes and spatial patterns. Static contaminant measurements were employed to observe changes in nitrate and chloride levels over time, particularly in response to environmental factors such as sea level rise leading to saltwater intrusion into wells. Contrary to expectations, no significant correlation is found between the density of septic tanks and nitrate/chloride levels, prompting further investigation into alternative factors influencing groundwater contamination. Notably, DeLeon Springs, characterized by a low density of septic tanks, exhibits the highest levels of nitrates and chloride, suggesting complex interactions between land use history and hydrogeological processes. Moreover, challenges in digitizing aerial photography and rectifying differences in scales and imagery were addressed to ensure accuracy in spatial analysis. Historical land use maps from the early 1970s indicate a transition in land utilization, with citrus groves not significantly beginning to change until the 1980s and eventually being eliminated by a freeze in 2004. Integrating these historical data with recent water quality measurements collected and/or organized by the Florida Department of Health in Volusia County provided a comprehensive understanding of groundwater dynamics. The study revealed that areas with elevated nitrate levels coincide with former citrus grove locations, indicating potential agricultural sources of contamination in the context of mixed ages of water in the springshed. Specifically, the DeLeon Springs springshed, an area dense in farmland today and historically, reflects an average nitrate concentration in groundwater 40% above its neighboring areas. By clarifying the relationship between land use history, hydrogeological processes, and anthropogenic activities, this study contributes to informed decision-making for sustainable water resource management in the region. Based on this study, it would be valuable to plan a groundwater restoration effort in this area of Volusia County which can include the pump and treat method, dedicated recharge basins, and the redirection of water to other unlined bodies.

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### **The TLKDY Domain of Merkel Cell Polyomavirus May Contain the Nuclear Localization Signal Necessary for the Development of Merkel Cell Carcinoma**

Merkel Cell Carcinoma (MCC), a skin cancer 3x deadlier than melanoma, was found to be caused by the integration of a novel human oncogenic virus, Merkel Cell Polyomavirus (MCPyV). As MCC tumors are reliant on the expression of the small and large tumor antigens (ST and LT, respectively) we sought to determine the role of these proteins in MCC development. Interestingly, MCPyV ST expression in Rat-2 cells was found to be independently sufficient for cellular transformation in various transformation assays. Furthermore, MCPyV ST interacts with many nuclear proteins, consistent with its confirmed nuclear localization; however, MCPyV ST does not contain a canonical nuclear localization sequence (NLS), and LT does not translocate ST to the nucleus. Interestingly, mutation of amino acids 90-94 (TLKDY) rendered MCPyV ST incapable of nuclear translocation, suggesting that this domain may contain the non-canonical NLS necessary for MCPyV ST nuclear localization and the development of MCC. This may ultimately prove influential in understanding MCPyV ST-mediated tumorigenesis and subsequently allow for the design of novel MCC therapeutics.

Bella S. Tieche a, Kaira R. Thevenin, Cody E. DiBenedetto, Mia A. Dowling, Emma L. Hudgins, Koiya M. Rymer, Kemari R. Cosby, Frederico C. Van Ness, Janetlin Mendoza, and Emily Basdeo (Dr. Kristine Dye)  
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### **Investigating the Mechanism and Role of Merkel Cell Polyomavirus Small Tumor Antigen Nuclear Localization in the formation of Merkel cell carcinoma**

Merkel Cell Carcinoma (MCC) is a rare, aggressive skin cancer three times deadlier than melanoma. Merkel Cell Polyomavirus (MCPyV) is the etiologic agent of approximately 80% of Merkel Cell Carcinoma cases, and is currently the only known polyomavirus that causes human cancer. Through various transformation assays, it has been found that the Small Tumor antigen (ST) of MCPyV is necessary for the development of MCC, whereas the ST antigens of other, non-oncogenic human polyomaviruses were non-transforming. Further investigation found MCPyV ST to interact with several nuclear proteins, consistent with its nuclear localization despite the absence of a nuclear localization signal (NLS). In contrast, the ST antigens of other non-oncogenic human polyomaviruses were sequestered in the nucleus, suggesting MCPyV ST to be capable of transformation by uniquely localizing to the nucleus. Several MCPyV ST mutants were made and their localization was assessed in an effort to identify the non-canonical NLS of MCPyV ST responsible for cellular transformation and the development of MCC. Elucidating the mechanism of MCPyV ST nuclear localization will advance our knowledge of nuclear transport and provide information necessary for the development of novel MCPyV ST localization targeted therapies.

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### **Evaluating the Effectiveness of Prison Programs and Their Influence on Inmates' Perception of Optimism**

Abstract

In the United States, the likelihood of inmates reoffending is higher than in many other countries being that nearly 44% of inmates commit other offenses after being released from prison. The prison system in the U.S. lacks consistency of quality with each prison ranging in what they offer to inmates. Prison programs such as drug prevalence, mental health, education, and sports are one of the biggest ways that prisons may be able to leave an impactful experience on inmates. If inmates have a more optimistic

perception of their lives, the chances of them reoffending may be decreased. In the current study, we looked to determine the correlations between inmates' participation in different programs offered by prisons and their perception of optimism in a sample to be determined. Results are projected to suggest that inmates' involvement in prison programs will positively affect their perception of optimism. It is concluded that participating in prison programs may be beneficial in an inmate's likelihood of re-offending in the future.

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**The Show Must Go On: How Acting Companies Influenced Theatre and Life in Elizabethan London, 1577-1603**

In the Elizabethan Era, theatre took off and helped launch a cultural renaissance in England. Theatre took on a new form, becoming secularized and for-profit, and ushered in the era of the professional actor. During this time, acting companies were one of the key factors in the success of the theatre. Using the writings and diary of Philip Henslowe, one of the most prominent landlords for theaters in Elizabethan London, this paper contributes a necessary understanding that multiple factors, including historical context, must be incorporated into the study of theatre history. It argues that the growing and evolving theatrical industry contributed to the economic prosperity and position of Elizabethan England and the start of the British Empire. Through the diary, writings, letters, and official documents examined in this research, a fuller picture of Elizabethan London and her theatre is presented, showing how the theatre and the acting companies impacted and influenced the rest of London society.

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**Inclusive Startups**

Inclusive Startups focuses on helping aspiring entrepreneurs from the minority communities with their startups. We focus more on the motivation and purpose of the venture rather than the actual implementation.

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**The effect of employment protection on unemployment: a panel data analysis on OECD countries**

Being highly complex and subject to continuous debate, the labor market can be characterized by constant shifts in policies. These shifts aim to minimize unemployment, subject to several constraints. In my research, I examine a core aspect of labor policies: employment protection legislation (EPL). The OECD has developed an indicator to compare this legislation across its member states based on strictness. I am using this indicator to evaluate the impact of EPL on unemployment by regressing those two variables and several control factors using a panel data set of OECD countries and other statistical tests. With this analysis, I aim to find the ideal level of strictness of EPL which potentially has meaningful policy implications.

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**The interaction of signaling and matching markets: an analysis of the market for higher education**



Since the market for higher education does not follow the classic supply and demand model with one equilibrium price, several alternative models have been developed. Two important models are the signaling and matching market model. The signaling model assumes that colleges serve as a signal to show the employer how productive a worker is so that the worker can expect higher wages by setting himself apart. The matching market focuses on how a student selects his college individually. Instead of based on equilibrium price, this market clears by matching the preferences of colleges and students. Both models separately have been studied extensively. In my research, I aim to combine the two models and investigate their interaction. I do this by expanding theories developed on signaling and matching markets. At the same time, I look at statistical evidence for these theories in NCES data, which includes all colleges in the US over the last 25 years.

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### **Red, Brown, and Blue: how minority-led environmental organizations influence climate policy adoption in US states**

Climate policy adoption is increasingly important because of the implications of climate change within the United States and environmental organizations are tasked with developing solutions. Recently, the discussion of climate policy adoption has focused on how partisanship and polarization within US states impact whether climate-related legislation passes in Congress. However, this study focuses on minority-led environmental organizations, which are organizations founded by or consist mostly of people of a minority group, and how they impact climate policy adoption within Florida and California. I use qualitative case studies and interviews to understand how these minority-led organizations differ in their tactics and success in implementing climate policies within their respective states. Drawing from social movement literature on collective identity, collective framing, and resource mobilization, I argue that minority-led environmental organizations are more effective at mobilizing their constituents and influencing climate policy adoption, however, the level of impact does depend on the state in which these organizations reside. This research adds to the literature on climate policy adoption within the United States by providing a qualitative analysis of the impact of environmental organizations, specifically those led by minority groups.

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### **The Unflinching Gaze: The Don Smith Archive\***

Don Smith was an amateur photographer who relentlessly documented the biker culture of the Daytona Beach area beginning in 1991 until his death in 2006. Smith documented this culture by first photographing the customers of the convenience store where he worked but quickly built a relationship with members of the local chapter of the Outlaws Motorcycle Club (OMC). This afforded him unique access to make images in otherwise off-limits environments like bars and strip clubs controlled by the OMC. His photographs document the hedonistic, racist, and sexist culture within the OMC. A problematic history that pervades into the wider biker culture of Daytona to this day. Smith's photographs are an important historical document relevant to modern discussions of such behavior. However, despite their problematic nature, they are also highly engaging photographs that challenge the established contemporary aesthetics of photography with their straightforward and brutal style. The purpose of this research is to theorize the problematic imagery by placing it in dialogue with other photographers of New Journalism School and to develop a vocabulary to understand the unique style Smith developed in the absence of a formal art education.

\*This study was funded in part by the 2023 SURE Grant

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### **Bridging Educational Gaps Between Teachers and Tutors for Student Benefit**

This project was created to bridge communication between the teachers and tutors of the children at the Spring Hill/The Lacey Family Boys and Girls Club. As a tutor herself and a student within the Elementary Education program, Lilly saw firsthand the difficulties with the communication gap. Lilly wishes to create a direct communication portal to alleviate the stress on students as tutors, making sure all student needs are met, and acknowledged by teachers when it comes to homework since not all students get parent help at home.

## ARTS

Madison Higgs (Luca Molnar)

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### **When The Earth Burns, We Burn Too**

I'm fascinated by windows because they represent far more than mere gaps in a wall—they're portals between interior and exterior worlds, offering glimpses into different realities and perspectives.

I take old, discarded, and forgotten windows, transforming them to show the truth: the reality that due to human interference, the view on the other side of the glass has become terrifying.

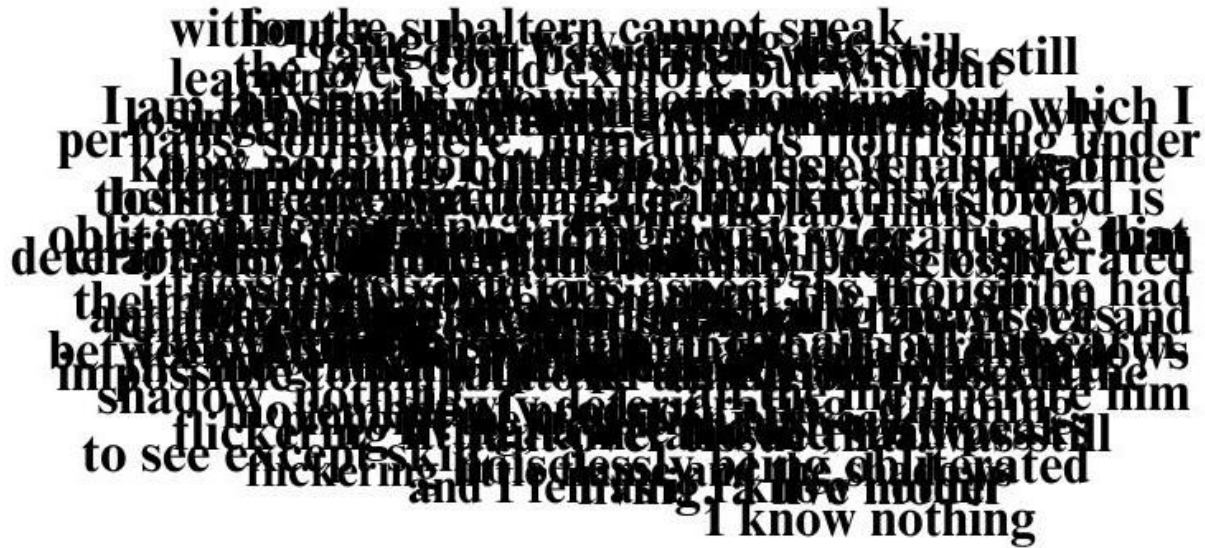
I paint on the glass, I paint on a board behind the glass, on the other side of the glass, I trap my subject behind the glass, I break the glass, I let the subject invade the viewer's space—coming through the broken glass. Each window tells a story, reflecting the anger, the pain of memories burnt behind, and the grief of incinerated dreams that reside. We've taken the world for granted, and when the Earth burns, we burn too.

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### **Experimental Ekphrasis\***

My process begins in archives. It begins with reading, endlessly combing through images, novels, and theories. I tag pictures, I pull quotes, I layer, I cut, I collage, only to then do it over and over again. My work is, in part, a reflection of the research process: a constant jumble, bits and pieces intersecting and overlapping to create a piece, an image, a thought.



Influenced by the literary term ekphrasis—the verbal representation of the visual—my paintings aim to examine the ways in which art attempts to represent language and vice versa. As a double major in both Studio Art and English, I am interested in not only using artistic media, but also finding ways to use research and literature as mediums themselves. I use collaging to visually meld together both my fields of interests, which results in an amalgamation of text, notes, and images that simultaneously could be anything or nothing. My actual paintings are a combination of both finished and unfinished works in the style of realist still lives and figural oil paintings.

I am predominantly influenced by postcolonial and feminist thought, many of my still lives featuring what appears to be quintessentially and culturally British foods; however, I deliberately choose each item to reflect instances of colonization-based consumption. And the same goes for my veiled figural pieces. I am fascinated by the intersection of women and mourning in historical contexts and aim to represent that in less direct ways.

I want my work to feel much like what I expressed with my visual research: anything, yet nothing, because as critic John Berger notes, “the relation between what we see and what we know is never settled.”

\*This study was funded in part by a 2023 LaValle Grant for the arts.

Ariana Klein (Luca Molnar)

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**“Take Me With You”**

I struggle to express myself. But when I create, I let go of that voice that doesn't know how to speak. My heart and hand connect; my mind steps aside.

Guided by intuition rather than logic, I surrender to the process. It's messy and unpredictable; frustration and passion intertwine. Sometimes lovely, sometimes chaotic; yet, at the end, something remains.

K Mauser (Luca Molnar)

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**“Self Obsessions”**

Author: K Mauser

Advisor: Luca Molnar

To be transgender in America is not just an identity, but is taken as a political

statement—it shouldn't be this way.

At heart, my work is a self-portrait and reflects my experiences going through puberty in my twenties, having my rights stripped away, learning to love myself as I am, and finding a community that loves me. Throughout my work, there are many ties to the transgender experience and my personal experience. When transgender people first came into the public eye, one of the first communities to accept us was the BDSM community. My mannequin piece is an homage to this. Tentacle Hentai, a porn genre, is frequented by trans people. Some trans individuals would rather have an agender tentacle than a male penis. My work is designed to be humorous but also serious. The silicone used for my pieces is skin-safe, making the art fuckable. The scale of my phallic work is designed to make cis men feel insignificant. Access my bathroom and consider what it means to be transgender.

Jodi-Ann Taylor (Dr. Nathan Wolek)

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### **Exploring the Interconnectivity Between Nature, Technology, and the Arts\***

I explored the connection between music, art, music technology, and nature: all things that I study and love. This summer project was the starting point for my senior capstone project, "All Creation Sings", and was under the support of my faculty project mentor, Dr. Nathan Wolek. "All Creation Sings" is an artistic work sharing my personal and spiritual journey of finding faith and hope in both the struggles of life and the harmonious symphony of creation. This multi-media project employs field recording technology and bio-sonification devices to capture the sonic makeup of the natural world (frequency ranges, tonality, timbre, and movement). Nature recordings form the basis for my album featuring original songs and spoken word poetry, complemented with paintings I have created using hand-mixed natural earth pigments, and a photography collection capturing the locations I explored. "All Creation Sings" poses the question: Amidst your internal trials and struggles, inspired by the endurance of the world that surrounds you and the faith within you, will you continue to sing?

\*This study was funded in part by the 2023 SURE Grant

Grant Wolf (Luca Molnar)

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### **The things that were here before the rest of us were**

Several years ago, I had my first encounter with the work of the "Florida Self-Taught Artists." These works were unlike anything I had ever seen in any museum or gallery. They had no unifying vision or aesthetics, despite all being lumped under the same title. Most of them were completely unaware of the existence of the others, lost in their own worlds, making art not for art's sake, but because they had to. For them, their art was their salvation.

Seeing this work changed my life; I was ruined.

But it was already too late for me to make anything near as genuine. I'd already started my formal art education. I had learned about the intricacies of gallery and museum operations and the absurdity of the art market. I had even, on more than one occasion, called myself an artist. But my obsession spiraled. With the incredible creative energy coming from this unique state, why is there no unique Florida aesthetic and what would that even look like?

I began incorporating the look and feel of this Florida self-taught art into my ceramic work. I made ghosts and spirits and creatures that I'd imagine were hiding out in what remains of the old Florida forests and swamps that I grew up in and are now quickly

disappearing. I started mixing modern industrial methods of mass-producing ceramic work, like slip casting and 3D printing, into these self-taught inspired works to produce a new digital folk art that attempts to be distinctly Floridian. Working obsessively like this, I realized if I wasn't making this work, I'd be one more cypress forest cut down and replaced with a Starbucks away from becoming an eco-terrorist

## Music

**Madelyn Munley** (Routa Kroumovitch-Gomez) Violin  
mmunley@stetson.edu  
Edit Palmer, piano

*Menuett I & II*

Johann Sebastian Bach  
(1685-1750)

*Violin Sonata No. 5 in F Major, Op 24 "Spring"*  
II. Adagio molto espressivo  
III. Scherzo: Allegro molto

Ludwig van Beethoven  
(1770-1827)

*Violin Concerto, Op. 14*  
I. Allegro

Samuel Barber  
(1910-1981)

*Danse Espagnole*

Manuel de Falla  
(1876-1946)  
arr. Fritz Kreisler  
(1875-1962)

**Zachary Frankowiak** (Tammara Phillips) Flute  
zfrankowiak@stetson.edu  
Susan Eissele, piano  
Kristie Born, piano

*Flute Sonata*  
I. Heiter bewegt  
II. Seher langsam  
III. Sehr lebhaft

Paul Hindemith  
(1895-1963)

*Flute Sonata*  
II. Cantilena.

Francis Poulenc  
(1899-1963)

*Flute Sonata, Op. 94*  
IV. Allegro con brio

Sergei Prokofiev  
(1891-1953)

*Partita in A Minor, BWV 1013*

Johann Sebastian Bach (1685-1750)

Allemande

**Justin Bockstege** (Robin Sisk) Tuba  
jbockstege@stetson.edu

Fnugg Red (2017)  
Gavin McNabb, Euphonium

Øystein Baadsvik

How Beautiful (2009)

Barbara York (1949 - 2020)

Stuff (2001)

James Grant

Sonata for Tuba and Piano (1976)  
I. Allegro Moderato  
II. Andante Moderato  
III. Allegro Leggero

Bruce Broughton

**Rachel Castillo** (Karen Coker-Merritt) Soprano  
racastillo@stetson.edu  
Kristie Born, piano

*Au bord de l'eau* Op. 8, No. 1

Gabriel Fauré  
(1845-1924)

*Deux Romances*  
II. Les cloches

Claude Debussy  
(1862-1918)

*Songs from Letters* (1998)

Libby Larsen

So Like Your Father's  
He Never Misses  
A Man Can Love Two Women  
A Working Woman  
All I Have

*Lieder und Gesänge aus der Jugendzeit*  
Frühlingsmorgen  
Lorelei

Gustav Mahler  
(1860-1911)  
Clara Schumann  
(1819-1896)

"Spiel ich die Unschuld vom Lande"  
from *Die Fledermaus*

Johann Strauss II  
(1825-1899)

**Josiah Hall** (Lynn Musco) Clarinet  
jhall11@stetson.edu  
Kristie Born, piano

*Hall of Ghosts* (2020)

Amanda Harberg

*Time Pieces*, Op. 43  
I. Allegro risoluto  
II. Andante espressivo  
III. Allegro moderato  
IV. Andante molto; Allegro energico

Robert Muczynski  
(1929-2010)

**Nicholas Dieux** (Chadley Ballantyne) Baritone  
ndieux@stetson.edu  
Kristie Born, piano

The Wanderer

Der Wanderer, D. 489

Die Stadt

from *Schwanengesang*, D. 957

Franz Schubert  
(1797-1828)

*Blue Mountain Ballads*

1. Heavenly Grass
2. Lonesome Man
3. Cabin
4. Sugar in the Cane

Paul Bowles  
(1910-1999)

*L'horizon chimérique*, Op. 118

1. La mer est infinie
2. Je me suis embarqué
3. Diane, Sélééné
4. Vaisseaux, nous vous aurons aimés en pure perte

Gabriel Fauré  
(1845-1924)

**Sydney Holder** (Dione Chandler) Oboe  
sholder@stetson.edu  
Joni Hanze, piano

*Sonata in G Minor*, H. 542.5

- I. Allegro
- II. Adagio
- III. Allegro

Carl Philipp Emanuel Bach  
(1714-1788)

*Two Pieces for Two Oboes and Cor Anglais*

- II. Allegro giocoso

Gordon Jacob  
(1895-1984)

Andrei Caquimbo, oboe  
Madeleine Eddy, Horn

*Four Personalities for Oboe and Piano* (2007)

- I. Yellow
- II. White
- III. Blue
- IV. Red

Alyssa Morris

**Michael Fantaro** (Timothy Rosenberg) Saxophone  
[mfantaro@stetson.edu](mailto:mfantaro@stetson.edu)

Rub It With Sheila

Jarobi Watts

*Lost Chauffeur	Michael Fantaro
*Lost in Close Company	Jarobi Watts
*Run Away With You	Michael Fantaro
*Isn't She Lovely	Stevie Wonder

**Stetson Undergraduate Research Committee:**

- Dr. Kimberly Reiter, Associate Professor of History – Committee Chair
- Dr. Elizabeth Skomp, Dean, College of Arts & Sciences
- Dr. Chadley Ballantyne, Assistant Professor of Music
- Dr. Melissa Gibbs, Professor of Chemistry
- Dr. Matthew Imes, Assistant Professor of Finance
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- Dr. Holley Lynch, Associate Professor of Physics
- Dr. Ken McCoy, Professor of Theater
- Dr. Lori Snook, Associate Professor of English
- Dr. Margaret Venzke, Associate Professor of History

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## Celebrating 140 Years: 1913-1922, Decade Of Ringing Resilience

*Stetson Today* September 9, 2023

### 1915

Hulley Tower, named after Lincoln Hulley, Stetson's second president, housed the Eloise Chimes, which serendipitously arrived on campus in 1915.

Eleven rough cast bells — later to become the Eloise Chimes — arrived on campus, but not in a way one would expect. The bells, delivered to the front of Elizabeth Hall, were the result of a canceled order in Pennsylvania. Stetson, ever resourceful, seized the opportunity to bring the chimes to campus.



The bronze bells were quite measurable — ranging in size from 575 to 3,000 pounds. Yet, as it turned out, their historical significance to the university was even weightier.

Originally, the bells were housed in the cupola of Elizabeth Hall, hung from a structure that was 106 feet high. After many years, however, that structure began to succumb to the sheer weight of the bells and continual vibrations of the chimes. As a result, the bells were removed and were without a home until the construction of Hulley Tower in 1934, where they resided until 2005.

Hulley Tower was named for Lincoln Hulley, Stetson's second president (serving 1904-1934). In turn, the bells were renamed the Eloise Chimes to honor the president's wife, Eloise. That new location in the 116-foot Hulley Tower allowed for the bells to be played, with the chimes' peals heard daily across campus.

The Eloise Chimes were removed from Hulley Tower in 2005.



Hulley Tower originally also contained a mausoleum for President Hulley and wife Eloise. He and his family had built the tower as a gift to the university, but the president died before it was finished. Then, in 2005, with the university citing safety concerns, the upper part of Hulley Tower was dismantled, leaving only the mausoleum intact.

Through the years, the 11 bells were salvaged. Some were donated to community organizations. Others were installed at various campus (east side of Hulley Mausoleum, first floor of duPont-Ball Library, rear patio Meadows Alumni House and side yard of President's House).

Today, this remnant of the past is displayed in the campus library.

Today, fittingly, university efforts are underway to further celebrate the past with a restoration of Hulley Tower to, in many ways, symbolize both resilience and rebirth on campus.