Stetson University Presents

Stetson Showcase

Hatters Do!

April 15, 2025

STETSON SHOWCASE
Hatters Do
APRIL 15, 2025
A Celebration of Achievement at Stetson University

About the Undergraduate Research and Creative Arts Symposium Showcase:

Welcome to the twenty-seventh 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, Hatters Do, reflects the new initiatives in immersion learning, promoting opportunities outside the classroom, be it in the field, in the community, off-campus, internationally and in personal scholarly research and creativity. Hatters do so much to increase their perspectives beyond the classroom seat. Their faculty mentors provide workshops, community outreach projects, collaborative learning opportunities and so much more, putting activity and engagement into their students' academic lives.

You are free to go in and out of sessions all day, attend a music recital, see the art exhibition, and in the evening, listen to the Grady Ballenger Keynote Speaker, Dr. Graeme Harper

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. Bonner 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 the Showcase interns Mary DeNote, Serena Dowling and Kaise Tinglin as well as the History Department Administrative Assistant Madison Sepiol, using Generative AI to the theme of 'Hatters Do'. While AI's ethical use remains a challenge in scholarship and creativity, there is no doubt that technology is now part of the immersion experience. The artwork was a collaborative effort using human imagination of what Hatters Do when released from education in a class seat and given the opportunity for active engagement through field research, outreach, independent expression and travel.

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 2025 JUDGING PANEL:
Dr. Olusola-Ige Adetoro, Visiting Asst. Professor of Environmental Science and Studies
Rina Arroyo, Chief of Staff & Senior Development Officer,
Jennifer Certo, Executive Assistant to the Vice President of Campus Life and Student Success,
Stacy Collins, Executive Director of Career and Academic Success
Dr. Christopher Ferguson, Professor of Psychology
Dr. Sarah Garcia-Beaumier, Associate Professor of Psychology
Dr. Melissa Gibbs, Professor of Biology
Terry Grieb, Professor Emeritus of Instructional Media
Dr. Philip Handyside, Adjunct Instructor, History
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. Delphine Pinet, Assistant Professor of Practice, Dept. of Chemistry
Dr. Rajni Shankar-Brown, Professor and JBD Distinguished Chair of Social Justice Education
Dr. Amy Smith, Assistant Professor of Education
Dr. Benjamin Tanner, Professor of Environmental Science and Studies
Dr. Kevin Taylor, Assistant Professor of Entrepreneurship and Management
John Tichenor, Eugene M. Lynn Professor of Management and Organization
Dr. Katy Webb, Dean of Library
Dr. Chandler Wilson, Assistant Professor of Music
Dr. Petros Xanthopoulos, Associate Professor of Decision and Information Sciences
Dr. Ruth Yuste-Alonzo, Assistant Professor of Spanish & Hispanic Studies

PROGRAM

POSTER PRESENTATIONS

Brown Hall of Health and Innovation
Dr. Corie Charpentier, Morning Session Chair
Dr. Holley Lynch, Afternoon Session Chair
Judges
Morning: Dr. Christopher Ferguson, Dr. Meghan McGreal
Afternoon:, Dr. Rajni Shankar-Brown; Dr. Amy Smith

Morning (9 a.m. – 12 p.m.)

P-1 ShaeLynn Siebert Comparing Seine Netting and Underwater Video Surveys for Assessing Fish Assemblages in Volusia Blue Springs

P-2 Emily Loescher Wright Self-Fertilization Lowers Germination Rate In The Night-Scented Orchid (*Epidendrum nocturnum*)

P-3 Blair Durda What Makes a Good Trip: The Role of Harm Reduction in Psychedelic Trip Quality

P-4 Lauren Atkins Behavioral changes in the roach, *Blaberus discoidalis,* due to an infection with an invasive pentastome, *Raillietiella orientalis*

P-5 Hannah Campen How do changes in water quality impact fish assemblage in Blue Spring

P-6 Maxwell Shiffman Protocol for Live Imaging *Vanessa cardui* Embryos

P-7 Brooklyn Lyons Effects of Intra-Oral Infusion of Na_2CO_3 and NaCl on Taste Reactivity Behaviors and Fos-Immunoreactive Neurons in the Gustatory Cortex in Rats

P-8 Kelsey Lowe Effects of Bank Restoration on Fish Density and Diversity in Blue Spring, FL

P-9 Sarah Sessions Behaviors of invasive Cuban brown lizards (*Anolis sagrei)* when approaching model caudal luring pygmy rattlesnakes (*Sisturus miliarius*) within an urban environment

P-10 Nicole Stover Gene regulation of Catalase and Copper/Zinc Superoxide Dismutase in Response to Normoxic Stress on *Eruca sativa* in a Nutrient Film Technique System

P-11 Alyssa Nazario The Effects of Time of Day and Age on Caudal Luring in Pygmy Rattlesnakes (*Sistrurus miliarius*)

P-12 Madison Torres Evaluating the Effects of Amyloid-Beta Expression and Ginkgo Biloba on Sensory Behavior in *Caenorhabditis elegans*: Implications for Alzheimer's Disease Research

P-13 Iyshuri Knapp Effects of Spilanthol on Taste Reactivity, Consumption, and Neural Activation in the Gustatory Cortex to Sodium Chloride in Rats

P-14 Raven Hufstetler The Role of Nuclear Localization in the Transformative Properties of the Merkel Cell Polyomavirus Small Tumor Antigen

P-15 Nicolas Buxo Do Side Springs Support the Biodiversity of Springs?

P-16 Mollire Chivington Temporal trends in benthic biodiversity along a recently restored shoreline in Mosquito Lagoon, FL

P-17 Kylie Overstreet Examination of *Hamelia patens* leaf extract potential as T-cell lymphoblastic leukemia therapeutic

Afternoon (1-4 p.m.)

P-18 Shallan Burke Improving Epilepsy Awareness in College Students

P-19 Avery Brooks The effect of Arbuscular Mycorrhizal Fungi on the seedling growth of *Arnoglossum floridanum*

P-20 Alex Meza The effect of thyroxine on the development of axolotl, *Ambystoma mexicanum,* embryos

P-21 Raey Block Rooted, reimagined: Regional identity communication among transplanted Appalachians

P-22 Khushi Patel Innovative Dissimilarity Approach Reveals Unique Transforming and Nuclear Localization Mechanisms of the Merkel Cell Polyomavirus Small Tumor Antigen Necessary for Merkel Cell Carcinoma

P-23 Connor Cullen Seasonal change and environmental conditions and their effects on the reproductive patterns of mosquitofish species (*Gambusia affinis)* in Florida ecosystems

P-24 Isabella Cancio-Bello and Ervenica Saint-Fort Confirmation of a Nuclear Localization Signal Within the C152-E164/AA/DW Region of the Merkel Cell Polyomavirus Small Tumor Antigen Necessary for Cellular Transformation

P-25 Gabrielle Baker Effects of *Lantana* Allelopathy on the Competition Between *Bidens alba* and *Solidago odora*

P-26 Willianis Nieves Rodriguez Identification of a Novel Nuclear Localization Signal Within the Merkel Cell Polyomavirus Small Tumor Antigen Necessary for Nuclear Localization and the Development of Merkel Cell Carcinoma

P-27 Naya Adla Computational and Probabilistic Modeling Approaches for Analyzing Hate Speech on Twitter in the MENA Region

P-28 Kairi Harris *Hamelia patens* Flower Extract Induces Cytotoxicity in K562 Chronic Myelogenous Leukemia Cells

P-29 Jayline Santiago Anthropogenic sound causes a change in swimming behavior in copepods, *Acartia tonsa*

P-30 Diana Godinho Brazil Case Study: Political Polarization and its Effects on a Democratic Youth

P-31 Cheyenne Lewis Learning and Predator Avoidance in the Wolf Spider *Hogna lenta*: the Role of Visual and Chemical Cues

P-32 Katherine Hill A Timeline of Beach Erosion on St. Phillips Island, SC

ART EXHIBITIONS AND MUSEUM STUDIES

Homer and Dolly Hand Art Center,
10:00 am-3:30 pm
Morning Session Chair: Dr. Natalia Da Silva
Afternoon Session Chair: Dr. Melinda Hall
Judges: Jennifer Certo, Rina Arroyo Tovar

HAND ART CENTER GALLERY

ART-1- 10:00-10:15 **Marina Burgner** "Swamps Gaze"

ART-2 10:20-10:35 **Maddysun Casteneda** A Family's Primary Colors

ART-3 10:40-10:55 **Danielle Hunt** "The JungleBrunch89"

ART-4 11:00-11:15 **Natalie Thomas** "Let's Go to Wawa"

ART-5 11:20-11:35 **Ian Wu** bulletscript

11:40-1:00 Lunch

MUSEUM STUDIES AND PUBLIC HISTORY
ART-6 1:00-1:15 **Amarige Champion** From Legal Dispute to Artistic Legacy: The Bluemner v. Garvin Case

ART-7 1:20-1:40 **John Owen** Ideology and the Holocaust: How Americanization Manifests in Holocaust Memory

ART-8 1:45-2:00 **Moira Hughes** Venetian Impressions: The Making of an Exhibition

2:00-2:15 **BREAK**

ART-9 2:15-2:35 **Serena Dowling and Reagan Shivers** The Stetson 150 Project

ART-10 2:40-2:55 **Charlotte Holley** Cataloging Danielle Hunt: Process and Experimentation.

ART-11 3:00-3:15 **Reagan Shivers** Keeping the Home Hearth Burning: The Historic Preservation of Mount Vernon 1850-1865

ART-12 3:20-3:35 **Reagan Swayze** Jewish Architecture in Florida: An Exploration of Identity in the Temple Beth Jacob

JUNIOR MUSIC RECITALS

Lee Chapel, Elizabeth Hall
9:00 am-4:00 pm
Recital Manager: Dr. Chadley Ballantyne
Judges: Dr. Chandler Wilson, Dr Alexander Martin
Repertoires are to be found in Abstracts at the end of this program

M-1 9:00-9:30 **Alejandro Salazar** Cello

M-2 9:45 -10:15 **Nathan Esquenazi** Clarinet

M-3 10:30-11 **Rayah Yehnert** Flute

M-4 11:15 -11:45 **Georgie Gonzalez** Cello

11:45-12:45 Lunch

M-5 1:00-1:30 **Emy Acosta** Soprano Voice

M-6 1:45-2:15 **Davis Brown** Tenor Voice

M-7 2:30-3:00 **Ken Browning** Baritone Voice

M-8 3:15-4:00 **Victoria Camposano Reyes** Flute

ORAL PRESENTATIONS – SESSION A

25 Library Auditorium – Media Center
10:00 am - 3:30 pm
Dr. Kevin Riggs, Morning Session Chair
Dr. Matthew Shannon, Afternoon Session Chair
Judges: Dr. Benjamin Tanner, Dr. Delphine Pinet

SCIENCE ACROSS THE SPECTRUM I

A-1 10:00-10:15 **Anas Gamal Aly and Anders E. Jensen** Improving Merge Sort and Quick Sort Performance by Utilizing Alphadev's Sorting Networks as Base Cases

A-2 10:20-10:35 **Meghan Meloy** Changes in Abundance of Gar and Bluegill Sunfish in a Florida Spring

A-3,10:40- 10:55 **Savannah Goodwin** Endogenous tidal rhythms in mangrove tree crabs (*Aratus pisonii*) imply larval retention in a coastal lagoon

A-4 11:00-11:15 **Colton Hurley** Comparative Analysis of AM Fungal Colonization Between Two Sandhill Ecosystems

A-5 11:20-11:35 **Avery Brooks** Assessment of Florida Sandhill Restoration Project Success Through Prescribed Burning Activity

11:45-1:00 LUNCH

A-6 1:00-1:15 **Anthony Cagle** The effects of steviol glycoside and aspartame on development of gastrulation stage axolotl embryos

A-7 1:20-1:35 **Yitzchak Fogel** Computational Method for Studying the pKa Values of Metal Hydroxo Complexes

A-8 1:40-1:55 **Gabriel Santos** Estimating Mangrove Carbon Stock with Geospatial Techniques and Google ENGINE using Sentinel -2 and GEDI DATA

1:55-2:10 BREAK

A-9 2:10-2:25 **Celine Jose** Examining the role of Fus1 protein domains through mutagenesis in *Saccharomyces cerevisiae* cell fusion.

A-10 2:30-2:45 **Zoe White** Identification of the Sources of Afferent Projections to the Gustatory Cortex that Respond to Bitter

A-11 2:50-3:05 **Aaron Gamache** Synthesis of SINE drugs: a class of novel anticancer drugs targeting aggressive blood cancers

A-12 3:10-3:25 **Victoria Savoie** Examination of Cytotoxic and Cytostatic Activity of *Hamelia patens* Root Extracts on Jurkat Leukemia Cells

ORAL PRESENTATIONS - SESSION B

John E. Johns Room 315, Elizabeth Hall

9:00 am-3:45 pm
Dr. Lori Snook, Morning Session Chair
Dr. Ken McCoy, Afternoon Session Chair
Judges:, Cory Lancaster, Stacy Collins

STRIVING FOR ACCEPTANCE, DEALING WITH DEATH

B-1 9:05-9:20 **Kyanna Buisch** Age Differences Between Religious Traditions and Depression

B-2 9:25-9:50 **Tajah Garrett** Embracing the creative art of songwriting, filming and recording

B-3, 9:55-10:20 **Abi Edds** The Brass Man of Cogburn Alley

10:20-10:30 **BREAK**

B-4 10:30-10:45 **Courtney Wood** Satire and Shakespeare: My Senior Project Performance of The Compleat Works of Wllm Shkspr (Abridged)

B-5 10:50-11:10 **Majesty Wiggins** Attacking the Taboo of Death in Society: A Rhetorical Analysis of Enter the Void Through the Lens of Ideology

B-6 11:15-11:30 **Ari Richardson** Tolerance and Acceptance: Cultural Dissonance

11:30-1:00 – Lunch

DEALING WITH PREJUDICE

B-7 1:00-1:15 **Jasmine Bakhsh** Women in Power, Patriarchy in Place: Understanding the Limits of Representation

B-8 1:20-1:35 **Andrew Goldner** Do Americans support the legalization of prostitution, why or why not?

B-9 1:40-1:55 **Nikki Membiela** Biracial Double-Consciousness in the Works of Nella Larsen

1:55-2:05 **BREAK**

B-10 2:05-2:20 **Evelyn Moore** Scrolling for Votes: A Rhetorical Analysis of Kamala Harris' Presidential Campaign on TikTok

B-11 2:25-2:40 **Brooke O'Brien** Disability and Ableism in Fairytales

B-12, 2:45-3:00 **Alex Higbee** The Worth of William's Words: A Study of William Wordsworth's *Surprised by Joy* and Its Relation to Thomas Wordsworth

B-13 3:05-3:20 **Kaise Tinglin, Ginger Anders and Dakota Williams** Lessons From São Paulo

B-14 3:25-3:40 **Zane Hair** The Justification of Combat Sports Through a Virtue Ethics Lens

ORAL PRESENTATIONS – SESSION C

322 Elizabeth Hall
8:00 am-4:00 pm
Dr. Jeremy Posadas, Morning Session Chair
Dr. Carmen Palmer, Afternoon Session Chair
Judges: Terry Grieb, Dr. Katy Webb

BONNER COMMUNITY SCHOLARSHIP

C-1 9:00-9:15 · **Maria Fernanda Castillo Enriquez** – Ballet for the World Initiative: A Student-led Organization Creating Fine Arts Opportunities for the Community

C-2 9:20-9:35 · **Soleille Vertus** – A Place for Us: Creating Spaces for Queer Intersectionality !

C-3 9:40-9:55 · **Beatriz Rodriques, Isabella Colombo, Dillon Carter, Hadilayane Bandeira** – Chisholm Community Center

10:00-10:25 BREAK

C-4 10:25-10:40 · **Victor Akolo, Lawrencia Agbovi** – Enhancing Community Healthcare Access Through A Custom Database for HHI

C-5 10:45-11:00 · **Ariel Castillo Palacios** – SOS Kits: Bonners Helping Bonners

C-6 11:05-10:20 · **Naya Adla** – Bonner Week

C-7 11:25-11:40 · **Madelyn Emmons** – The Lion, The Bus, and The Homework

C-8 11:45-12:00 **Vincent Salihu** Good Samaritan Clinic Time Tracking & Management System

12-1 LUNCH

C-9 1:00-1:15 · **Chris Poteau** – Expanding Community and Campus Involvement with the Community Education Project

C-10 1:20-1:35 · **Victoria Antonini** – Social Justice in Focus: Engaging Stetson on Global and Local Issues

C-11 1:40-10:55 · **Kwaku Duah De-Graft** – Data-Driven Solutions for The Neighborhood Center of West Volusia

C-12 2:00-2:15 · **Anas Aly** – Data-Driven Decision Making: Building a Sustainable Analytics System for Black Home Schoolers of Central Florida

2:15-2:25 BREAK

C-13 2:25-2:40 · **Jillian Ireland** – Empower Your Future: Digital Portfolio Workshop Series for Students

C-14 2:45-3:00 · **Jessa Ward** – FREED Family Fundraiser + 25th Anniversary Celebration

C-15 3:05-3:20 · **Veronica Okeke** – Bilingual Health Resource Guide.

C-16 3:25-3:40 **Diana Godinho** - Youth Engagement in the United Nations (CSW69)

C-17 3:45-4:00 **Taylor Cushenberry** –

ORAL PRESENTATIONS – SESSION D

Room 213 Sage Hall
8:30 am-4:00 pm
Dr. Harry Price, Morning Session Chair
Dr. Michael Eskenazi , Afternoon Session Chair
Judges: Dr. Olusola-Ige O. Adetoro; Dr. Melissa GibbsHarr

SCIENCE ACROSS THE SPECTRUM II:

D-1, 10:00-10:20 **Sophia Maritz** The Impact of Static Postures on Breathing Patterns for Singing

D-2, 10:25-10:40 **Kristine Lynn Rodriguez** Insights into Fus1's Conserved Region in *S. cerevisiae*

D-3 10:45-11:00 **Zoe Stuckwisch** Evaluation of fish biodiversity and abundance on a restored vs. unrestored shoreline in Mosquito Lagoon, Florida

D-4, 11:05-11:20 **Dylan Anthony** Dissecting the domains of Fus1 required for yeast cell fusion

D-5, 11:25-11:40

11:40-1:00 LUNCH

D-6 1:00-1:15 **Sowren Wildingcrayne** Amyloid Beta-Induced Neuronal Dye Defects in *C. elegans*: Investigating Age-Dependent Effects and G. biloba Intervention

D-7 1:20-1:35 **Yireh Martinez-Torres** Identifying Protein Domains Required for Yeast Cell Fusion

D-8 1:40-1:55 **Emiley Tupper** Cover Crops and Pollinators

1:55-2:05 BREAK

D-9, 2:05-2:20 **Juan Burgos** Linear and Logarithmic False-Color Transformations of Infrared James Webb Space Telescope (JWST) Images

D-10, 2:25-2:40 **Kaitlyn Watson** The effect of *Ginkgo biloba* on ameliorating the effects of the Amyloid Beta (Aβ) peptide on adult *Caenorhabditis elegans* is not significant

D-11 2:45-3:00 **Abigail Denton** Primitive Star Decompositions of Complete Graphs

D-12 3:05-3:20 **Jake Catha** The Merkel Cell Polyomavirus Small Tumor Antigen interacts with Importin Alpha 4 to localize to the nucleus despite the absence of a known Nuclear Localization Signal

ORAL PRESENTATIONS – SESSION E

317 Flagler Hall
9:00 am-3:00 pm
Dr. Kyle Longest, Morning Session Chair
Dr. Margaret Venzke, Afternoon Session Chair
Judge: Dr. Philip Handyside

STRUGGLE AND STRATEGY

E-1 9:30-9:45 **Serena Dowling** Soviet Women Combatants Shaping Perceptions of Femininity

E-2 9:50-10:05 **Alexia Sougrinoma Kagambega** Effective and Sustainable Solutions for Landfill Development and Waste Management in Ouagadougou, Burkina Faso: A Comprehensive GIS Framework and Policy Strategy

E-3 10:20-10:35 **Charles Nichols** Tweets Of Turmoil: Trump's Rhetoric On X and The Construction Of A Dystopian Narrative

10:35-10:45 **BREAK**

E-4 10:45-11:00 **John Young** De-Colonizing the French Revolution

E-5, 11:05-11:20 **Alysandra Thigpen** *Desolation Island* and Naval Society

E-6 11:25-11:40 **Jason Albea** Cold War Alliance: American Military Bases in the Philippines and the Marcos Era, 1965-1986

11:30-1:00 Lunch

E-7 1:00-1:15 **Victoria Ramon** From Campus Activism to Action: A Guide to Community Organizing on College Campuses

E-8 1:20-1:35 **Wyatt Hammerle** The Evolution of the Imperial Japanese Army 1854-1937

E-9 1:40-1:55 **Braedyn Wasden** The Spaces and Bodies of Ligotti and Kafka: Between Space and Body in Capitalist Organizational Management

1:55-2:05 BREAK

E-20 2:05-2:20 **Sara Hassler** Who Knows What? Exploring the Factors Behind Political Knowledge Gaps in America

E-11 2:25-2:40 **Heather McGee** Can food pantries effectively meet the dietary needs of clients with diabetes, prediabetes, and hypertension based on current prevalence estimates?

SESSION F
THE SCHOLARSHIP OF BUSINESS

Lynn Business Center 108
10:00 am-3:00 pm
Dr. Matthew Imes, Session Chair
Judges: Dr. Kevin Taylor, Dr. John Tichenor, Dr. Petros Xanthopoulos

F-1 10:00-10:15 **Michael Leitelt** Characterizing and Forecasting the Effects of Major Events on Private Aviation Demand

F-2 10:20-10:35 **Christopher Kennedy** Focus on Faith: How Catholicism and Protestantism Hold up in the Face of Economic Development

F-3, 10:40-10:55 **Michael Leitelt** Smiles and Trust: Founder Self-Presentation and Investment

F-4, 11:00-11:15 **Jackson Hockenberry, Niki Taropawala, Colin Weber and Keith Ohonian** HEICO Corporation Sell Recommendation

F-5 11:20-11:35 **David Burgos** Catalyzing Market Innovation through Artificial Intelligence

11:30-1:00 Lunch

F-5 1:00-1:15 **Michael Leitelt** Optimizing Neighborhoods: An Approach to Solving Cookie-Cutter Housing

F-6 1:20-1:35 **Bruno Soto** Outburst of Outcomes: Explaining the Disparities in Economic Development Amongst the Post-Soviet States

F-7, 1:40-1:55 **Alyssa Pujais** VITA at Stetson: Benefits & the Earned Income Tax Credit

1:55-2:05 **BREAK**

F-8, 2:05 -2:20 **Conrad Voigt** Factors Impacting Enrollment in Higher Education in the Context of its Signaling Market Structure

F-9 2:25-2:40 **Jack Lenhard** A custom fantasy football projection model for wide receivers

F-10 2:45-3:00 **Nicole Alvarez-Ruiz** A Coffee Venture: Cafe Querido

HONORS 202 SESSION G

309 Elizabeth Hall
8:00 am-4:30 pm
Kevin Winchell Session Chair
Judges: Dr. Ruth Yuste-Alonzo

G-1 8:00-8:15 · · **Andrew Mills** Voices from the Fire: Firefighter Mental Wellness and Well-Being

G-2 8:20- 8:35 **Isabella Plank, Amalie Ise, Abigail Luck** – College Readiness: Road to Success

G-3 8:40-8:55 **Juan Andres Ferreira** – NextGen

G-4 9:00-9:15 **Tiwa Adebayo, Jazurbek Gaziyev** – Building Resources for Decriminalizing Attempted Suicide

G-5 9:20-9:35 **Sara Ward, John DeVaul, Rayner Almaraz** – Panel on Public Safety

G-6 9:40-9:55 **Carly Bair, Rianne Lee** – Smile for the Heart: Educating about Dental and Cardiovascular Health

9:55-10:05 BREAK

G-7 10:05-10:20 **Patrick Conrad, Nicholas Lucchese** – Social Science Education in the Community

G-8 10-25-10:40 **Temi Adediji, Morgan Myers** – Sowing Seeds of Potential

G-9 10:45-11:00 **Sheridan Macon, Ginger Anders** – All the Web's a Stage

G-10 11:05-11:20 **El Luchs, Adrianna Harris** – Creative Wellness: Learning to Cope through Art

G-11 11:25-11:40 **Nathan Pyle, Belle Lee** – Still Alive

G-12 11:45-12:00 **Bun Shamsidin, Belle Lee** – Building Character: A Demo Reel of Digital Illustration and Sound Design

12:00-1:00 LUNCH

G-13 1:00-1:15 **Maddie Pascale** – Understanding Florida's Appellate Process

G-14 1:20-1:35 **Kara Ho, Mia Woollens, Isabelle Condor** – Brains and Gains: Campus Wellness

G-14 1:40-1:55 **Dean Wise, Pedro Sanford – Financial Literacy to Empower Change**

G-15 2:00-2:15 **Elleigh Goodman, Marisa Mitchell** – Media Influence on Public Perceptions of Immigrants: Examining Bias and Attitudes

G-16 2:20-2:35 **Raven Hufstetler (et al)** – Progress Toward Understanding Merkel Cell Polyomavirus

2:35-2:45 BREAK

G-17 2:45-3:00 · **Miles Reynolds (et al)** – Unmasking Autism

G-18 3:05-3:20 **Allyson Dannemiller** – Substance Use Disorder and Adoption: The Intersection of Stigma, Support, and Harm Reduction

G-19 3:25-3:40 **Owen Lazarus** – Uplifting the Undergrad: Prospects and Proposals for an Undergraduate Research Journal at Stetson University

G-20 3:45-4:00 **Caeli Tupper** – Why Are Veterinary Specialists In Decline?

G-21 4:05-4:20 **Nick Athearn** – Effects of Competition Between Native and Exotic Apple Snails

6:00 EVENING RECEPTION AND AWARDS
Welcome Center

Keynote Address and Awards Ceremony
Maris Awards for Excellence in Showcase
2024 SURE Scholars

6:30: 2023 Grady Ballenger Lecturer
Dr. Graeme Harper
Dean of the Honors College
Oakdale University

"Undergraduate Invents Time Travel" (CIP, 1/9/2025)
New Research in the Fourth Dimension

They reported it briefly, but it was quickly hushed up. Time travel. Not the basic kind you find in a movie or a book. Not that kind with a wizened inventor or that happens in a dark alley in Victorian London with a guy who you sometimes confuse with Tom Cruise. Not time travel in a DeLorean, or through a portal you find in an ordinary wooden doorway in Nepal. No, this was the kind of time travel Einstein could only dream about. Movement, not just in space, but across another dimension. We all know the basic dimensional three: breadth, width and height. Try on new shoes, and you experience a few of those; lose your way in the dark of night and you realize the importance of those. But time - that fourth dimension – it took an open mind to crack that one. No wonder they wanted to hush it up. The fourth dimension is like the fourth estate: sometimes you need to shut it down or it'll reveal something. Let's face it, you can't go changing the world for the better and expect everyone to be happy about it.

In 2012, **Dr. Graeme Harper** became the inaugural Dean of The Honors College at Oakland University in Michigan. Previously he led Schools at the University of Wales and at the University of Portsmouth, before becoming a Director of Research and moving to be a research fellow at the University of Texas Medical Branch in Galveston, Texas. He is a former research panelist at the European Commission's Education and Culture Directorate in Brussels, and for twelve years was a panelist at Britain's Arts and Humanities Research Council. Serving on the Research Committee of the Joint Information Systems Committee, he helped support the UK's national academic technology network. Because he enjoys writing, he has published around 50 books. Because he enjoys universities, he holds doctorates from the University of East Anglia in the UK and from the University of Technology, Sydney, in Australia. From July 2021 to July 2024, he was Chair of the At Large Division of the Council on Undergraduate Research.

Abstracts

POSTERS

Naya Adla (Dr. Thomas Vogel)
nadla@stetson.edu

Computational and Probabilistic Modeling Approaches for Analyzing Hate Speech on Twitter in the MENA Region

Social media offers one of the largest databases for tracking human behavior, with hate speech posing a significant challenge due to online anonymity. Machine learning provides effective methods for detecting and predicting such behaviors. Arabic speakers rank fourth among global social media users, yet research on Arabic hate speech remains limited due to the language's unique characteristics. This study analyzes hate speech in the MENA region using the arHateDetector dataset, Python-based tools, and Bayesian probabilistic modeling. A tripartite ordinal categorization of offensiveness and sub-region-specific keywords enabled targeted analysis. A Bayesian Negative Binomial regression model with Markov Chain Monte Carlo (MCMC) was implemented, encoding sub-regions and offensiveness levels numerically. Results showed Tunisia, Morocco, Algeria, and Libya had the highest predicted offensive tweet counts, while Qatar and Bahrain had the fewest. Political hate speech was most prevalent in North Africa, whereas religious hate speech dominated in the Gulf. MCMC posterior predictive checks validated the model's accuracy in capturing and predicting offensive tweet distributions, highlighting Bayesian modeling as an effective machine-learning approach for hate speech analysis. Our model identified statistical relationships among sub-regions, offensiveness levels, and tweet counts, enabling probabilistic predictions with uncertainty estimates. This study advances computational research on online social behavior in the MENA region, addressing a critical gap in Arabic Twitter analysis.

Lauren Atkins (Dr. Terrence Farrell)
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Behavioral changes in the roach, *Blaberus discoidalis,* due to an infection with an invasive pentastome, *Raillietiella orientalis*

Parasites can significantly influence the behavior and physiology of their hosts, often enhancing their own transmission and survival. This study investigates the behavioral changes in the discoid cockroach, *Blaberus discoidalis*, due to infection with the invasive pentastome, *Raillietiella orientalis*. This parasite is transmitted from roaches to lizards, frogs, and toad when these predators eat roaches. We hypothesized that infected cockroaches would exhibit increased boldness and activity in the presence of predator (southern toads and eastern spadefoot toads) odor, facilitating parasite transmission. Using a controlled infection and behavioral study, we examined the effects of both roach infection status (infected or uninfected by *R. orientalis*) and predator odor on cockroach behavior, including their feeding, time spent hiding, and fleeing responses. Contrary to our hypothesis, infection status did not significantly affect boldness or activity levels. However, a significant difference in feeding behavior was observed, with infected roaches showing higher feeding rates. These findings suggest that while *R. orientalis* infection does not alter boldness or activity in *B. discoidalis*, it may influence feeding behavior, potentially affecting the parasite's transmission dynamics. Further research is needed to explore the ecological implications of these behavioral changes and their impact on native reptile populations in Florida.

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Effects of *Lantana* Allelopathy on the Competition Between *Bidens alba* and *Solidago odora*

Invasive species, such as *Bidens alba*, pose significant challenges to ecological restoration by outcompeting native plants for resources and altering ecosystems. This study investigated the allelopathic effects of *Lantana* leaves on the competition between *Bidens alba* and *Solidago odora*, focusing on plant biomass, height, and leaf count under different competition scenarios. A total of 120 pots were used in a greenhouse experiment, with four treatment groups: control, soil with charcoal, soil with *Lantana* leaves, and soil with both charcoal and *Lantana* leaves. The experiment included intraspecific (same species) and interspecific (different species) competition. Results showed that *Lantana* had a significant impact on *Bidens* biomass, leaf count, and height when combined with charcoal. Competition significantly affected both species, with *Bidens* exhibiting a stronger competitive response in interspecific competition compared to *Solidago* doing better in intraspecific competition. These findings highlight the potential of *Lantana* allelopathic chemicals in enhancing competitive dominance thus suggesting that further research into allelopathic interactions could inform more effective weed management strategies in restoration projects.

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Raey Block

Rooted, reimagined: Regional identity communication among transplanted Appalachians

This study examines how individuals from the Appalachian Mountain Region who currently reside outside of that region communicate their place-related identity in their present environment and across contexts. Utilizing the Communication Theory of Identity (CTI) and Goffman's concept of facework as guides, the research explores how participants describe, enact, and negotiate their Appalachian regional identity in new geographic and cultural settings. Through interpretation and analysis of ten in-depth, semi-structured interviews with transplanted Appalachians of a variety of ages, backgrounds, and time away from the region, the research aims to capture the ways these individuals balance regional identification and affiliation with context-driven adjustments. Addressing the question of how these individuals communicate their Appalachian regional identity across contexts, this study reveals the ways in which participants adapt their enactment of their Appalachian Identity once residing outside the region, whether consciously or unconsciously, and whether their sense of being Appalachian identity shifts over time. The findings aim to deepen understanding in both communication and identity studies, illustrating how enactment and negotiation of place-related identity adapts across geographic distances

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The effect of Arbuscular Mycorrhizal Fungi on the seedling growth of *Arnoglossum floridanum*

Over the last two centuries, Florida has experienced a loss of sandhill habitat, negatively impacting species and ecosystem health. Restoring sandhill ecosystems is crucial to maintaining ecosystem services and biodiversity in Florida. Soil microbes are vital to restoration efforts, as they cycle nutrients and benefit plant growth. We studied the effects of arbuscular mycorrhizal fungi (AMF), specifically *Rhizophagus clarus*, on the growth and root architecture of *Arnoglossum floridanum*, a native endemic plant species from Florida sandhill ecosystems. We hypothesized that AMF, known to form symbiotic relationships with terrestrial plants, would benefit plant growth. We compared the

growth of *A. floridanum* with and without AMF and found AMF-inoculated plants demonstrated an increase in root growth and biomass, but exhibited reduced plant shoot growth, fewer leaves with less leaf area, and shorter root lengths compared to the sterile group. Root architecture analysis revealed that AMF-inoculated plants had longer, thicker roots with fewer main roots, contrasting with the sterile group's shorter, more abundant roots. These results may demonstrate the continuum of effects that influence plant fitness. This study contributes to understanding how mycorrhizal fungi impact plant restoration and the importance of studying AMF species for ecological restoration.

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Improving Epilepsy Awareness in College Students

Epilepsy can affect individuals of all ages and backgrounds, yet many people—particularly college students—have limited knowledge about this condition beyond its association with seizures. While past research has investigated improving epilepsy awareness through brochures and increasing public awareness, this study aims to enhance awareness and understanding of epilepsy among college students. Beginning in December and ending in January, we will utilize a pre-and post-test design to assess students' confidence in assisting someone experiencing a seizure, using targeted questions. Participants will receive either an informative video or a handout about epilepsy. The video and handout will provide the same information about improving awareness. We hypothesize that students who view the video will demonstrate a greater awareness and understanding of epilepsy compared to those who only receive the handout. This research seeks to inform educational strategies that can better equip students to respond effectively during seizure episodes. This project serves as proof of concept towards increasing knowledge around epilepsy in college students.

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Do Side Springs Support the Biodiversity of Springs?

Side springs are present at many of Florida's springs but not much has been done to study them in comparison to the spring's main run. The purpose of this study was to determine if the side spring contributed to the spring's biodiversity. We took videos at eight locations in the side spring of Blue Springs during six trips in order to see if there was any difference between the fish in the main run compared to those in the side spring. The videos along with the water depth and water quality were all taken into consideration as factors that may have brought fish to the area.

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How do changes in water quality impact fish assemblage in Blue Spring

Blue Spring, a first magnitude spring located in Orange county FL, known for the habitat it provides to manatees in the colder months and recreational activities, is also a biodiversity hotspot. In an area home to up to 33 different species of fish, it is important to take note of what may have an impact, and what steps can be done to keep the wildlife in the spring thriving. The purpose of this study is to see how water quality measures such as dissolved oxygen and conductivity, correlate with fish density, species richness, and diversity. Water quality measurements and species numbers collected with the research team in 2024, and previous data from 2001-2024 were combined in order to see overall trends in Blue Spring. It was demonstrated in our results that there was a significant correlation between dissolved oxygen in the bank and in the center with species richness.

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Confirmation of a Nuclear Localization Signal Within the C152-E164/AA/DW Region of the Merkel Cell Polyomavirus Small Tumor Antigen Necessary for Cellular Transformation

In 2008, Merkel Cell Carcinoma (MCC), a skin cancer with a 5-year survival rate of 14 – 70%, was found to be caused by Merkel Cell Polyomavirus (MCPyV) and the activities of its small tumor antigen (ST). MCPyV ST can translocate to the nucleus despite lacking a nuclear localization signal (NLS), and this nuclear localization is necessary for cellular transformation. To identify the non-canonical NLS (ncNLS) of MCPyV ST, 22 alanine scan mutants were created and assessed in their ability to localize to the nucleus. This revealed 30-amino-acid region (MST30) both necessary and sufficient for MCPyV ST nuclear localization. Surprisingly, MST30 contains the longest hydrophobic streak in MCPyV ST, most of which are surface-exposed. Within MST30, a sequence similar to a hydrophobic proline-tyrosine ncNLS (PY-ncNLS), except for DW instead of PY, was identified and hypothesized to be the ncNLS of MCPyV. Therefore, the hypothesized DW-ncNLS (C152-E164/AA/DW) was fused with cytoplasmic green fluorescent protein (GFP) using a 5xGS linker. Sub-cellular fractionation of GFP-5xGS-C152-E164/AA/DW demonstrated nuclear localization, confirming the identification of a ncNLS in MCPyV ST. This research not only identified a novel NLS but also may inform novel approaches for therapeutic targeting of MCPyV ST nuclear translocation and consequent MCC.

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Temporal trends in benthic biodiversity along a recently restored shoreline in Mosquito Lagoon, FL

Shorelines play an important role in protecting the land beyond the water from water-based issues like erosion. This experiment was completed to find the biodiversity of benthic organisms change of a restored shoreline at the Riverside Conservancy Center at Mosquito Lagoon in Riverside, FL. It is expected that there will be greater biodiversity at the now restored shoreline compared to before when it was an artificial shoreline. A survey was conducted from 2022- 2024 which would take place before and after restoration in order to compare changes in three biodiversity indices over time. The low p-value of the evenness test shows the significant change of the overall ratios in the area from being led by a single species to being more diverse during the time from before and after the shoreline was changed to a restored shoreline. This change can be understood as a possible increase in the overall biodiversity of the shoreline and Riverside Conservancy Center. Changes were not specifically seen in any of the other environmental indices that were tested.

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Seasonal change and environmental conditions and their effects on the reproductive patterns of mosquitofish species (*Gambusia affinis)* in Florida ecosystems

The western mosquitofish *Gambusia affinis* is one of the most invasive species on the planet, boasting incredible tolerance to environmental extremes and rapid, viviparous reproduction and growth that allow them to quickly spread into and establish populations in new environments, especially those similar to their native range. Since their reproductive efforts are integral to their invasive nature, study of those efforts has become equally as important in order to identify their breeding habits and where they best thrive, which can be accomplished by studying them in a range of native environments. We hypothesized that environments that have stable environmental conditions such as Volusia Blue Springs will allow for greater reproductive rates. To investigate this, we measured water conditions in four sites, collected samples of mosquitofish, dissected them and analyzed their gonads to determine body

condition, GSI and relative fecundity. After running analysis of those values, we found that stable environments had the greatest amount of reproduction. The results of this study partially supported my hypothesis, as Blue Springs experienced less seasonality in reproduction, also fecundity was greatest in Lake Beresford. I was able to identify a pattern in reproductive activity, but further study could give a more complete and in depth look at mosquitofish reproductive patterns.

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What Makes a Good Trip: The Role of Harm Reduction in Psychedelic Trip Quality

Psychedelic drugs can produce a sense of altered perception and changes in mood and cognition, colloquially referred to as a "trip." Harm reduction may be one variable that is predictive of trip quality, as harm reduction is associated with fewer challenging experiences (i.e., bad trips) and more emotional breakthrough (Palmer & Maynard, 2022). The purpose of this study was to better understand factors that are associated with trip quality such as harm reduction, mystical experiences, and ego dissolution. A sample of 62 participants completed a self-report survey on their most profound experience with psychedelics. The results indicated that harm reduction was associated with fewer challenging experiences, those with higher levels of mystical experiences had a stronger relationship between harm reduction and better trip quality, and that those with higher levels of ego dissolution had a stronger relationship between harm reduction and better trip quality. The results can help aid individuals in making the right decisions about psychedelic use and may have implications for clinical settings on how to create the best experience for psychedelic therapies.

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Brazil Case Study: Political Polarization and its Effects on a Democratic Youth*

This study examines the impact of political polarization on youth engagement in Brazil, focusing on the intersection of historical legacies, cultural dynamics, and modern political influences. Tracing the evolution of polarization from the military dictatorship era to contemporary politics under Jair Bolsonaro, the study explores how polarized rhetoric, misinformation, and digital media have reshaped the political landscape for young Brazilians. Data for the study was collected through a survey of 159 college students aged 18-25 from public and private institutions across Brazil, complemented by 10 interviews with youth activists and party leaders from the Workers' Party (PT) and the Liberal Party (PL). These methods aimed to evaluate how polarization affects young people's beliefs, political identities, behaviors, engagement levels, and ability to participate in constructive political discourse. The findings reveal that while polarization fosters hostility and deepens ideological divides, it also inspires youth activism by creating a sense of identity and belonging. Education, digital information channels, and the lack of representation in leadership roles emerge as key factors shaping youth engagement. Despite challenges, the research underscores hope: young Brazilians display resilience, critical awareness, and a shared desire for accountability and inclusivity. This study highlights the potential of youth to bridge divides and lead Brazil toward a more collaborative and democratic future.

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***Hamelia patens* Flower Extract Induces Cytotoxicity in K562 Chronic Myelogenous Leukemia Cells**

Cancer remains a leading cause of mortality, with leukemia accounting for approximately 3.2% of new cancer cases. Chronic myelogenous leukemia (CML) is a hematopoietic stem cell disorder characterized by the Philadelphia chromosome translocation, leading to uncontrolled proliferation of leukemic stem cells. Although targeted therapies exist, the risk of relapse remains high. Recent research suggests that medicinal plants, such as *Hamelia patens*, possess bioactive compounds with potential anticancer properties. This study aimed to evaluate the cytotoxic effects of *H. patens flower* extract on K562 CML cells. Cells were treated with varying concentrations of the flower extract, and viability was assessed using Trypan Blue, Cell Titer-Glo, and WST-1 assays. Results indicated a dose-dependent decrease in cell viability and metabolic activity, with significant cytotoxic effects at higher concentrations (10, 100 and 1000 µg/µL). These findings suggest that *H. patens* extract may contain bioactive compounds capable of inhibiting CML cell proliferation, warranting further research into its therapeutic potential.

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A Timeline of Beach Erosion on St. Phillips Island, SC

Coastal erosion is a natural process that can be caused by storm events, waves, currents, and wetland deterioration due to extreme storm events. However, increasing human alteration of the coastal environment is set to put our coastlines at risk of higher rates of erosion. South Carolina is an increasingly growing state that will be at continued risk of erosion due to sea-level rise, increased weather events from global warming, and anthropogenic alterations to the natural environment. Barrier islands are responsible for protecting inward coastal zones and take the brunt of powerful waves. While these conditions create dynamic coastlines on these islands, they are also much more vulnerable to sea-level rise and saltwater intrusion. St. Phillips, a barrier island far south, has lost an average of 399.25 feet overall on the southeastern portion of the island between the years 1994 and 2023. This is an average rate of around 13.76 feet being lost each year. Losing barrier islands to sea level rise and saltwater intrusion is a significant issue that should be researched further, and sustainable solutions to reduce significant sediment loss should be implemented.

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The Role of Nuclear Localization in the Transformative Properties of the Merkel Cell Polyomavirus Small Tumor Antigen

Merkel Cell Polyomavirus (MCPyV) is a virus that infects the skin and in rare cases can lead to the development of Merkel Cell Carcinoma (MCC), a skin cancer with a mortality rate three times higher than melanoma. It was previously discovered that the small tumor antigen (ST) of MCPyV is responsible for the development of MCC through its ability to accomplish nuclear localization, as a MCPyV ST protein fused to a Nuclear Export Signal (NES) was incapable of nuclear localization or cellular transformation. Since MCPyV ST lacks a nuclear localization signal (NLS), it must enter the nucleus through a non-canonical method. Therefore, we aimed to identify the domain of MCPyV ST responsible for nuclear localization. Preliminary research indicates that the non-canonical NLS (ncNLS) of MCPyV ST resides within a 30 amino acid stretch of MCPyV ST (MST30). Specifically, it is hypothesized that a streak of 10 hydrophobic, surface exposed amino acids may be responsible for nuclear localization. The current hypothesis is the ncNLS of MCPyV ST may interact with importin alpha 4 to accomplish nuclear

translocation and consequent cellular transformation. The goal of this research is to understand the mechanism for nuclear localization of MCPyV ST and prevent it from occurring, which will inhibit MCPyV from becoming MCC.

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Effects of Spilanthol on Taste Reactivity, Consumption, and Neural Activation in the Gustatory Cortex to Sodium Chloride in Rats

This study examined the effects of spilanthol on taste reactivity, consumption, and neural activation, or the number of active neurons within the brain, in response to sodium chloride (NaCl) in the gustatory cortex of rats. Spilanthol is a chemical compound known for anesthetic and analgesic properties being able to numb certain taste receptors. It was hypothesized that more spilanthol ingested by the rats will cause them to consume more salty water and exhibit favorable behaviors. Male Wistar rats (*Rattus norvegicus*) were given water mixed with varying concentrations of salt and spilanthol, to drink. Consumption amounts, taste reactivity responses, and neural activation from the gustatory cortex were analyzed. The hypothesis was not supported as results indicated that spilanthol significantly decreased NaCl consumption, or more spilanthol did not lead to drinking more salty water.

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Learning and Predator Avoidance in the Wolf Spider *Hogna lenta*: the Role of Visual and Chemical Cues

Spiders play crucial roles as predators, relying on multiple sensory cues to navigate their environment. While both visual and chemical cues influence spider behavior, little research has examined whether wolf spiders (*Hogna lenta*) can learn to associate aposematic coloration with chemical unpalatability. This study investigated the role of warning signals in predator avoidance by exposing wolf spiders to crickets marked with aposematic coloration (yellow), a distasteful chemical (quinine), or both. Spiders were divided into four groups and subjected to feeding trials, followed by a final test where all groups were offered crickets treated with both visual and chemical cues. Attack times and feeding frequencies were analyzed. Results indicated no significant differences in attack times or feeding frequencies, suggesting that *Hogna lenta* did not exhibit avoidance learning due to aposematic coloration or unpalatable chemicals. These findings alongside other studies suggest that wolf spiders may lack sensory mechanisms necessary to detect quinine as an aversive chemical or see yellow hues in prey selection. This study highlights the complexity of predator-prey interactions and emphasizes the need for further research on the interaction of visual and chemical cues on the sensory capabilities and learning mechanisms of predators, as well as in predator-prey interactions.

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Self-Fertilization Lowers Germination Rate In The Night-Scented Orchid (*Epidendrum nocturnum*)

Orchidaceae is one of the largest families of flowering plants. With over 26,000 species ranging in different habitat types, floral displays, pollination methods, and breeding systems, the vast uniqueness of orchids presents challenges for their conservation. Alongside this, a large lack of knowledge on species-specific breeding system factors is present in the current literature. *Epidendrum nocturnum* is a native, state endangered epiphytic orchid in Florida. This species, known for its nocturnal fragrance, has been reported to utilize a self-fertilizing method of reproduction (cleistogamy). To analyze how E. nocturnum's germination is impacted by different reproductive methods, we cultivated native seed samples collected from Florida habitat. Seeds produced from potentially cross-pollinated, open flowers

and self-fertilized, closed flowers were grown for 4-6 weeks. The results were as anticipated, with the germination rate being significantly greater in seeds produced from open flowers. The results indicate *E. nocturnum* may be responding to unfavorable habitat conditions rather than considering self-fertilization to be a more efficient reproductive strategy. Information gained from E. nocturnum germination in this study may assist in understanding other epiphytic species. The products of this project will help contribute to the established Florida population of *E. nocturnum* in the Florida Panther National Wildlife Refuge.

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Effects of Bank Restoration on Fish Density and Diversity in Blue Spring, FL

Restoration efforts, although important to help save ecosystems, can often fix the problem at hand, but cause other underlying changes in the environment. A restoration project was done on Blue Spring, FL in 2021 and 2024 where they added rocks along sections of the banks to prevent further erosion. Through this research, I examined how this restoration impacted the fish density and species diversity in the spring. I looked at these two factors in areas of the spring where there was new, old, and no restoration via filming. I found that the diversity was highest in areas where there was no restoration, and the density was not positively or negatively affected by the restoration . Although the diversity was highest in areas of the spring with no restoration, this does not necessarily mean the restoration had a negative impact on the diversity. Different species of fish still exist in areas with new and old restoration, but more species preferred the natural area.

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Effects of Intra-Oral Infusion of Na_2CO_3 and NaCl on Taste Reactivity Behaviors and Fos-Immunoreactive Neurons in the Gustatory Cortex in Rats

Excessive sodium intake poses significant health risks, highlighting the need for alternative salt compounds that reduce sodium consumption while preserving taste. Previous research suggested that rats perceive Na_2CO_3 as substantially saltier than NaCl. To explore this, we analyzed taste reactivity behaviors and neural activation in the gustatory cortex using Fos-immunoreactivity following intraoral infusion of Na_2CO_3 and NaCl in male rats. Sixteen male Wistar rats were divided into Na_2CO_3 replete, Na_2CO_3 deplete, NaCl replete, and NaCl deplete. Sodium replete refers to a condition where the body has a sufficient amount of sodium, allowing it to function properly. In contrast, sodium deplete describes sodium deficiency in the body, which can lead to health issues such as dehydration or electrolyte imbalances. Findings indicate that replete Na_2CO_3 evokes more aversive reactions than NaCl, suggesting an intensified perception of saltiness. Additionally, differences in Fos-IR expression between Na_2CO_3 and NaCl, particularly in sodium-depleted conditions, emphasize the influence of physiological state on taste perception. These results suggest that Na_2CO_3 could serve as a potent salt substitute, potentially enabling sodium reduction in food while maintaining flavor intensity. Further research is needed to assess its suitability for human consumption and to better understand its neural processing mechanisms.

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The effect of thyroxine on the development of axolotl, *Ambystoma mexicanum,* embryos

Thyroid hormones that include thyroxine (T_4) and triiodothyronine (T_3) are essential regulators of metabolism, growth, and cell differentiation. I was interested in exploring the effect of thyroid hormone on embryonic development, and in particular how these hormones influence development of

the nervous system and skeleton. The effect of excess T_4 levothyroxine was examined using axolotl (*Ambystoma mexicanum*) embryos as a model system for human embryogenesis. I exposed the axolotl embryos to a wide range of levothyroxine solutions, based around therapeutic doses, for 24 hours. After exposure I rinsed their jelly coats and allowed them to develop until hatching, at which point I euthanized and preserved them for analysis. Head width, distance between the eyes, and body length were all measured, and then I analyzed the measurements using a linear regression and t-test. While no threshold or dose dependent effects were observed, exposure to any levothyroxine displayed a significantly reduced distance between the eyes and a narrower head width. Survival rates were not affected by exposure to levothyroxine. The results of this study indicate that any exposure to therapeutic doses has a negative effect on embryo development.

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The Effects of Time of Day and Age on Caudal Luring in Pygmy Rattlesnakes (*Sistrurus miliarius*)

Caudal luring is the continuous and repeated tail movement across a snake's body while in a stationary coil, used to mimic the appearance of worms or larvae to attract prey. Because very little is known about this method of prey luring, it is a useful model for deceitful behavior and the variables that trigger its usage. We determined if snake age and time of day affected whether pygmy rattlesnakes (*Sistrurus miliarius*) caudal lured. Sixty-eight snakes were found in two wildlife refuge locations and videoed. The videos were then analyzed for caudal luring behavior and contrasted with the chosen variables. There was no significant association between age and the frequency of luring. Snakes were more likely to lure longer at night than in the daytime. There were also longer bouts of luring at night versus day, impling snakes use this deceitful behavior more often at low light levels possibly because it is less likely to be spotted in low light level environments compared to daylight. Future studies could determine if the success rate of caudal luring at night is actually higher than in the day by testing to see if prey are fooled more often at lower light levels than in well-lit situations.

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Identification of a Novel Nuclear Localization Signal Within the Merkel Cell Polyomavirus Small Tumor Antigen Necessary for Nuclear Localization and the Development of Merkel Cell Carcinoma

In 2008, Merkel Cell Polyomavirus (MCPyV) was discovered as the etiologic agent of Merkel Cell Carcinoma (MCC), a rare skin cancer three times deadlier than melanoma. MCPyV has two main proteins: the large tumor antigen (LT) and the small tumor antigen (ST) which are encoded through alternative splicing of the same mRNA. Interestingly, MCPyV ST was found to achieve nuclear localization despite the absence of a nuclear localization signal (NLS), and nuclear localization was found to be necessary for cellular transformation. Due to alternative splicing, ST and LT share a common region as well as their unique regions. This is particularly important, as LT has a known NLS within its unique region but not in the common T region. Hence, we infer that the novel NLS of MCPyV ST must also be found within its unique region. Previous experimentation has revealed that 30 amino acids in the ST unique region (MST30) may be responsible for nuclear localization. MST30 features a 10-residue hydrophobic stretch, a short linker, and a DW sequence potentially containing a PY-ncNLS, a similarly patterned NLS. Because of this, elucidating MST30 and its potential PY-ncNLS would be beneficial to understanding the nuclear localization mechanisms of MCPYV ST.

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Examination of *Hamelia patens* leaf extract potential as T-cell lymphoblastic leukemia therapeutic

T-Cell Mediated Lymphoblastic Leukemia (T-ALL) is a rare, aggressive cancer of immature white blood cells. The prognosis of T-ALL has been steadily improving, however there is always a need for treatments with mitigated side effects and improved resolution of the disease. Phytochemicals found in plants have been shown to have anti-tumor effects, and plant-derived compounds have been on the rise as selective and effective treatments for cancer. An alcohol-based crude extract was synthesized from the leaves of the medicinal plant *Hamelia patens*. The anticancer activity of leaf extract concentrations of 1, 10, 100, and 1000µg/mL were analyzed in vitro utilizing the Jurkat T-ALL cell line at different treatment times of 12, 24, 48, and 72 hours. Trypan Blue cell counts were used to calculate total live cell concentration, dead cell concentration, and cell viability. A Cell Titer Glo assay was used to determine cell metabolic activity, and an Annexin V assay was utilized to examine induction of early and late-stage apoptosis and/or necrosis. Total live cell concentration decreased as leaf extract concentration increased in a time-dependent manner. Jurat cells treated with varying concentrations of the plant the leaf extract caused a statistically significant decrease in cell viability compared to the negative control. The Cell Titer Glo bioluminescent metabolic assay revealed decreased cell metabolism as plant leaf extract concentration increased. The Annexin V apoptosis assay yielded significant differences in apoptosis between the 100 and 1000µg/mL concentrations and the negative control. Our data suggests that *Hamelia patens* has potential as a treatment for T-ALL, however the mechanism of action has yet to be discerned. Current studies include examining cell death regulation protein expression changes in treated cells and non-malignant normal cell sensitivity to the leaf extract.

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Innovative Dissimilarity Approach Reveals Unique Transforming and Nuclear Localization Mechanisms of the Merkel Cell Polyomavirus Small Tumor Antigen Necessary for Merkel Cell Carcinoma

Merkel Cell Polyomavirus (MCPyV) is the only known human polyomavirus with a definitive link to cancer. In 2008, MCPyV was found responsible for the development of Merkel Cell Carcinoma (MCC), a highly aggressive skin cancer with a 5-year survival rate of 14-71% depending on disease staging. Despite over a decade of research, the precise mechanisms driving the oncogenesis of MCPyV remain unclear. Unlike other non-oncogenic human polyomaviruses, like Trichodysplasia Spinulosa-Associated Polyomavirus (TSPyV) and Human Polyomavirus 7 (HPyV7), MCPyV encodes a small tumor antigen (ST) capable of inducing cellular transformation. Therefore, to determine the mechanism(s) of MCPyV ST-mediated oncogenesis, traditional analyses have resorted to a similarity-based approach that compares MCPyV to known oncogenic non-human polyomaviruses like Simian Virus 40 (SV40) and Murine Polyomavirus (MuPyV). However, as ST plays only an accessory role in SV40 and MuPyV oncogenesis, this approach has had limited success. Instead, the Dye Lab at Stetson University developed a dissimilarity approach that exploits the fact that MCPyV ST is uniquely oncogenic among human polyomaviruses to identify its transforming mechanisms. By identifying the molecular mechanisms of MCPyV ST's unique nuclear localization, this research will provide insights into viral-driven cancer and lay the path for future therapeutic strategies against MCC.

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Anthropogenic sound causes a change in swimming behavior in copepods, *Acartia tonsa*

Anthropogenic sound inputs are increasing underwater, however, little is known about the behavioral effects that these sounds may cause to marine and estuarine organisms. Calanoid copepods, *Acartia*

tonsa, are one of the most abundant crustacean zooplankton in both marine and estuarine waters; they play a vital role in the food web and are tolerant to a wide range of salinities and temperatures as well. After acute exposure to anthropogenic and natural sound inputs, we found that the copepods swam away and avoided the boat motor sounds and swam towards the sound of their natural environment. The volume of the sounds did not affect the copepods, however, the avoidance to boat sounds were more prominent at the medium and high sound exposure levels (SELs). This is very telling since *A. tonsa* are abundant globally.

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Examination of Cytotoxic and Cytostatic Activity of *Hamelia patens* Root Extracts on Jurkat Leukemia Cells

Plants contain medicinal phytochemicals that could be used to treat cancer, the second leading cause of death worldwide. *Hamelia patens* is a bush used in traditional Mayan medicine and has been found to be cytotoxic, antiparasitic, and anti-inflammatory. In this study, an extract of the *H. patens* root was made and tested on Jurkat leukemia cells to determine whether the extract exhibited cytostatic and or cytotoxic properties. An ethanolic extract of the plant's roots were made and various concentrations of the extract were tested with a Trypan Blue assay, Cell Titer-Glo assay, and a cell cycle assay. The Trypan Blue assay and Cell Titer-Glo assay found a statistically significant decrease in live cells between the alcohol solvent control and the highest concentration of the extract tested, but this was not supported by the cell cycle assay. It is likely that compounds in the plant responsible for anticancer activity may be concentrated in the aerial portions of H. patens, rather than in its roots.

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Behaviors of invasive Cuban brown lizards (*Anolis sagrei)* when approaching model caudal luring pygmy rattlesnakes (*Sisturus miliarius*) within an urban environment

Invasive species can disrupt ecological communities by altering predator-prey dynamics and displacing native species. The Cuban brown anole (*Anolis sagrei*), an invasive species in the southeast United States, has begun to outcompete the native Florida green anole (*Anolis carolinensis*). Both species encounter native predators like the pygmy rattlesnake (*Sistrurus miliarius*), which uses a foraging tactic where they move their tail to mimic invertebrate prey, called caudal luring. This study looks at brown anoles' behavioral responses to caudal luring using clay models of juvenile rattlesnakes and control models with attached mealworms. Video analysis in an urban environment showed no significant difference in attack frequency (control: 75%, snake: 68.8%, p=1.0) or retreat rates. Still, anoles exhibited longer attack delays near snake models (control: 2.89 min, snake: 4.53 min, p=0.45), suggesting potential risk assessment. These findings highlight the adaptability of brown anoles in urban environments. This shows behavioral plasticity as a factor in their ability to successfully invade the southeastern United States. The Brown anoles displayed a lack of fear of new threats and an aggressive attack behavior that is essential to establishing within a new environment.

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Protocol for Live Imaging *Vanessa cardui* Embryos

Embryonic development of *Vanessa cardui* (Painted Lady butterflies) involves large-scale cell and tissue movements. To characterize these motions and determine their driving forces, we developed a protocol to image these embryos live at the tissue level. Cell-level resolution could be accomplished with this imaging protocol with appropriate microscopy. It can even be combined with microinjections of

targeted fluorescent dyes to track cellular features. With removal of the two outermost egg layers – the chorion and vitelline membrane – necessary for imaging, we determined how to keep the embryos still while ensuring they can develop 3-dimensionally. Removing the embryo from these layers was successful as early as 24 hours post-oviposition while keeping the embryo intact with its yolk – necessary for continued development. We determined sustained life to be possible in a custom imaging chamber for 48+ hours, with development for 20+. However, development proceeds at a slowed rate and appears to stop prior to reaching the larval stage. Further, microinjection of nuclear dye shortly after collection appears to slow development. While this protocol shows promise – particularly for observing processes that take less than 20 hours and begin after 24 hours of development – we will continue to explore improvements.
*This study was funded in part by a 2024 SURE Grant and a 2023 Willa Dean Lowery Grant

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Comparing Seine Netting and Underwater Video Surveys for Assessing Fish Assemblages in Volusia Blue Springs

This study evaluated the effectiveness of seine netting and underwater video surveys in assessing fish assemblages at Blue Springs State Park, Florida. The research aimed to determine which method provided higher counts based on species richness, total fish count, and diversity. Sampling was conducted from August to September 2024 at 2 designated stations along the spring run. Seine netting and underwater video recordings was performed at both sights and analyzed for species identification as well as fish counts. Statistical analyses compared the two methods using paired tests. Results indicated no significant difference in total fish count and diversity between methods ($P > 0.05$). However, species richness was significantly higher in seine netting samples ($P = 0.02$), suggesting that this method captured a greater variety of species. These findings contradict our initial hypothesis that video surveys would yield higher counts. Despite its invasive nature, seine netting proved effective in detecting more species, whereas video surveys offered a non-intrusive means of assessing fish behavior and population estimates. The study presents the importance of employing multiple sampling methods to obtain comprehensive fish assemblage data.

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Gene regulation of Catalase and Copper/Zinc Superoxide Dismutase in Response to Normoxic Stress on *Eruca sativa* in a Nutrient Film Technique System

Oxygen is essential for plant development, playing a key role in cellular respiration to generate ATP for growth. In hydroponic systems, plants depend entirely on dissolved oxygen (DO) in the water, and oxygen deficiency can lead to oxidative stress, causing reactive oxygen species to accumulate and damage cells. To counteract this, plants produce antioxidant enzymes such as catalase (CAT) and superoxide dismutase (SOD) to maintain cellular homeostasis. This study examined how DO levels affect biomass and antioxidant enzyme gene expression in *Eruca sativa* grown using a Nutrient Film Technique (NFT) hydroponic system. Two treatment groups were established: normoxic (DO = 6-8 mg/L) and hyperoxic (DO = 9-13 mg/L). Biomass was measured, and CAT and Cu/Zn-SOD mRNA expression was analyzed via RT-PCR. Plant biomass did not differ between the two treatment groups. However, in both groups, root and foliage biomass **decreased** with distance from the point of water entry, suggesting that growth was influenced by localized oxygen availability. Gene expression varied across samples, and DO levels were insufficient to induce significant stress responses. Understanding how oxygen availability

impacts plant growth and gene expression in hydroponic systems can help improve productivity and stress resilience in controlled environmental agriculture.

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Evaluating the Effects of Amyloid-Beta Expression and Ginkgo Biloba on Sensory Behavior in *Caenorhabditis elegans*: Implications for Alzheimer's Disease Research

Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by cognitive decline, primarily driven by the accumulation of amyloid-beta (Aβ) plaques and neurofibrillary tangles. Current treatments, including cholinesterase inhibitors and memantine, aim to slow disease progression by targeting synaptic dysfunction and neurotoxicity. Additionally, Ginkgo biloba extract (GBE) has been investigated for its neuroprotective properties due to its antioxidant and anti-inflammatory effects. This study examines the impact of Aβ expression on sensory behavior in juvenile *Caenorhabditis elegans (C. elegans*), a model organism with genetic homology to humans. The study specifically assessed whether Aβ expression impaired osmotic avoidance in juvenile *C. elegans* and whether GBE treatment could mitigate this effect. Results confirmed that Aβ expression significantly reduced osmotic avoidance in *C. elegans*, supporting its role in neuronal dysfunction. However, GBE treatment did not significantly improve sensory deficits, contrasting with prior research suggesting its neuroprotective potential. These findings highlight the relevance of *C. elegans* in AD research while indicating that GBE's effects may be more complex than previously understood. Future studies should explore different dosages, treatment durations, and alternative behavioral assays to further elucidate GBE's potential therapeutic mechanisms in neurodegenerative diseases.

PAPERS

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Cold War Alliance: American Military Bases in the Philippines and the Marcos Era, 1965-1986*

In June 2022, Ferdinand "Bongbong" Romualdez Marcos Jr. became the 17th president of the Philippines. While he was democratically elected, he was also the son of Ferdinand Marcos Sr., who had been elected as the 10th President in 1965 but then became an infamous dictator. The Philippines was a key American ally in the Asia-Pacific during the Cold War, and Marcos Sr. ruled the country for over two decades until he was deposed in 1986. The senior Marcos's reign is often remembered by Western observers as one dominated by corruption, larceny, and martial law, yet the son's landslide electoral victory can be partly attributed to his family name. The strength of the U.S.-Philippines military alliance during the Marcos Sr. years was such that the two of the largest and most strategically important American military bases overseas, Subic Bay Naval Station and Clark Air Force Base, were located in the Philippines. My project will thus analyze U.S.-Philippine military relations during the Cold War, specifically the Marcos Sr. period. A SURE Grant would enable me to conduct archival research at UCF, as well as at the Library of Congress and the National Archives in the Washington, DC area.

* This study was sponsored by the 2023 Stetson Undergraduate Research Experience (SURE) Grant

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A Coffee Venture: Cafe Querido

Cafe Querido is a unique specialty coffee shop concept that aims to introduce and celebrate the rich traditions of Mexican coffee culture. This company is founded on authenticity and cultural pride and strives to give clients an engaging experience that goes beyond simply a cup of coffee. The café's main goal will be to provide premium, responsibly sourced Mexican coffee together with classic flavors and a cozy, welcoming ambiance. The demand for specialty coffee and distinctive cultural experiences is driving the continued success of the US coffee sector. Customers look for brands that share their values of sustainability, genuineness, and community involvement, especially younger consumers. By establishing itself as a cultural destination rather than merely a coffee shop, Cafe Querido hopes to meet this desire. This report describes how Cafe Querido will set itself apart in a competitive marketplace based on a thorough market analysis. The branding strategy places a strong emphasis on ethical sourcing, community involvement, and narrative. In order to ensure accessibility to its main target market—young adults and members of the Hispanic community who value high-end, culturally meaningful coffee experiences—the café will be positioned strategically in busy locations with a significant Hispanic population. A well-planned marketing strategy will increase awareness and engagement by combining digital marketing, partnerships, and community-focused events. The pricing structure will be designed to preserve accessibility while reflecting the quality of the products. A realistic financial model with a thorough breakdown of launch costs and anticipated profitability is shown by sales forecasts and cost analysis. All things considered, Cafecito Querido is well-positioned to thrive as a distinctive, experience-based specialty coffee establishment that respects Mexican tradition while satisfying the tastes of contemporary customers. The café can attract loyal customers and increase its market share in Central Florida's coffee industry by adhering to its mission and brand values.

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Improving Merge Sort and Quick Sort Performance by Utilizing Alphadev's Sorting Networks as Base Cases

This research explores how to make common sorting algorithms run faster by using techniques developed with artificial intelligence. Sorting algorithms organize data and are essential in computer applications like search engines and databases. We tested how incorporating Google DeepMind's "sorting networks" (small, highly optimized sorting components) affects the performance of two classic sorting methods: Merge Sort and Quick Sort. After testing different data sizes and arrangements, we found our enhanced Merge Sort ran up to 2.4x as fast as the original version. Surprisingly, our optimized Merge Sort even outperformed Quick Sort in certain scenarios, presenting a new perspective to the discussion about which algorithm is faster. This work demonstrates how AI-optimized components can significantly improve classical algorithms without sacrificing their versatility. The findings have practical applications in database systems, search algorithms, and any software that needs to process large amounts of sorted data efficiently. Our paper was accepted to be published in the proceedings of ACM Southeast 2025 Conference.

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Dissecting the domains of Fus1 required for yeast cell fusion

Cell fusion is essential for development, tissue repair, and reproduction in eukaryotes. Saccharomyces cerevisiae, or budding yeast, serves as an ideal model for studying this process due to its conserved fusion-related proteins. During yeast mating, Fus1, a transmembrane protein induced by mating

pheromones, localizes to the zone of cell fusion (ZCF) and promotes cell wall degradation. Deletion of Fus1 results in failed cell fusion despite successful polarization and contact. While the SH3 and transmembrane domains of Fus1 are well studied, its internal domain remains poorly characterized. To explore the role of the internal domain, we analyzed point mutations Fus1-L268A and Fus1-R260A. The L268A mutation significantly impaired Fus1 localization to the ZCF and reduced fusion efficiency, indicating that this residue is crucial for both localization and fusion function. In contrast, the R260A mutation did not affect Fus1 localization but still led to reduced fusion efficiency, suggesting that this residue contributes to Fus1 function through a mechanism independent of localization. Our findings reveal that the internal domain of Fus1 contains essential residues required for its proper localization and function during cell fusion. This study advances our understanding of Fus1 and highlights the importance of its internal domain in regulating yeast cell fusion.

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Women in Power, Patriarchy in Place: Understanding the Limits of Representation

Abstract:
My study is about women in higher positions of power and how despite being in these power why they still face gender and sex based oppression. Leading me to my research and question of despite there being more women represented in higher positions of power, women still experience gender and sex-based oppression. What factors explain this? Previous studies have shown how women have gained political representation in different contexts around the world numerically but that does not fully tell us why women are still oppressed. Along with other studies of looking at different institutional and societal factors all having a limited explanation. Hence why I propose theory to help dive deeper beyond the empirical data already shown and instead look further into women and their real-world experiences to discover why women are still oppressed. I will be looking at three cases of women who are in higher political positions of power and through Hanna Pitkin's framework of representation explore what they represent and how this plays into the overall idea of women being limited. Finding out that previous patriarchal structures do limit the representation of women and their experience. This study will contribute a new perspective in the field of political theory not only expanding past empirical data but will dive deeper into the meaning behind every language such as representation and the implications behind it.

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Assessment of Florida Sandhill Restoration Project Success Through Prescribed Burning Activity

Over time, Florida has experienced a loss of sandhill ecosystems, impacting numerous species and biotic and abiotic conditions. Restoring sandhill ecosystems is crucial to maintaining ecosystem services and biodiversity in Florida. Through our research, we sought to demonstrate current and historic land use, vegetation health, vegetation cover, and extent of 4 Central Florida restoration projects: the Ross Prairie Wildlife Management Area, Rainbow Springs, Ocala National Forest, and Withlacoochee State Forest sandhills. Our objectives were to outline the current extent of each sandhill restoration project, determine where prescribed burning occurred and its impact on restoration, determine the health of the sandhill land cover currently present at the sites, identify the prevalence of native historic sandhill vegetation across sites, and compare the burned and unburned sites overall. Separate maps were completed to analyze NDVIs and vegetation departure for pre-burn and post-burn years. We found that prescribed burning activity improved the vegetation health of the areas containing sandhill soils and land cover. We also found that over time all of the sites except for Withlacoochee State Forest have decreased in historic vegetation cover.

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Age Differences Between Religious Traditions and Depression

Previous research has found that practicing a religion often improves mental health symptoms (Gauthier et al., 2006). Specifically, individuals who have an intrinsic motivation (seeks to serve their religion more than their own goals) have shown less negative mental health symptoms compared to individuals who have an extrinsic motivation (hopes that their religion will serve them). However, compared to older generations, younger generations are opting not to participate in religions at higher rates (Twenge et al., 2016). The current study examines the relationships between religion, religious motivation and mental health, using age as a moderator. Depression is used to represent mental health. An online survey was completed by 101 participants. The survey consisted of four questionaries, measuring depression, level of religiosity, intrinsic and extrinsic religious motivation. This study did not find that age serves as a moderator between religion and depression. This study found that intrinsic motivation protected from symptoms of depression. Extrinsic motivation was not found to have a significant impact on mental health symptoms. Further research should be considered to expand on the effects of a more diverse population, to see if further significance is found among people of varying ages and religious practices.

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Catalyzing Market Innovation through Artificial Intelligence*

The world is currently experiencing a transformative shift in the way business operations are being performed through the mass implementation of Artificial Intelligence [AI]. As a result, predictions demonstrate how AI's powerful analytical and intuitive capabilities will fuel an unseen acceleration of human innovative progress. This study extracts the fundamentals of human innovation including market gap discovery, venture capital, and research & development while analyzing its future through a perspective where AI plays protagonist. AI's ability to rapidly collect, organize, analyze and create insights from data creates an optimistic future for innovation within many fields including engineering, medicine and climatology. Given market innovation's crucial role in societal advancement, AI's revolutionary impact in the domain is worth exploring.

*Recipient of the 2025 duPont-Ball Library R. Neil Scott First Year Research Prize

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Linear and Logarithmic False-Color Transformations of Infrared James Webb Space Telescope (JWST) Images

The human eye is only able to see wavelengths of visible light. This means that we can see planets and stars in our solar system in the night sky sometimes without the use of telescopes; but what about objects not in our solar system? The human eye is not able to detect those objects as they are so far away, as much of the light coming off those objects are in the infrared part of the electromagnetic spectrum. By taking the images taken by the James Webb Space Telescope (JWST) and using a linear or logarithmic transformation to mapped the infrared wavelengths from the different camera filters to the wavelengths of differing colors in the visible spectrum, we are able to create images that present information to the human eye. Additionally, we can also use the data collected by the other instruments on JWST, we can measure redshift of spectral lines which allow us to map the distance galaxies are from our solar system.

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The effects of steviol glycoside and aspartame on development of gastrulation stage axolotl embryos
This study examined the effects of zero calorie sugar substitutes (non-nutritive sweeteners), on gastrulation stage axolotl embryos. Non-nutritive sweeteners are widely used for various health conditions and disease management. When ingested by pregnant people, embryos are also exposed to these sweeteners. The effects on embryos and their development are not well known. I exposed the embryos to varying concentrations of two commonly used sweeteners, steviol glycoside and aspartame. Steviol glycoside, a natural compound caused diminished growth in the head region, but no effect on body length. Stevia also caused a threshold-dependent decrease in survival rate. Aspartame, an artificial compound, had no effect on any aspect of growth, however it did cause a dose-dependent decrease in survival rate. My results suggest that aspartame has an effect on survival without affecting growth, while steviol glycoside affect both growth and survival. This study shows the need for further research on non-nutritive sweetener's effect on embryonic development.

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The Merkel Cell Polyomavirus Small Tumor Antigen interacts with Importin Alpha 4 to localize to the nucleus despite the absence of a known Nuclear Localization Signal
Merkel Cell Polyomavirus (MCPyV) is a human oncogenic polyomavirus responsible for the formation of Merkel Cell Carcinoma (MCC), a rare and lethal skin cancer. Previously, the Dye Lab at Stetson discovered the dominant role of the Small Tumor (ST) antigen in MCPyV's oncogenesis as a result of its unique ability to accomplish nuclear localization despite the absence of a nuclear localization signal (NLS). Primarily, cellular proteins encoding an NLS accomplish nuclear localization through the interaction with importin proteins who translocate NLS containing cargo through the nuclear pore complex and into the nucleus. As MCPyV ST does not encode a canonical NLS, we sought to identify the mechanism by which MCPyV ST accomplishes nuclear localization and consequent cellular transformation. As previous mass
spectrometry data indicated the potential interaction of multiple importin proteins with MCPyV ST, we sought to verify these interactions through co-immunoprecipitations. Through this approach, importin alpha 4 was found to interact with MCPyV ST, and is likely responsible for MCPyV ST's nuclear localization and consequent cellular transformation. This discovery paves the way for the development of novel pharmaceuticals that target MCPyV ST nuclear localization and may drastically improve the prognosis of those with MCC.

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From Legal Dispute to Artistic Legacy: The Bluemner v. Garvin Case
This paper examines the pivotal legal dispute between Oscar Bluemner, a Prussian-born American Modernist painter, and his former architectural partner, Michael J. Garvin, as a catalyst for Bluemner's transition from architecture to painting. The case, rooted in contractual disagreements over the design of Bronx Borough Courthouse, ultimately provided Bluemner with the economic means to fully pursue a career in art. Beyond its immediate legal and financial implications, the dispute sheds light on the broader cultural and professional struggles Bluemner faced as he redefined his identity from architect to painter. Drawing on newly examined archival materials, this study explores the intersection of legal conflict, professional reinvention, and artistic ambition, positioning Bluemner's case within the larger narrative of early 20th-century American modernism.

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Primitive Star Decompositions of Complete Graphs*

Suppose there is a disease outbreak in a collection of towns and the towns are each connected by a network of highways. Healthcare workers are permitted to travel between these towns along designated routes. We assume disease propagates as follows: a town becomes infected if it is visited by a sick healthcare worker, and a healthcare worker becomes infected if they travel along a highway connecting two infected towns. This motivating example illustrates the property of primitivity in Graph Theory. We say a route assignment is primitive if any single healthcare worker initially being sick causes the disease to eventually spread to everyone else. In this presentation, we explore the concept of primitivity and present new results on conditions that permit primitive star decompositions of complete graphs.

*This work is supported by Stetson's College of Arts and Sciences Dean's Fund.

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Soviet Women Combatants Shaping Perceptions of Femininity*

In World War 2, the world witnessed a mass mobilization of women. In the USSR, 800,000 women volunteered, and many served directly on the front lines. How did Soviet women balance their femininity as combatants? By studying women in the Soviet Air Force, I find that Soviet women's soldierhood did not conflict with their idea of femininity through their motivations, community, and commitment. They were motivated not to defy traditional gender roles but because of their patriotism which encouraged them to use the skills they had to protect their country and the people they love. The community that they formed on the front lines allowed them to foster a feminine community, upholding their womanhood through a commitment to beauty and hobbies like embroidery. Despite suffering hardships, these women maintained their femininity. The regiment performed missions on the same caliber as the male units, but their contributions were forgotten about after the war. By uncovering their forgotten contributions, we can better understand what being a women on the front lines really means.

*Funded by a Stetson University CAS Dean's Fund Award.

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The Stetson 150 Project

Stetson 150 is an Independent Study (ISY) program that encourages students to explore Stetson history by conducting oral histories and doing archival research in preparation for the upcoming 150th anniversary of the university. This semester, we have conducted four oral histories of Stetson faculty members, focusing on themes such as gender, class, and greater political events. Topics that have come up include life as a student in the 60s, the effects of the Cold War on campus, and the transformation of technology at Stetson. The archival research portion of Stetson 150 has focused on the history of Vietnam War protests at Stetson. Throughout this research, we have found that Stetson students held a moratorium day on campus in 1969 to protest the war and call for immediate withdrawal of American troops from Vietnam. This sheds light on the history of political activism on campus and raises questions about the future of protest at Stetson. The ongoing project allows us to preserve Stetson's rich history as it is continuously shaped.

Abi Edds (Dr. Joel Davis)
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The Brass Man of Cogburn Alley
The story is created in a mixture of the studies of the Disability Theory; the lens of studying a character or story as an allegory for a disabled individual and their lives, Steampunk and applying the literary study to the characters and aesthetics of some of the great monster films such as Frankenstein, Dracula and The Cabinet of Dr. Caligari. By thinking of the insinuation of such great monsters being nothing more than disabled, everyday men, along with taking story and character elements from the Steampunk social genre, a story of an automaton living in a world made so close and so far away from him highlights just who the monster truly is.

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Computational Method for Studying the pKa Values of Metal Hydroxo Complexes
Metal hydroxo complexes play an important role in many important enzymatic reactions. Specifically, binuclear metal complexes of the bis(μ-oxo) form resulting from the double deprotonation of the hydroxo complex have been found in many important catalytic intermediates. The pKa values of metal hydroxo complexes are fundamental to understanding their role in biological systems. It can tell us information about the reactivity of the complexes and which form may predominate in naturally occurring processes. However, little information is known regarding the pKa values of these complexes in general. Here, we provide a method for accurately predicting the pKa values of metal hydroxo complexes in aqueous and non-aqueous solutions.

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Synthesis of SINE drugs: a class of novel anticancer drugs targeting aggressive blood cancers
Exportin 1 (XPO1) is a protein responsible for the transport of nuclear export signals within a cell, including the mediation of tumor suppressor proteins. Certain cancers, notably hematological cancers, will overexpress XPO1 as a defense mech-anism. Selective inhibitors of nuclear export, or SINE drugs, act as competitive inhibitors to the binding of nuclear export signals with XPO1. In order to be able to test the efficacy of some theoretical SINE drug targets, we have proposed a synthetic procedure to form these drugs in good yields. By using different catalysts, we are able to control the favorability for forming the cis product, which literature suggests is the biologically active product. In order to obtain pure samples of these drugs to test their ability to kill cancer cells, we employ various purification techniques such as column chromatography and preparative thin-layer chromatography (Prep TLC).

Tajah Garrett (Dr. Chadley Ballantyne)
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Embracing the creative art of songwriting, filming and recording*
"Wishful Thinking" and "Places", selections from my recorded album, center on creatively using my songwriting to make space for personal and social veracity that may result in our mental, physical, and spiritual well-being. By realizing this project, I want to relate my creative process to urgent social challenges and how they may affect us personally and socially, as well as improve my abilities in music production. Songwriting is an innovative medium that has helped me to contemplate my intellectual and emotional reactions when experiencing negative behaviors.
Supported in part with a 2024 SURE Grant

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Do Americans support the legalization of prostitution, why or why not?

Prostitution has been outlawed in the United States since 1910. Over a 100 years later, Nevada is the only state in the Union to have legalized it in some form. Literature surrounding this topic has shown two pushes, one towards decriminalization by progressive feminists and another towards complete abolition by traditional feminists and those ideologically classified as conservatives. Despite this, no researchers have conducted a survey within the United States to gauge support. This research asks the question: do Americans support legalizing prostitution, and why or why not? It argues that Americans do not support legalizing prostitution due to ideological reasons. A national survey (n=891) was conducted by Stetson's Center for Public Opinion Research. The survey found that only 38% of Americans support legalizing prostitution. The dependent variable was tested against gender, party identification, region, ideology, and education. The data shows that males are significantly more likely than females to support prostitution, and those who identified as very liberal are significantly more likely than those who identified as other ideologies to support legalization

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Endogenous tidal rhythms in mangrove tree crabs (*Aratus pisonii*) imply larval retention in a coastal lagoon*

Endogenous tidal rhythms can facilitate dispersal in estuarine larvae. For example, upward migrations during outgoing ebb tides result in offshore transport. In this experiment, we assessed whether the planktonic larvae of mangrove tree crabs (*Aratus pisonii*) exhibit tidal rhythms that could impact dispersal. Survivorship of larval *A. pisonii* is greater at high salinity (25 – 35 ppt), and larvae lack large protective spines. Therefore, we hypothesized that *A. pisonii* hatchlings would exhibit tidal rhythms that facilitate offshore transport, away from estuaries with high predator abundance. Using larvae that hatched within 24 h of female collection from Mosquito Lagoon, FL, we observed swimming activity in the dark for 72 hours. We evaluated activity by counting the number of larvae in the top third of a 20-cm tall column every 30 minutes. We then identified behavioral rhythms in swimming with periodograms and compared activity rhythms to tidal height using cross-correlation analysis. Larval *A. pisonii* displayed endogenous rhythms in swimming behavior that correlated to the tidal cycle. Contrary to our hypothesis, peaks in upward swimming corresponded to the incoming flood tides, not the outgoing ebb tides. Hence, these larvae may favor retention in Mosquito Lagoon, which maintains relatively high salinities required for larval survival. *This research was supported by a 2024 SURE Grant

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The Justification of Combat Sports Through a Virtue Ethics Lens

This research project falls within the domain of virtue ethics, a branch of moral philosophy that evaluates human actions based on the cultivation of virtues and ethical character. The project will analyze combat sports through the lens of virtue ethics, exploring how they contribute to moral development rather than constituting unethical practices requiring abolition. This paper will address the central question: Should combat sports be abolished on ethical and moral grounds? More specifically, the research will answer questions relative to and explore how combat sports align with the cultivation of virtues, such as courage, discipline, and respect. Additionally, the research will theorize how combat sports promote virtuous character development rather than inherently encourage vice or harm. Furthermore, the research will answer if combat sports can be ethically justified within the framework of Aristotelian virtue ethics.

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The Evolution of the Imperial Japanese Army 1854-1937

Whilst it is common knowledge that Japan was a major military threat with a highly modern fighting force during the Second World War, what isn't commonly covered is just how swiftly and efficiently Japan was able to rise this force. It only took Japan 70 years to completely change its military from a feudal army based upon samurai to one of the world's foremost military powers during the Second World War. To achieve this level of technological advancement in such a short period of time is nothing less than astonishing. My essay delves into the reasons for Japan's modernization, the methods by which modernization were achieved, and the outcomes these modernizations had on Japan and their neighbors.

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Who Knows What? Exploring the Factors Behind Political Knowledge Gaps in America

This study investigates the factors contributing to the variation in political knowledge among Americans, with a particular focus on the roles of education and media use and exposure. Political knowledge is a cornerstone of a functioning democracy, yet disparities persist across demographics, influencing electoral participation and public discourse. I hypothesize that increased exposure to social media correlates with lower levels of political knowledge, whereas higher levels of education correspond to greater political knowledge. Utilizing the framework established by Delli Carpini and Keeter's 1996 study, this research employs a survey-based methodology through Stetson University's Center for Public Opinion Research to assess political knowledge among a diverse group of participants. The study analyzes media consumption patterns, trust in information sources, and educational levels to determine their effects on political knowledge. Findings will offer insights into the relationship between information accessibility and civic awareness, ultimately informing strategies to bridge knowledge gaps and strengthen democratic engagement.

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HEICO Corporation Sell Recommendation

HEICO Corporation, an aerospace and defense manufacturer based in Hollywood, Florida, is currently confronted with significant strategic and operational challenges, leading to our sell recommendation on its stock. Our comprehensive analysis, presented as part of the CFA Institute Research Challenge and recognized among the top 40 globally, emphasizes three key issues. First, HEICO faces insurmountable industry headwinds due to stagnating growth in the Maintenance, Repair, and Overhaul (MRO) market, increasing competition from Original Equipment Manufacturers (OEMs), and anticipated reductions in defense spending affecting demand. Additionally, constrained mergers and acquisitions (M&A) capacity hampers growth opportunities, as increased leverage and capital inefficiencies limit HEICO's ability to pursue further acquisitions effectively, restricting future market expansion. Finally, HEICO is burdened with unattainable revenue growth expectations, as the projected growth necessary to justify its current valuation is unlikely, given prevailing market conditions and ongoing economic uncertainties. This abstract summarizes critical strategic insights from our financial and industry analyses, highlighting the essential strategic adjustments necessary for HEICO's sustainable future performance.

Charlotte Holley (Dr. Katya Kudryavtseva)
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Cataloging Danielle Hunt: Process and Experimentation.
Through an innovative collaboration between Studio Arts and Museum and Curatorial Studies, I have developed a catalog that documents and interprets Danielle Hunt's TheJungleBrunch'89 installation, displayed at the Creative Arts Senior Exhibition. Funded by the LaValle grant, this publication serves as both a scholarly and visual record of Hunt's work, marking a critical juncture in her artistic trajectory as she prepares to graduate in May 2025. The presentation will offer an in-depth exploration of Hunt's inventive approach to art-making, highlighting the experimental techniques and conceptual underpinnings that shape her work. By integrating contextual analysis and the artist's own reflections, the catalog and presentation will deepen engagement with the exhibition, offering a framework for understanding Hunt's practice within the broader context of contemporary art.

Moira Hughes (Dr. Katya Kudryavtseva)
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Venetian Impressions: The Making of an Exhibition.
'Venetian Impressions' is an exhibition on view at the Dupont Gallery in April 2025, featuring a curated selection of photographic works taken by Stetson students who traveled to Venice as part of the Rinker Global Scholars Program. Curated by Museum and Curatorial Studies majors, the exhibition captures the city's rich artistic and architectural heritage through the lens of student photographers, offering a contemporary perspective on Venice's enduring visual and cultural significance. This talk will examine the conceptual framework, logistical planning, and curatorial methodologies that shaped the exhibition's development and design. As a member of the curatorial team, I will provide an in-depth analysis of the key stages of its realization, including pre-exhibition planning and checklists, the design of student assignments that guided the creation of the exhibited photographs, the selection criteria for featured works, and the strategic considerations involved in the installation process. Additionally, I will discuss the creative and practical decisions made throughout curation, highlighting how aesthetic, thematic, and spatial concerns informed the completed exhibition layout. By unpacking these elements, I will offer insight into the complexities of exhibition-making and demonstrate how curatorial choices shape audience engagement and interpretation.

Colton Hurley (Dr. Cynthia Bennington)
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Comparative Analysis of AM Fungal Colonization Between Two Sandhill Ecosystems
Arbuscular mycorrhizal (AM) fungi form symbiotic relationships with the roots of most terrestrial plants, aiding in nutrient uptake and contributing to ecosystem resilience. Root colonization by AM fungi was assessed in two plant species, *Chamaecrista fasciculata* (partridge pea) and *Solidago odora var. chapmanii* (goldenrod), across two Florida sandhill ecosystems differing in soil nutrient levels and pH: a relatively undisturbed site (Heart Island Conservation Area) and a restored habitat (Volusia Sandhill). Root samples were stained and analyzed microscopically to quantify colonization by hyphae, arbuscules, vesicles, and coils. Colonization levels differed significantly between plant species, with *C. fasciculata* exhibiting consistently higher colonization across all structures. Site-level differences were less consistent, though hyphal colonization was greater in the nutrient-rich Volusia Sandhill. Results indicate that variation in colonization was more strongly associated with plant species than with site characteristics.

Celine Jose (Dr. Jean Smith)
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Examining the role of Fus1 protein domains through mutagenesis in *Saccharomyces cerevisiae* cell fusion.

Cell fusion is a highly specialized biological event in which two or more cells combine and share genetic material. This process is essential for the growth and development of multicellular organisms, playing a pivotal role in embryogenesis, tissue formation, and immune responses. Despite its importance, the mechanisms underlying cell fusion remain poorly understood. Unicellular model organisms like *Saccharomyces cerevisiae*, or budding yeast, offer a valuable avenue for exploration. Yeast cells undergo cell fusion in their mating pathway. This pathway is prompted by pheromones, that can be detected when yeast cells of opposite mating types are in close proximity. Pheromone binding activates MAP kinase signaling, which stimulates mating-specific gene synthesis and causes cell polarization (shmooing) towards the mating partner. This process allows for cell wall degradation to occur at the Zone of Cell Fusion (ZCF), which is integral in allowing plasma membrane fusion and the formation of a zygote. Previous research has shown that mating specific vesicles containing digestive enzymes cluster at the zone of cell fusion and play a role in cell wall breakdown. Multiple proteins have been identified that regulate this step of the fusion pathway, including Fus1. Fus1 is an O-glycosylated, one-pass transmembrane protein that localizes to the zone of cell fusion and has been hypothesized to function as a scaffold for other fusion-related molecules. When Fus1 is completely knocked out, cells cannot break down their walls and therefore don't fuse. Electron microscopy of fus1Δ cells showed mislocalization of mating specific vesicles, suggesting that one function of Fus1 is to cluster these vesicles at the ZCF allowing for cell wall degradation. While research has shown the importance of Fus1 during the cell fusion process, its mechanism of action in cell wall degradation remains unclear. To further study Fus1, we analyzed which regions of the protein are conserved across evolution as these regions are likely important for function. Fus1 has two previously identified conserved protein domains, the N-terminal transmembrane domain and a C-terminal SH3 domain. Analysis of the yeast Fus1 sequence compared to other fungi revealed another highly conserved, small region in the middle of the protein with no structural similarities to other protein domains, which we refer to as the internal domain. To understand the role of the internal domain on Fus1 function, I mutated a conserved proline residue in the domain and analyzed mating efficiency and protein localization. Qualitative and quantitative assessments of mating efficiency revealed that cells containing Fus1-P257A showed reduced fusion when compared to wildtype. Fluorescence microscopy using GFP-tagged Fus1 showed a reduction in Fus1 localization at the shmoo tip in Fus1-P257A pheromone-induced mutant cells. Given that proline residues tend to induce kinks in the protein backbone, we hypothesize the Fus1-P257A phenotype is due to altered structure of the internal domain. These findings suggest that the internal domain of Fus1 is important for its role in cell fusion, potentially by promoting localization at the fusion site.

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Effective and Sustainable Solutions for Landfill Development and Waste Management in Ouagadougou, Burkina Faso: A Comprehensive GIS Framework and Policy Strategy

In Burkina Faso, specifically Ouagadougou, waste management challenges such as inadequate infrastructure, indiscriminate dumping, and increasing urbanization necessitate sustainable landfill solutions. This research successfully combines Geographic Information Systems (GIS) and Multi-Criteria Decision Analysis to create a suitability map for landfill site selection. The map addresses criteria such as distance from roads, rivers and streams, soil, groundwater permeability, slope, elevation, and the city's land cover. Additionally, community engagement constitutes a crucial aspect of the study as it observed

trends in how the population reacts to subjects related to environmental science and sustainability and the importance of their involvement in waste management initiatives. As expected, the results identified areas of high suitability in locations distant from sensitive ecosystems and populated areas, providing a solid foundation for developing a well-structured landfill. Furthermore, findings from a survey that explored these trends revealed that most participants view community participation as very important in landfill site selection, with a majority expressing willingness to participate in community meetings on waste management and landfill planning. The results will inform policy development and foster community-driven waste management practices in Ouagadougou, making the community a crucial part of the solution.

Christopher Kennedy (Dr. Kushbu Mishra, Dr. Ranjini Thaver)
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Focus on Faith: How Catholicism and Protestantism Hold up in the Face of Economic Development

Humanity has always been led by religion as a moral guide. As life has become more than just survival, people have become less desperate for something to turn to, and have been given the time to question the existing order. The natural progression of this allows some members of society to doubt rulers, old beliefs, and even religion. While religious beliefs were formally dictated by those in power, their "divine rights" were first stripped during the Protestant Reformation. This culture of questioning that comes with increased wealth and prosperity has reduced religiosity in modern developed countries, particularly Western Europe. Given the lower faith in Protestant countries, it would seem that economic development may lead to stronger atheist/agnostic tendencies in these nations than their Catholic counterparts. Catholic countries certainly stay more religious in general, though upon initial study, it seems unlikely that economic development causes Protestant countries to decline at a faster rate than it does to Catholic countries. When further data and variables are added, the Catholic variable is forced into being negative, so as to allow a lower rate of religious decline in these countries. This suggests a small difference in the decline of religion in Catholic and Protestant countries as they develop, but comes with insignificance from new data that makes its validity problematic.

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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.

Michael Leitelt (Dr. Alan Green)
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Optimizing Neighborhoods: An Approach to Solving Cookie-Cutter Housing

Cookie-cutter neighborhoods aren't just visually bland—they can also lower home values. This project uses graph theory to help developers design more visually diverse, higher-value neighborhoods while still meeting city planning constraints. Land parcels are modeled as vertices in a graph, with edges

representing visual adjacency. A new graph invariant is introduced to maximize the distance between parcels of the same type, promoting variety in layout and land use. This method applies constrained distance graph coloring to optimize design and feed into a value-maximizing model for development planning. The result is a tool to balance profitability with urban design goals.

Michael Leitelt (Kevin Taylor)
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Smiles and Trust: Founder Self-Presentation and Investment*

This project, funded through a SURE grant, explores the connection between smiles, trust, and investor behavior. The research is based on a literature review focused on how affective or emotional cues can influence financial decision-making. Specifically, it looks at how facial expressions—like smiling—can impact perceived trustworthiness in an investment context. A survey was designed to present participants with investment profiles paired with different facial expressions. Participants rated how trustworthy they found each profile and indicated how likely they would be to invest. The responses were analyzed to identify patterns between perceived trust and emotional cues. Results suggest that smiling tends to increase perceived trustworthiness and may influence investment choices, especially in emotionally charged decision environments. This study adds to the growing research on how nonverbal communication can shape economic behavior.

*Supported by a 2024 FELL Grant

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A custom fantasy football projection model for wide receivers

This project focuses on building a custom fantasy football projection model for wide receivers. By using real-world inputs like team quality, player role, and weekly matchups, the goal is to create a system that can produce more accurate point predictions than standard platforms. The model is designed to help improve forecasting for future fantasy seasons by learning from both preseason expectations and in-season performance trends.

Sophia Maritz (Dr. Chadley Ballantyne)
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The Impact of Static Postures on Breathing Patterns for Singing*

Voice and choral teachers all believe there is a proper way to sit and stand, and that one posture is better than another, but are those beliefs true or are they built on assumption? This study investigates how breathing patterns in singing change depending on the anatomical position of the singer using the RespTrack device. Developed by Stockholm University's Phonetics Laboratory, RespTrack is a sophisticated device designed to monitor respiratory movements in real-time. In this study, participants performed a range of singing exercises while assuming various body positions; The RespTrack system recorded their breathing patterns during these exercises. I recorded two times for each exercise, once when we recalibrated the RespTrack after every position to better compare the effects of the different postures, and once calibrating only at the beginning to show the displacement of the ribcage and abdomen between each posture. This study demonstrates that posture significantly influences breathing function by imposing distinct mechanical limitations on the rib cage and abdomen.

*This research was supported by a 2024 SURE Grant

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Identifying Protein Domains Required for Yeast Cell Fusion

Cell fusion is a highly regulated process that only occurs in certain conditions. It is essential during many stages of eukaryotic life, from fertilization to muscle development, and is an important biological mechanism. Cell fusion in the budding yeast, *Saccharomyces cerevisiae*, serves as an ideal model for examining the molecular interactions required for fusion. Yeast cell fusion occurs when two haploid cells of different mating types join to form a diploid zygote. This process involves cell cycle arrest, transcription of mating-specific genes, and cell polarization towards the mating partner. The fusing cells then connect to form a flat interface called the zone of cell fusion (ZCF). Before their plasma membranes can fuse to form a single cytoplasm, their cell walls must be degraded specifically at the ZCF. One protein known to regulate this process is Fus1, which is a mating-specific transmembrane protein that localizes at the ZCF with a cytoplasmic C-terminal SH3 domain. Given that SH3 domains tend to mediate protein-protein interactions, Fus1 is thought to act as a scaffold for other fusion proteins at the ZCF. Although one study has found that creating a mutation in the SH3 domain affects the mating efficiency, its exact function is still unknown. Here, we created two truncations of the SH3 domain in the Fus1 protein, one full truncation and one where just the 17 amino acids containing the distal loop and last beta sheet of the SH3 domain are removed. Both truncations were created using molecular cloning methods and included a C-terminal GFP tag for protein localization studies. These mutations were incorporated into yeast using homologous recombination and their fusion efficiency was assayed using both growth-based and microscopy-based assays. We found that both mutations reduced yeast fusion efficiency, suggesting that the SH3 domain is critical for Fus1's function.

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Can food pantries effectively meet the dietary needs of clients with diabetes, prediabetes, and hypertension based on current prevalence estimates?

The U.S. Department of Agriculture (USDA) defines food insecurity as the inability to obtain enough food for a healthy lifestyle. In 2023, approximately 18 million American households (13.5%) were food insecure. Research shows that food insecurity is more common among individuals with diabetes, with food-insecure adults at a higher risk of developing type 2 diabetes. A 2014 study by Feeding America revealed that 33% of food-insecure households had members with diabetes, while 58% had members with high blood pressure. By 2022, 49 million individuals were receiving charitable food assistance, highlighting the critical role of food pantries in addressing dietary needs. However, food pantries often lack crucial data on clients' dietary needs and health conditions, making it difficult to serve them effectively. A study using statistical methods found that 93.5% of participants had at least one chronic health condition, with 54.3% having diabetes and 53% having hypertension. These findings indicate that pantry managers cannot rely on outdated estimates and need current data on health conditions among clients to meet their nutritional needs, emphasizing the importance of regular data collection for effective service provision.

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Changes in Abundance of Gar and Bluegill Sunfish in a Florida Spring

Freshwater spring ecosystems serve as biodiversity hotspots, supporting diverse fish communities influenced by both biotic and abiotic factors. This study examined long-term shifts in fish populations in Volusia Blue Spring, Florida, by analyzing 2024 field data along with 20 years of pre-existing datasets. Specifically, we assessed density trends of Florida gar (*Lepisosteus platyrhinchus*), longnose gar

(*Lepisosteus osseus*), sunfish species (*Lepomis spp*.), and small fish (mosquitofish, mollies, and killifish) across four stations in the spring run. Linear regression analyses revealed a significant decline in the density of sunfish and small fish over time ($p < 0.01$), while gar densities significantly increased at stations 1, 2, and 3 ($p < 0.001$) but remained stable at station 4 ($p = 0.08$). These findings suggest a shift in community composition, potentially driven by increased predation pressure from gar, changes in prey availability, and habitat modifications due to increased usage by recreating humans and restoration efforts. The decline in sunfish populations may indicate broader ecological imbalances, affecting trophic interactions and overall ecosystem stability. Given the increasing pressures on freshwater systems from climate change, habitat alterations, and human activity, continued monitoring and management strategies are essential to maintain ecological integrity in Volusia Blue Spring.

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Biracial Double-Consciousness in the Works of Nella Larsen*

In 1903, W. E. B. Du Bois defined "double-consciousness" as the "sense of always looking at one's self through the eyes of others" in his seminal text, The Souls of Black Folk. Du Bois outlined this as the Black man's striving—to break free from the color line and exist as one whole person. I propose that for biracial individuals in the United States, specifically those of one Black parent and one White parent, this concept takes on a different meaning. The biracial identity in the U.S. is one that is often met with contestation. Concepts of the "one-drop" rule or hypodescent have led many to either identify solely with Blackness or to "pass" in society as White. Existence as a "whole person" racially is complicated as they look at themselves through the eyes of Whiteness and Blackness. Nella Larsen, a contemporary of Du Bois, tackles these subjects in her 1928 and 1929 works Quicksand and Passing where her biracial principal characters navigate this complex relationship to the color line. I will be examining how Nella Larsen's works both critique and redefine Du Bois' ideas of double consciousness for biracial women and how this redefinition manifests today.

*This research was supported by a 2024 SURE Grant

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Scrolling for Votes: A Rhetorical Analysis of Kamala Harris' Presidential Campaign on TikTok

This research examines how Kamala Harris utilized TikTok to develop her political persona and connect with voters during the 2024 presidential election. This study addresses a gap in research of presidential rhetoric on short-form video platforms by analyzing content posted on Kamala's official campaign TikTok account (@kamalahq) during the duration of the presidential campaign, spanning from mid-July to election day (November 5th, 2024). This includes campaign announcements, trend-based content, content revealing personal details and humor. Through persona criticism the study examines how Harris constructs an identity that can be perceived to be authentic. Data collection involves screen recordings, screenshots, and video transcripts of publicly available TikTok content. 14 TikTok videos will be analyzed. Analysis includes textual analysis of rhetorical appeals, language, tone, and visuals. The main arguments illustrated in this study are that Kamala Harris curates an "i'm just like you" identity while at the same time presenting a "champion of the people" identity in order to present herself as authentic and actively engaged with voters

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Tweets Of Turmoil: Trump's Rhetoric On X and The Construction Of A Dystopian Narrative

This study analyzes Donald Trump's X (formerly Twitter) posts the month leading up to the 2024 United States Presidential Election, specifically those tweeted between October 4th and November 4th, 2024. The study analyzes Trump's rhetoric, tone, and communication strategies used in his efforts to mobilize his base and craft a dystopian narrative of national emergency and himself as the lone savior of America. Through a combination of demonization of political opponents, fearmongering, and calls to action, Trump used his platform to portray himself as the sole protector of American values in the face of both domestic and foreign threats. The analysis is based on the idea that Trump positioned Vice President Kamala Harris, President Joe Biden, and the Democratic Party in a symbolic position as agents of incompetence and existential/internal threats and positioned himself as the sole individual who could bring order to society. By means of emotionally charged rhetoric, divisive language, and appeals to nationalism and "traditional" values, Trump instilled a sense of crisis among his supporters, portraying the election as a struggle for the survival of the nation. The study also highlights the potency of social media today in political debate, showing how Trump's tweets became a mobilization, manipulation, and dualistic opposition narrative tool of American "pureness" against perceived threats.

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Disability and Ableism in Fairytales

Throughout history, fairytales have been used to reflect a culture's norms and morals. In many cultures, disability is viewed as "othering", which is typically thought of as being "bad", and their stories reflect these views. What often happens in fairytales that represent disability is that a character's disability is viewed as something that is bad and immoral, or something that must be overcome for a character to have their "happily ever after". In my presentation, I am going to discuss the role that disability plays across these stories through a feminist philosophy of disability theory, specifically thinking of disability as a social construction. My aim in this paper is to explore the different tropes and portrayals of disability that appear in fairy tales. I intend to go into the implications behind the disability as a punishment and needing a cure narrative, with a focus on female characters. My aim in this presentation is to have brought attention to disabled characters in these stories and the importance of adapting and retelling them in a more positive, inclusive light.

John Owen (Dr. Jelena Petrovic)
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Ideology and the Holocaust: How Americanization Manifests in Holocaust Memory

This research study aims to illuminate the rhetorical adaptation of Holocaust narratives within an American cultural context, exploring how the Center's location, design, and exhibits present the Holocaust in ways that resonate with American values of heroism, savorism and patriotism. This raises questions about how Holocaust memory is framed and understood when localized within a specific cultural environment. Guided by the research question, how does the space and cultural environment surrounding the Holocaust Memorial Resource & Education Center of Florida inform the issues raised within its exhibits, and how does this space contribute to the Americanization of the Holocaust?, this analysis studies the strategies used by the Center to engage its visitors. Based on current literature and conversations around the concept of Americanization of the Holocaust, I conducted an analysis of the museum using an ideological criticism lens to interpret how spatial design contribute to how

memorialization may shape and reflect dominant national forces surrounding the Holocaust. My argument is that the Holocaust Memorial Resource and Education Center of Florida builds a system of beliefs that work to frame itself as a socially responsible member of the education community while simultaneously contributing to popular American narratives, such as heroism and patriotism.

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VITA at Stetson: Benefits & the Earned Income Tax Credit.

The presentation will explain basic aspects of the Volunteer Income Tax Assistance (VITA) program at Stetson such as its purpose, who can utilize the program, how it helps both the local community & Stetson students & faculty, when & where it takes place, etc. There will also be a particular focus regarding how the program assisted and benefited the Boys & Girls Clubs of Volusia/Flagler Counties and the United Way of Volusia & Flagler Counties. It will also explain what the earned income tax credit is as stipulated by the Internal Revenue Service, including what does & does not constitute earned income under tax laws. It will also portray how adjusted gross income, tax filing status, investment income, & number of qualifying children (if any) affects the status of the earned income tax credit for taxpayers.

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From Campus Activism to Action: A Guide to Community Organizing on College Campuses

Colleges and Universities are not exempt from social issues, in fact some of them are amplified on campuses, it is vital for students to engage in community organizing and collective action. “From Campus Activism to Action: A guide to Community Organizing on College Campuses” is an in-depth but not exhaustive handbook for students who are passionate about social change but unsure on where to start. This handbook evaluates and suggests best practices for community organizing, collective action and social change through the lens of a student leader who has engaged in these practices. The guide allows students to move their community organizing efforts from a social and student sphere to institutional change and broader change off campus.

Ari Richardson (Dr. Meg Young)
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Tolerance and Acceptance: Cultural Dissonance*

The purpose of my study is to give perspective on the complexities of our developing multicultural society. Historically, there has been an evolution of beliefs, which have had a plethora of effects. This includes our current economy and many of the mental health issues of those with intersectional identities. As a person of a multicultural background, I find that this perspective is sometimes brushed over or not truly discussed, as many people may instead prefer generalization. The dissonance discussed is meant to open the conversation into encouraging people to be open-minded and appreciate our cultural differences, while also giving the realistic perspective on why we find ourselves in cultural clashes often. This highlights the important difference between true acceptance and tolerance in diverse societies.

*Runner-Up 2025 First Year Research Prize

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Insights into Fus1's Conserved Region in *S. cerevisiae*

Cell fusion is a vital biological process necessary for functions like organ and placenta development, as well as sexual reproduction. In yeast (*Saccharomyces cerevisiae*), mating involves the fusion of two different cells to form a diploid, which requires the degradation of cell walls at the zone of cell fusion (ZCF) to facilitate plasma membrane fusion. The transmembrane protein Fus1 is critical for this degradation and localizes to the ZCF. This study focused on specific mutations in Fus1 to examine the role of conserved residues. One mutation targeted a conserved cysteine in the SH3 domain, altering it to either alanine or serine. The serine mutation preserves the residue's size and polarity, removing the portion of the disulfide bond. Using sitedirected mutagenesis and homologous recombination, we analyzed cell fusion efficiency with microscopic assays. While the C507S mutation did not impair Fus1 function in our assay, the conservation of this residue across species suggests it plays a significant role. The tolerance of a serine substitution implies that the presence of a thiol (-SH) group is not solely responsible for its function, and that other aspects of the residue's position — such as structural orientation or interaction potential — may contribute to its evolutionary conservation.

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Estimating Mangrove Carbon Stock with Geospatial Techniques and Google ENGINE using Sentinel -2 and GEDI DATA

Mangroves are an essential component of the ecosystem responsible for housing large amounts of species and are capable of sustaining shorelines in the event of large storms or flooding. However, due to the impacts of the Anthropocene, such as hurricanes and migrations to these coastal zones, mangroves are over-encumbered with stress. With the amount of human interference increasing in these regions, the amount of carbon that needs to be sequestered increases, the Ponce Preserve and Callalisa regions are no exception. The goal of the study is to estimate the carbon stock in both the Ponce Preserve region, (29°07'39"N 80°56'25"W, 29°05'32"N 80°56'25"W, 29°07'44"N 80°58'51"W, and 29°05'25"N 80°58'18"W (see Figure 1)), and the Callalisa region, (29°01'49"N 80°54'59"W, 29°00'53"N 80°55'00"W, 29°00'51"N 80°53'11"W, 29°01'47"N 80°53'10"W (see Figure 2)). Field data was collected using stratified random sampling techniques to identify the types of mangroves in these regions, and collecting training samples for mangrove classification. Sentinel-2 MSI and GEDI Lidar Satellite Images were taken from the Google Data catalog to assess mangrove health, conduct Above Ground Biomass and estimate carbon stocks from 2019-2024. The data were implemented in Google Earth Engine and Javascript language and later exported to ArcGIS Pro and ArcGIS Online. The result showed that there is a correlation between the amount of the carbon that is sequestered and the coverage in both study areas. This essay reinforces the necessity of mangrove maintenance and carbon sequestration to support coastal zone management.

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Keeping the Home Hearth Burning: The Historic Preservation of Mount Vernon 1850-1865

In the 1850s, George Washington was still present in the minds of Americans as they anticipated the impending Civil War. His plantation, Mount Vernon, laid in decrepit condition until a Virginia woman named Ann Pamela Cunningham formed the Mount Vernon Ladies' Association and launched a campaign to preserve the property as a museum. Cunningham's worked effectively began the historic preservation movement in America, proving that historic preservation in this period was uniquely a

woman's endeavor. Throughout their work, the MVLA employed domestic, religious, and gendered rhetoric to garner support for their cause. Their success carried into the Civil War, where Washington's home and image took on new meanings for a divided country. They maintained Mount Vernon's neutrality during the war and urged visitors not to claim Washington for the North or the South. The Mount Vernon Ladies' Association's history reveals intersections between gender, race, class, and nationalism that illustrate how historical memory and preservation function during political conflict.

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Outburst of Outcomes: Explaining the Disparities in Economic Development Amongst the Post-Soviet States

When the Soviet Union collapsed in 1991, 15 new states emerged. These states, all sharing a common Soviet history, now had to develop themselves as independent states with their own political and economic systems. While some states experienced substantial modernization and find themselves liberal democracies today, many of the other 15 post-Soviet states find themselves ranging from mixed results to outright being illiberal autocracies. This paper utilizes the resource curse theory and introduces its own democratic investment theory. Utilizing cross-sectional data analysis for each of the 15 states, including on matters of social norms towards (non-)liberalism, the presence of resource wealth, foreign direct and portfolio investments, regime-type status, and state fragility, this paper seeks to find a plausible answer to explaining the differences in economic outcomes for these countries sharing a common origin. Results indicate that the presence of resource wealth plays a key role in maintaining countries poorer than others, measured by GDP per capita. Consequences of this finding may include revisiting base assumptions about the utility of foreign investments in economies or theorizing if the crowding out of other industries prevents foreign investment from taking root across a variety of industries that are not seeing domestic entrepreneurship.

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Evaluation of fish biodiversity and abundance on a restored vs. unrestored shoreline in Mosquito Lagoon, Florida

Restoration of coastal habitats aims to enhance biodiversity and support ecological resilience. This study evaluated fish abundance and biodiversity at a restored and an unrestored shoreline in Mosquito Lagoon, Florida. The restored site features oyster reef substrate and native vegetation, which replaced a seawall 1.5 years prior to this survey, while the unrestored site consists of concrete rubble. We hypothesized that the restored shoreline would support greater fish abundance and biodiversity due to improved habitat complexity. Fish were sampled using a seine net from late August to October 2024, with five collections per site during low tide. We compared species abundance and biodiversity between the restored and unrestored sites; biodiversity metrics included species richness, Shannon-Wiener index, Simpson's index, and evenness. Overall, we collected > 20 fish species. However, results indicated no significant differences in fish abundance or biodiversity indices between the restored and unrestored shorelines. Spotfin mojarra, *Eucinostomus argenteus*, was the most abundant species at both sites. Juvenile lane snapper*, Lutjanus synagris*, were more prevalent at the unrestored site, while bay anchovies, *Anchoa mitchilli*, were more frequently captured at the restored site later in the season. Species-specific differences may be due to spawning-associated migrations or the geographic location of sites, as the unrestored site is closer to Mosquito Lagoon's only inlet. We also recognize that long-term monitoring at the restored site may be needed to capture potential restoration impacts to fish biodiversity.

Reagan Swayze (Dr. Katya Kudryavtseva)
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Jewish Architecture in Florida: An Exploration of Identity in the Temple Beth Jacob
Identity lies at the core of Jewish art and architecture. Since the destruction of the Second Temple in 70 C.E., synagogal architecture has often adapted to the dominant cultural and aesthetic norms of the societies in which Jewish communities have lived. Scholars have frequently characterized Judaism as an aniconic tradition, suggesting a lack of concrete artistic expression—a perception reinforced by the recurring architectural assimilation of synagogues. My research examines this tension between cultural adaptation and the enduring commitment to Jewish identity and preservation. Focusing on Temple Beth Jacob in Miami, I explore these themes through its architectural design and evolving function. Originally blending into the Art Deco aesthetic that came to define Miami Beach, the synagogue faced demolition in the 1970s and 1980s due to the city's declining Jewish population. Rescued by MOSAIC, an organization dedicated to preserving Floridian Jewish history, Beth Jacob was repurposed as the Jewish Museum of Florida. This transformation not only ensured the building's survival but also recontextualized its symbolic significance, reinvigorating traditional Jewish motifs within a contemporary framework. Through this case study, I illustrate how Beth Jacob reflects Judaism's relationship with memory, negotiating the balance between historical continuity and modern reinvention, and ultimately encapsulating the evolving nature of the Jewish experience

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Desolation Island and Naval Society*
In Dr. Reiter's Early American Navy class, each student read a naval novel and researched the underlying events that informed the fiction. Dr. Reiter asked us to discuss life at sea as portrayed in the book, including lore, superstition, medicine, impressment, punishment, and battle. I chose the novel *Desolation Island* by Patrick O'Brian and found that three major themes in the book informed the readers about maritime and naval society on board and ashore during the age of sail: the *Leopard-Chesapeake* Affair, diseases like gaol-fever and scurvy, and women on shipboard. Through O'Brian's thorough story development of Aubrey and Maturin's journey on the *Leopard* and his discussion of these themes along the way, he educates the readers on the complexities of naval life in the early 19th century and provides a valuable lens through which to study history.
*Runner-Up 2025 First Year Research Prize

Kaise Tinglin, Ginger Anders and Dakota Williams (Dr. Sarah Cramer)
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Lessons From São Paulo
This presentation seeks to discuss the relationship between food and art and the impact it has on globalization. During spring break of this year, the students studied abroad to São Paulo, Brazil, studying the interconnectedness of art and food systems. The students traveled to art museums and galleries, farms, green spaces, and were part of resistant tourism in various parts of the state. Throughout the trip, the students were tasked with journaling their experiences and connecting them to the textbook, Globalization: The Key Concepts by Thomas Hylland Eriksen. The journal prompts ranged from broad reflections to specific questions relating to artists, museum exhibitions, and local movements that aim to resist globalization. Through this presentation, the students seek to share their experiences and educate the community on the lessons they learned in São Paulo.

Emiley Tupper (Dr. Sarah Cramer)
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Cover Crops and Pollinators*
*First place winner 2025 First Year Research Prize

Conrad O. Voigt (Dr. Alan Green)
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Factors Impacting Enrollment in Higher Education in the Context of its Signaling Market Structure
This project examines why some U.S. colleges and universities experience sharp year-over-year declines in student enrollment. Using data from over 25 years (1996–2021) and a statistical model known as fixed-effects logistic regression, the study identifies factors that make enrollment more or less stable. The analysis focuses on the idea that colleges "signal" their value to students and employers—through things like SAT scores, graduation rates, and financial aid. Public universities tend to stabilize enrollment through academic selectivity, while private institutions rely more on offering financial aid and maintaining a larger size. The study also finds a general decline in enrollment stability between 2011 and 2019, likely due to changing demographics and growing skepticism about the value of a college degree. By understanding how these signals work, this research helps college administrators and policymakers develop strategies to attract and retain students in an increasingly competitive educational environment.

Braedyn A. Wasden (Dr. Christopher Jimenez)
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The Spaces and Bodies of Ligotti and Kafka: Between Space and Body in Capitalist Organizational Management*
In this paper, will comparatively research Thomas Ligotti's "My Case for Retributive Action" and Franz Kafka's "In the Penal Colony" to explore the question of how capitalist organizational management shifts the understanding of space and body, and how this shift and tension is expressed in the early 20th century and the early 21st century. Utilizing the philosophical works of Gilles Deleuze, Félix Guattari, Walter Benjamin, and Mark Fisher I examine how Kafka and Ligotti use weirdness, absurdity, and the fantastical to depict the tension between "internal" and "external." I also examine how the two short fiction writers communicate similarly pessimistic world views, that are informed by the organizational systems of their respective era and their matching ontology of the world that contradict traditional Marxist and optimist opinions of the world and history itself. In the process, I seek to highlight Kafka's contribution to the genre of weird fiction and emphasize Ligotti's under-researched literary contributions. My research aims to showcase how both authors' literary language provides an invaluable expression of contemporary tensions between space and body. This kind of work is relevant in the wake of the growing influence of the metaphorical "external" into the "internal" through the modes of ideology, cybernetics, and biological contamination.
*This research was supported by a 2024 SURE Grant

Kaitlyn Watson (Dr. Lynn Kee)
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The effect of *Ginkgo biloba* on ameliorating the effects of the Amyloid Beta (Aβ) peptide on adult *Caenorhabditis elegans* is not significant.
This study aimed to examine the effects of *Ginkgo biloba*, a plant compound, on ameliorating the effects of Amyloid Beta (Aβ) induced Alzheimer's disease effects on adult *Caenorhabditis elegans* (*C. elegans*). Aβ is a peptide that causes the formation of Aβ plaques in the brain, the main cause of Alzheimer's

disease. This study used the model organism C. elegans as a test subject and measured their performance on a chemotaxis assay. Wild-type worms were expected to perform better than transgenic Aβ worms, and *Ginkgo biloba* was expected to ameliorate the negative effects of Aβ on transgenic worms. The results showed that there was no significant effect of *Ginkgo biloba* on ameliorating the effects of the Aβ peptide on transgenic worms.

Zoe White (Dr. Mike King)
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Identification of the Sources of Afferent Projections to the Gustatory Cortex that Respond to Bitter

The insular cortex is a part of the forebrain that has an extensive network of connections to brain regions with sensory, motivational, emotional, and cognitive functions (Gogolla, 2017). A specific cytoarchitectural area of the insular cortex is known as the granular insular cortex (GIC). The GIC is one of the main recipients of gustatory information. This makes the granular insular cortex an ideal region of the brain to study further in order to understand the experiences that we have during taste. The GIC receives afferent projections from numerous brain regions including the primary somatosensory cortex, the thalamus, and the amygdala (Maffei et al, 2012). This study aimed to explore what other brain regions send afferent projections to the GIC in response to bitter taste stimuli. This study utilized a double labeling technique performing immunohistochemistry to the Fos protein and using a retrograde tracer. Our results showed double labeling in areas of the brain regarding sensory, somatosensory, emotional, and motor inputs. Our results further supported that the GIC integrates numerous inputs from the thalamus,a mygdala, primary somatosensory cortex, perirhinal and entorhinal cortex, and sensory cortices in response to bitter and is integral in how we experience taste.

Majesty Wiggins (Dr. Jelena Petrovic)
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Attacking the Taboo of Death in Society: A Rhetorical Analysis of *Enter the Void* Through the Lens of Ideology

This thesis seeks to deconstruct the cultural taboo surrounding death through a rhetorical analysis of *Enter the Void* (2009), directed by Gaspar Noé through the rhetorical lens of ideology. Using ideological criticism as the primary rhetorical lens, the study explores how the film challenges dominant Western conceptions of mortality by reframing death not as a terminal event but as a transformative, cyclical experience. Drawing from Campbell and Burkholder's framework on supporting materials in rhetoric, specifically examples, authority, and analogy, the analysis demonstrates how Noé crafts a persuasive cinematic argument that invites audiences to confront their own ideological assumptions about death and life fulfillment. Three key scenes are examined: the Book of the Dead discussion, Oscar's death, and his final monologue. Each scene contributes to a larger ideological critique, positioning the viewer within a rhetorical confrontation with mortality that is intimate, unsettling, and deeply reflective. Ultimately, this study highlights the capacity of experimental cinema to function as a powerful communicative device, one that resists cultural silence around death and provokes philosophical and emotional introspection in its audience

Sowren Wildingcrayne (Dr. Lynn Kee)
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Amyloid Beta-Induced Neuronal Dye Defects in *C. elegans*: Investigating Age-Dependent Effects and G. biloba Intervention*

Alzheimer's disease (AD) is pathologically defined by the accumulation of amyloid-β (Aβ) peptides and tau proteins. The Amyloid cascade hypothesis describes Aβ peptides as the main cause of neurodegeneration. In this study we first investigated the effect of Aβ effects on neuronal morphology

of amphid and phasmid neurons in the model organism, *Caenorhabditis elegans*. We compared the neuronal morphology of juvenile and adult *C. elegans* by staining neurons with the fluorescent dye DiI and imaging with a fluorescent microscope. We observed that Aβ expressing *C. elegans* showed a significant defect in both amphid and phasmid neuronal morphology compared to control. Previous studies have investigated components of the herbal extract *Ginkgo biloba,* in the reduction of Aβ peptide build up in rat cerebellar neurons. In our study, we tested whether commercially available *G. biloba* extract from Gaia Herbs, would reduce neuronal morphology defects in Aβ expressing strains. Our results showed that *G. biloba* treatment decreased the neuronal morphology defect of Aβ in the adult amphid neurons when compared to control, suggesting *G. biloba* inhibits Aβ toxicity in neurons. Further research will investigate the molecular mechanisms that cause Aβ expressing *C. elegans* to display defective neuronal morphology in amphid and phasmid neurons.
*Funded in part by a 2024 Sure Grant.

Courtney Wood (Dr. Julie Schmitt)
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Satire and Shakespeare: My Senior Project Performance of The Compleat Works of Wllm Shkspr (Abridged)
For my senior project, I did an analysis of the genre of satire. Specifically, I analyzed its use in Saturday Night Live and The Muppet Show, and I applied that research to my performance in The Compleat Works of Wllm Shkspr (Abridged). The blatant satirical and comedic content in the play is used to both make fun of William Shakespeare's plays and educate the audience on their common themes and tropes. This presentation will cover the rehearsal and performance process of the show, as well as the aspects of satire that were present in our performance.

John W. Young IV ()
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De-Colonizing the French Revolution
This study challenges and de-colonizes the idea of the French Revolution being a revolution for the benefit of all, when it was historically a revolution to benefit rich, white Frenchmen.

STUDIO AND DIGITAL ARTS

Marina Burgner (Justin Grubb)
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Swamps' Gaze
Walk with me. Let's trek into Florida's wilderness, where the path is uneven and the air is thick with heat and earth and water. Here, we confront what we often turn away from — fear, decay, and the inevitability of endings. In a world filled with uncertainty and chaos, I find healing and solace in nature's embrace. The creatures lurking under muddy waters and eyes peering at you from decay underfoot remind us that life and death are intertwined. There is beauty in the macabre,
reverence in the return of all things to the earth. With clay, fur, and feathers, I place these creatures in new environments to reveal their quiet persistence. These materials, sand and feather and bone found within my own backyard, root my work in the place I walk, grounding me— and you — within it.
This journey is one of connection: to the land, to each other, to the self. As the path winds forward, I invite you to look, listen, and feel. To blur the boundaries between human and animal, individual and

collective, temporary and eternal. Let's step without fear. Recognize yourself int he wilderness. To accept life and death as they are —inseparable, inevitable, and, perhaps, even beautiful.

Maddysun Castaneda (Luca Molnar)
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A Family's Primary Colors*

Art has always been the foundation of my family's identity. In my work, I explore how creativity remains an intrinsic part of who we are, even when life leads us away from artistic careers. Through six large scale paintings, I depict my brother, Mother and Aunt- each shown in two roles: one as an artist and one in their current profession. My mother was once a dancer, my brother, an actor, is now a computer tech and my aunt, a painter, is now an entrepreneur. Each individual is represented by a primary color, for my mother the color yellow, blue for my brother and red for my aunt. Since red, blue and yellow are the foundation of all other colors in the color wheel, I am using them to symbolize how the artistic identity of my family members is the foundation of who they are, shaping everything they do, even outside of the arts. Their artistic passion is the foundation of their being just as primary colors are the foundation of other colors. I represented this visually by having their main hue represent their creative passion, and having it blend into their new work environment, as even though they had to leave their artistic careers, their creativity still permeates their lives, just as primary colors blend to form everything around us. The interplay of color in each painting reflects their duality: in their artistic role, they stand apart from their environment, while in their current profession, their artistic identity still merges with the world around them. I am showing how their artistic essence both defines them and radiates outward Influencing their work environments. Additionally primary colors are bold, distinct and pure, just like the passions that define people at their core. Being an artist is a special part of a person's identity, something that persists in their lives rather than fading away.

*Supported by the Lavalle Experiential Learning Fund

Danielle Hunt (Luca Molnar)
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The JungleBrunch89*

80s & 90s pop culture—the music, food, and celebrity culture—is interpreted in my work through exaggerations of iconic aesthetics that take the form of anthropomorphic animals seen through the rose-tinted filter of entertainment. TheJungleBrunch89 imagines memories of iconic fast-food restaurants in American pop culture history. With the lead character, Hungry McHippo, I am creating my version of a futuristic restaurant with nods to retro, fictional, and future funk perspectives. Taking this nostalgia for the American past, my characters are giving a voice to the idea of joyful, inflated escapism of living a dream of magic and ultimate imagination through the music that brought them to life. I like the idea of creating imaginary, made-up worlds in my head from the music I listen to, that I later aspire to put on paper. Encouraged to recapture moments that seem rather fictitious in the eyes of others, I work to bring them into familiarity. Overall, TheJungleBrunch 89 simply want to make you hungry for the past, the future, the music, and of course, food.

*Supported by the LaValle Experiential Learning Fund

Natalie Thomas (Luca Molnar)
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Let's Go to Wawa *

My current body of work aims to bring a kind of very small closure to my unease about the world through creative intuition and research. Painting is a way to physicalize the process of coming to terms with my discomfort in the world. This is often done through reflecting on the landscape I grew up in,

now that I understand and continue to learn how it developed. Displaying absurd elements in different scenes of modern life, my paintings are driven by my subconscious and suggest loose narratives. By exploring relationships between the scenes of agriculture and gas stations that become the backdrop of every American commute, this body of work considers the land we live in. I juxtapose familiar environments with surreal images and incorporate symbols of other connected realities like commuter life, obligatory consumerism, and agriculture. In part, influenced by the writings of Wendell Berry and Mary Oliver, I am asking questions about humankind's relationship to the earth and our metaphysical needs. My paintings are also a response to my experience as a person growing up in twenty-first-century America. Berry writes that "we have not come into America in any meaningful way," and my paintings contemplate this severe reality but also intentionally lean into joy. These paintings are an act of processing, and they manifest as scenes rooted in the subconscious and recognizable.
*Supported by the LaValle Experiential Learning Fund and Stetson Undergraduate Research Experience Grant

Ian J. Wu (Dr. Dengke Chen)
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bulletscript*
"bulletScript_" is a project aimed at creating an innovative zombie shooter game using Unity Engine and a custom programming language. The game allows players to dynamically re-program their weapons in real-time, adding a strategic layer to the traditional shooter gameplay. The project involves designing a 2D user interface for coding, random generation of maps using a grid system, and transitioning to a 3D environment with motion tracking and faculty-assisted 3D modeling. By participating in the FIEA program, I aim to enhance my skills in game development, particularly in 3D modeling and UI design, to achieve my long-term goal of establishing a game development studio or working at a high level in the industry. This project's outcomes will be presented through demonstrations, comprehensive documentation, and inclusion in my FIEA portfolio, showcasing its innovative features and my growth as a game developer.
Funded in part by 2024 FIEA Research Program

Music

Alejandro Salazar (Ignacy Gaydamovich) cello
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Hannah Sun, piano

Sonate pour violoncelle et piano, L. 135 — Claude Debussy (1862–1918)
I. Prologue: Lent, sostenuto e molto risoluto
II. Sérénade: Modérément animé
III. Finale: Animé, léger et nerveux

Variations on a Theme Rococo, Op. 33 — Pyotr Ilyich Tchaikovsky (1840–1893)
Moderato assai quasi Andante — Thema: Moderato semplice
Var. I: Tempo della Thema
Var. II: Tempo della Thema
Var. III: Andante sostenuto
Var. IV: Andante grazioso
Var. V: Allegro moderato
Var. VI: Andante
Var. VII e Coda: Allegro vivo

Nathan Esquenazi (Lynn Musco) clarinet
nesquenazi@stetson.edu
Susan Eissele, piano

Duo Concertante, Op. 351 — Darius Milhaud (1892–1974)

Sonatina for Solo Clarinet, Op. 27 — Miklós Rózsa (1907–1995)

After You, Mr. Gershwin! — Béla Kovács (1937–2021)

Rayah E Yehnert (Tammy Phillips) flute and piccolo
ryehnert@stetson.edu
Heather Langs, piano

I. Allegro
from *Sonata "Undine,"* Op. 167 — Carl Reinecke (1824–1910)

Hall of Ghosts (2020) — Amanda Harberg

Where the Wind Takes Me (2025, premiere) — Kayli McClafferty

Infinity (2003) — Amanda Jane Fox

Georgie Gonzalez (Ignacy Gaydamovich) cello
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Kristie Born, piano

12 Caprices for Solo Cello, Op. 25
Caprice No. 7 — Alfredo Piatti (1822–1901)

Cancìon
Nana
Jota
from *Siete Canciones Populares Españolas* — Manuel de Falla (1876–1946)

Concerto No. 1 in Eb Major — Dmitri Shostakovich (1906–1975)
I. Allegretto
II. Moderato
III. Cadenza (attacca)
IV. Allegro con moto

Emy Acosta (Karen Coker Merritt) soprano
etacosta@stetson.edu
Joni Hanze, piano

In Autumn — Gwyneth Walker
from *Mornings Innocent* (1993)

Licht in der Nacht — Alma Mahler
Ich wandle unter Blumen — (1879–1964)
from *Vier Lieder*

"Glück, das mir verblieb" — Erich Korngold
from *Die tote Stadt* — (1897–1957)

Despedida — Maria Grever
Te quiero, dijiste — (1885–1951)

"The Ballad of Jane Doe" — Jacob Richmond and Brooke Maxwell
from *Ride the Cyclone* (2008)

Davis Brown (Olivia Yokers) tenor
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Heather Langs, piano

When I Was One-and-Twenty — George Butterworth
The Lads in Their Hundreds — (1885–1916)
Is My Team Ploughing?
from *Six Songs from A Shropshire Lad*

Laue Sommernacht — Alma Mahler
from *Fünf Lieder* — (1879–1964)
Liebst du um Schönheit — Clara Schumann
from *Zwölf Gedichte aus Friedrich Rückerts Liebesfrühling* — (1819–1896)

"Youkali" — Kurt Weill
from *Marie Galante* — (1900–1950)

"Out There" — Alan Menken
from *Hunchback of Notre Dame* (1999)

Kenneth Browning (Nathan Munson) baritone
kbrowning@stetson.edu
Kristie Born, piano

Drei Lieder nach Gedichten von Michelangelo — Hugo Wolf
Wohl denk ich oft an mein vergangnes Leben — (1860–1903)
Alles endet, was entstehet
Fühlt meine Seele das ersehnte Licht

He thinks upon his death — Ned Rorem
Such beauty as hurts to behold — (1923–2022)
To You
Rain in spring
The Lordly Hudson

"Air du Tambor Major" — Ambroise Thomas
from *Le caïd* — (1811–1896)

Victoria A Camposano Reyes (Tammy Phillips) flute
vcamposanoreyes@stetson.edu
Kristie Born, piano

Solo de Pajarillo (Joropo) (1992) Omar Acosta

Sonatine Claude Arrieu
Allegro moderato (1903–1990)
Andantino
Presto

Le Vent a Travers les Ruines (1999) Yuko Uebayashi

Tango-Études (for 2 flutes)
Lento-meditativo (1921–1992)

Gavin McNabb, euphonium

La Fleur de Cayenne (Venezuelan Joropo) (2014) Paquito D'Rivera
Astor Piazzolla
Gavin McNabb, euphonium

La Fleur de Cayenne (Venezuelan Joropo) (2014) Paquito D'Rivera

Stetson Undergraduate Research Committee:

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