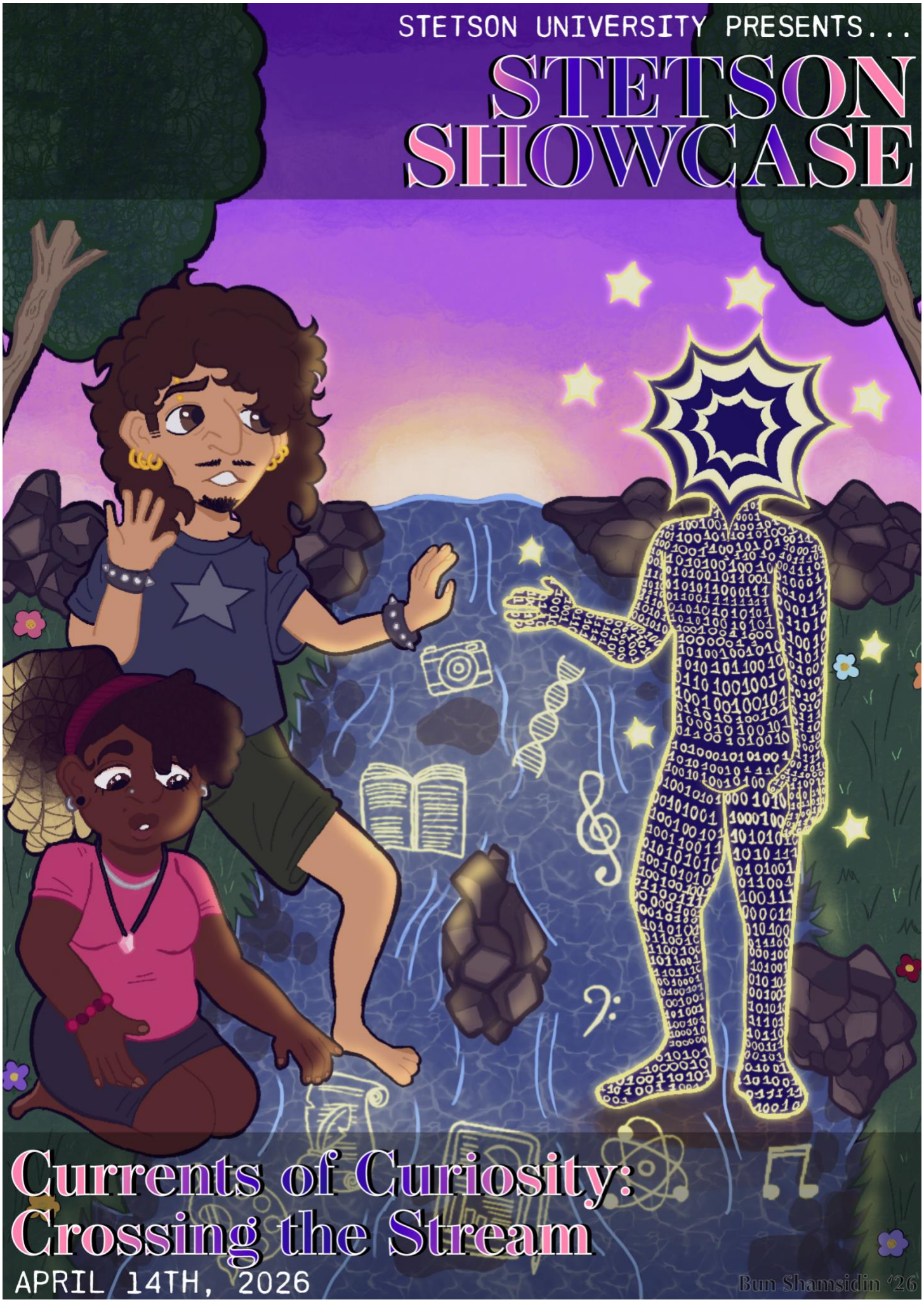

STETSON UNIVERSITY PRESENTS...
STETSON SHOWCASE
Currents of Curiosity:
Crossing the Stream
APRIL 14TH, 2026
Bun Shamsidin '26

STETSON SHOWCASE
Currents of Curiosity:
Crossing Streams
APRIL 14, 2026
A Celebration of Achievement at Stetson University

About the Undergraduate Research and Creative Arts Symposium Showcase:

Welcome to the twenty-eighth Stetson Showcase. This event, with its debut in 1999 as the 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, Currents of Curiosity: Crossing Streams, reflects the increasing opportunities of interconnectivity as our academic and creative interests take us in directions we never imagined, while new currents charged by AI can provide speedy thoroughfares as we contemplate our futures in research but can also challenge us as we fight some of the undertow posed by weighing ethical use. Our Grady Ballenger Keynote Speaker, Dr. Antonio Byrd of the University of Missouri Kansas City will pose some of the questions faced by undergraduate researchers in the use of AI. Finally, the theme addresses all the ways that we have broken out of the main currents and explored the smaller rivulets that promise to take us to completely new places in our academic and creative work.

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 Dr. Byrd at the Evening Reception.

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 Scholars at Showcase, as well as those doing similar work, will also be judged for the Dr. Leonard Nance Award for Excellence in Social Justice Research, while students in the arts and Humanities will be considered for the Kathleen Johnson Prize.

ARTWORK AND PHOTOGRAPHY

The poster art has been designed by Digital Arts student Bun Shamsidin. Bun wanted to give this year's theme a sense of wonder, almost childlike, as students reach out past the currents of all their academic and creative ideas to something so new it cannot be defined. How we greet this new member of the creative community, whether it is for good or ill, will impact all of us we cannot know. But the first step into the stream is always the frightening part.

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. An additional full unit of cultural credit can also be earned by attending the Keynote address in the early evening.
1 presentation = 1/3 CC
15 minutes in a poster session = 1/3 cultural credit
1 music recital = 2/3 cultural credit

THE 2026 JUDGING PANEL:
Dylan McCain Allen, Philanthropic Strategist, The Nonprofit Atlas
Victoria Antwi, Assistant Professor and Research & Learning Librarian
Dr. Meghan Berindean, Assistant Professor of Music
Dr. Monét Bradley, Director, Chisholm Community Center
Kelly Canova, The Canovas Photography
Althea Ross Chavers, Director, Lacey Family Spring Hill Boys & Girls Club
Stacy Collins, Executive Director of Career and Academic Success
Jennifer Corbin, Director of Public Services & Associate Professor
Kayla Davis, Assistant Professor and Research & Learning Librarian
Dr. Daniel Dilliplane Visiting Assistant Professor of Communication and Media
Dr. Drake Eserhaut, Assistant Professor of Health Sciences
Jamie Hartman, Coordinator, West Volusia Habitat for Humanity
Terry Grieb, Professor Emeritus of Instructional Media
Marisa Ingram, Associate Curator of Education, Deland Museum of Art
Emily Kanicsar, Director of Communication and Enrollment Operations
Dr. Mahsa Khoshnoud, Assistant Professor of Finance
Suok Kwon, Assistant Professor of Literacy/Reading
Dr. Alexander Martin, Assistant Professor of Music Theory
Susan Miller, Artist, SMiller Studio
Dr. Erin Nickell, Associate Professor of Accounting
Sharon Pinder, President, Friends of DeLeon Springs State Park
Dr. Delphine Pinet, Assistant Professor of Practice, Dept. of Chemistry
Bryson Pritchard, Director of Strategic Initiatives
Montaque Reynolds, Visiting Professor of Philosophy
Matthew Shannon, Assistant Professor of Biochemistry
Michael Schroeder, Assistant Professor of Mathematics
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
Dr. Jacob Walters, Assistant Professor of History
Dr. Katy Webb, Dean of Library

PROGRAM

POSTER PRESENTATIONS

Brown Hall of Health and Innovation
Dr. Corie Charpentier, Morning Session Chair
Dr. Holley Lynch, Afternoon Session Chair
Judges
Morning I: Dr. Amy Smith, Bryson Pritchard, Daniel Dilliplane
Morning II: Victoria Antwi, Kayla Davis
Afternoon:, Jennifer Corbin; Sharon Pinder, Dr. Rajni Shankar Brown

Morning I (9 a.m. – 12 p.m.)

P-1 Kylie Sturm Long Term Trends in Native Fish Density and Nitrate Environment in Florida Spring Ecosystems

P-2 Andrew Schengber Evaluating Behavioral Responses of Small-Bodied Fishes in Response to Oxygen Manipulation in a Groundwater-Dominated Spring

P-3 Ethan Hogan *Vastus Lateralis* Thickness and Isometric Force in Postmenopausal Women: Preliminary Observations from a Cross-Sectional Feasibility Study

P-4 Adrian Cerrud A Comparison of Hunting and Capture Behavior between Lycosidae and Salticidae Spider Families

P-5 Megan Vaughn Shoreline profile changes associated with beach nourishment and regional sediment characteristics in Volusia County, Florida

P-6 John Lowe Effects of Sodium Carbonate on Taste Perception and Neural Activity within Rats Highlighting Enhanced Fos Expression in Amygdala Subregions

P-7 Audrey Best Finding Meaning in the Fake: Receptivity to Pseudo-Profound Statements and the Detection of AI-Generated Videos

P-8 Sarah Tunnell Identifying afferent projections to the gustatory cortex activated by taste stimuli that utilize GABA as a neurotransmitter

P-9 Jessie Quince TikTok as a learning tool: A cognitive load study

P-10 Desario Llaho Effects of Nutrient Enrichment on Odonata Nymph Diversity and Abundance in Central Florida Ponds

P-11 Makayla Hawkins Relationship Dealbreakers Depend on Personality Traits and Relationship Type

P-12 Diana Fudge Impact of light intensity on vertical migration of mangrove tree crab larvae in Mosquito Lagoon, Florida

P-13 Emmanuela Dessaint and Brianna Beer Assessing whether mutants 2/3, 9-11 and MST30 within Merkel Cell Polyomavirus Small Tumor Antigen are Sufficient for Nuclear Localization

P-14 Elizabeth Baylor Evaluating the Impact of Water Quality on the Growth of Native Apple Snails (*Pomacea paludosa*) and Invasive Apple Snails (*Pomacea canaliculata*)

P-15 Naya Adla Acoustic Indices as Reliability Indicators for Automated Oyster Toadfish Calls Detection

P-16 Kevin Cartagena Investigating the function of the Fus1 transmembrane domain in yeast cell fusion

Morning II (9 am-12 pm)

P-17 Katana Sutherland The effect of human activity on the sunfish populations at Volusia Blue Spring

P-18 Dyson Parker Investigating The Impact of a Fus1 Point Mutation on *Saccharomyces cerevisiae* Cell Fusion

P-19 Brianna Camacho Basabe The effects of temperature on the development and survival of the Carolina Saddlebag, *Tramea carolina,* dragonfly

P-20 Harry Denise Environmental Influence on Lycosidae (*Hogna lenta*) Hunting: A Comparative Analysis of Urban and Woodland Habitats

P-21 Emily Flores Growing Minds: The impacts of Garden-Based Learning

P-22 Julia Martin Effects of Bifenthrin exposure on *Ambystoma mexicanum* embryonic development

P-23 Amy King Computational Analysis of Active Site Modifications in [NiFe] Hydrogenase for Enhanced Biomimetic Catalysts

P-24 Madelyn Wagner Temperature effects to fish biodiversity along a restored shoreline

P-25 Iratze A. Rodriguez Jauregui Utilization of Cellular Fluorescence to Determine the Sufficiency of Domains Within the Merkel Cell Polyomavirus Small Tumor Antigen in Nuclear Import

P-26 Genevieve Longmire Will restoring the eastern Florida shore increase benthic biodiversity evermore?

P-27 Raven Hufstetler Determining the Role of Nuclear Localization in the Transformative Properties of the Merkel Cell Polyomavirus Small Tumor Antigen

P-28 Natalia Garcia The effect of restoration on Florida spring's native fish population

P-29 MacKenzie Enteado When Beliefs Turn Violent: A Study of Moral Values & Violent Crime

P-30 Raissa Borges de Oliviera Leal Molecular characterization and phylogenetic analysis of a non-canonical nuclear localization signal within the Merkel cell polyomavirus Small Tumor antigen

P-31 Anas Aly EpilepsySpikeNet: A Neuromorphic Approach to Patient-Specific Epileptic Seizure Prediction

Afternoon (1-4 pm)

P-32 Linda Loving Analyzing the environmental effects of the anticancer properties in the *Peperomia Obtusifolia*

P-33 Victoria Rivera Behavioral and Neural Responses to Combined Bitter and Sweet Taste in Male Wistar Rats: Interaction of Gustatory and Visceral Cortex

P-34 Chloe Simmons Effects of Species Identity and Competition on Growth of Native and Invasive Apple Snails

P-35 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

P-36 Marvel Olson Impacts of restoration on fish assemblage in Volusia Blue Spring

P-37 Brandon Lomas Mangroves & Salt Marshes: Accretion, Erosion, & Egrets

P-38 Abigail Young When to Deceive: Factors Influencing Caudal Luring in Pygmy Rattlesnakes

P-39 Hailey Tummino Spectroscopic and Microscopic Analysis of Fluorescent Markers (Fluorescein and Quantum Dots) in *Vanessa Cardui* Butterfly Embryos

P-40 Kaylee Stecchi Temporal trends in fish diversity after restoration from a man-made seawall to a living shoreline

P-41 Filippa Jansson, Victoria Leah. Richard Perez Assessing the Contribution of Merkel Cell Polyomavirus Small Tumor Antigen Cellular Interactors in Nuclear Import and the Development of Merkel Cell Carcinoma

P-42 Kimberly Gill *Peperomia obtusifolia* Blue Light Exposure Does Not Correlate to Anticancer Properties

P-43 Sean Gaudreault Investigating Fus1 and Pea2 Roles in Mating and Protein Localization by Mutating Fus1's Internal Domain in *Saccharomyces cerevisiae*

P-44 Brianna Boltz The endogenous tidal rhythms of mangrove tree crab (*Aratus pisonii*) larvae from a microtidal environment

P-45 Anas Aly No Pedestrian Left Behind: Real-Time Detection and Tracking of Vulnerable Road Users for Adaptive Traffic Signal Control

P-46 Katie Evans Land use impact on microplastic accumulation in eastern mosquitofish (*Gambusia holbrooki*)

P-47 Isabelle Condor da Silva Investigating the Presence of FAST Proteins in *Saccharomyces cerevisiae*

ART EXHIBITIONS AND MUSEUM STUDIES

Homer and Dolly Hand Art Center,

9:30 am-2:30 pm
Morning Session Chair: Dr. Natalia Da Silva
Afternoon Session Chair: Dr. Margaret Venzke
Judges: Kelly Canova, Susan Miller, Marisa Ingram

HAND ART CENTER GALLERY and SAMPSON HALL

ART-1 9:15-9:30 **Ashley Phillips** Midnight Dinner

ART-2- 9:35-9:50 **Amarige Champion** The Making of Bum Painter or So-Called Architect: Oscar Bluemner's Transition to Painting

ART-3 9:55-10:10 **Arnold Shakirov** Crossover Video Game

ART-4 10:15-10:30 **Isabella McKinney** Gay Movie Night

ART-5 10:35-10:50 **Maria Latour** Fish Sermon

10:50-11:00 BREAK

ART-6 11:00-11:15 **Ella Swartz** The Show Ponies

ART-7 11:20-11:35 **Amelia Heck** At the Root

ART-8 11:45-12:00 **Jordan Brewster** CYBERSPACE (*Vitrine, First Floor Sampson Hall*)

12:00-1:00 Lunch

MUSEUM STUDIES
ART-9 1:00-1:15 **Charlotte Holley** Presenting Scrapped!: A Century of Stetson in Pages

ART-10 1:20-1:35 **Lily Woolard** Danielle Hunt: Evolution in 3D

ART-11 1:40-1:55 **Emil Rasen** We Were Children Once… and Soldiers

ART-12 2:00-2:15 **Moira Hughes** Imagining for Another: Curating Painting Requests from Tomoka 3

ART 13 2:20-2:35 **Travis Romero** What is Disturbance and How Do Varying Types of Media Portray It?

JUNIOR MUSIC RECITALS

Lee Chapel, Elizabeth Hall

9:00 am-4:00 pm
Recital Manager: Dr. Nathan Munson, Elise Torres
Judges: Dr. Meghan Berindean, Dr Alexander Martin
Repertoires are to be found in Abstracts at the end of this program

M-1 9:00-9:30	**Nicholas Lowther**	*Horn*
M-2 9:45-10:15	**Jordan Hanstein**	*Flute*
M-3 10:30-11:00	**Danae Tran**	*Violin*
M-4 11:15-11:45	**Andre Caquimbo**	*Oboe*

12:00-12:55 LUNCH

M-5 1:00-1:30	**Alyssa Pimentel**	*Soprano*
M-6 1:45-2:15	**Elisabeth Lundstrom**	*Mezzo soprano*
M-7 2:30-3:00	**Madiann Rivera-Velez**	*Soprano*
M-8 3:15-3:45	**Caitlin Lasswell**	*Clarinet*

ORAL PRESENTATIONS – SESSION A

John E. Johns Room 315, Elizabeth Hall
10 am-3 pm
Dr. Kevin Riggs, Morning Session Chair
Meghan McGreal, Afternoon Session Chair
Judges: Dr. Benjamin Tanner, Dr. Delphine Pinet

SCIENCE ACROSS THE SPECTRUM I

A-1 10:00-10:15 **Noelle Zinn** Cell Cycle-Dependent Nuclear Localization of the Merkel Cell Polyomavirus Small Tumor Antigen Suggests a Regulated Import Mechanism

A-2 10:20-10:35 **Ryan Rosenberg** Inhibition of the Hedgehog Pathway via CRISPR-induced gene knockout in *Vanesa cardui* butterflies.

A-3,10:40- 10:55 **Faith Patterson** Evaluating Sensitivities in the MIT Tropical Cyclone Downscaling Model Through Relativizing Parameter Input

A-4 11:00-11:15 **Lily Neville et al** Low-intensity Aerobic Exercise Reduces Blood Lactate Concentrations Acutely in Division I Male and Female Rowers

A-5 11:20-11:35 **De' Vanese John-Baptiste** Examination of *Hamamelis virginiana* HeLa Cervical Cancer Cytotoxicity

11:35-1:00 LUNCH

A-6 1:00-1:15 **Brayleigh Venter** The Impact of Low pH Levels on Carolinas Saddlebags (*Tramea carolinas*) Dragonfly Nymphal Development in Freshwater Habitats

A-7 1:20-1:35 **Sophia Bourget, Leonardo Giorgioni, Thomas Lamoureux, Naya Adla, Isabelle Condor de Silva** Agent-Based Modeling of Patrol Operations: Staffing Analysis for the DeLand Police Department

A-8 1:40-1:55 **Pilar Astigarraga Harper** Rapamycin Inhibits Developmental Progression and TOR Signaling in *Vanessa cardui* Painted Lady Butterfly Larvae

A-9 1:55-2:10 **Dania Almaatouk** The Investigation of the Tautomerization of Symmetrical β-Diketones in Different Solvents

A- 10 2:15- 2:30 **Ramon Patton** The Role of Circadian Rhythm in *Vanessa cardui* Development and Growth

ORAL PRESENTATIONS - SESSION B

25 Library Auditorium – Media Center
9:00 am-3:45 pm
Dr. Carmen Palmer, Morning Session Chair
Dr. Ken McCoy, Afternoon Session Chair
Judges: Stacy Collins, Terry Grieb

GENDER AND POWER IN WAR, PEACE AND LEADERSHIP

B-1 9:05-9:20 **Michaela Hawthorne** Fan Edits and Feminism: TikTok's Participatory Practices

B-2 9:25-9:50 **Kyra Sullivan** Don't Sugar Coat It: Exploring the Invitational Rhetoric of Queer and Crip Temporalities in Contemporary Art

B-3, 9:55-10:10 **Reagan Shivers** A House Divided, A Home Preserved: Gender, Nationalism, and the Preservation of George Washington's Mount Vernon

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

B-4 10:20-10:35 **Brooke O'Brien** Exploiting Disability as a "Narrative Prosthesis" in (Extra)biblical Texts

B-5 10:40-11:00 **Mary Hogarth** The Evolution of Contemporary Feminism: Mirrored & Shaped Through *Barbie*

B-6 11:05-11:20 **Mary DeNote** Morgan Le Fay: Enchantress Through the Ages

B-7 11:35-11:50 **Ezra Tatterson** Just a Little Woman: Jo, Amy, and Gender in Louisa May Alcott's Little Women

11:50-1:00 – Lunch

B-8 1:00-1:15 **Diana Godinho** From repression to human rights: the case of Michelle Bachelet in Chile

B-9 1:20-1:35 **Alicia Ferreira** Ladies, Let's Get In Formation: Beyoncé, Therapeutic Rhetoric and Depoliticization in Pop Culture

B-10 1:40-1:55 **Valerie Davis** Trans Feminine Creatives: Trans Women Within the Arts

B-11 2:00-2:15 **Soleille Vertus** Interpreting Identity: Black Feminist Theory and Legal Outcomes for Black Lesbian Women

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

COMMUNITY, YOUNG AND OLD

B-12 2:25-2:40 **Sofia Avalo** Sounds of Resistance: A Rhetorical Criticism of Bad Bunny's *Debí Tirar Más Fotos*

B-13 2:45-3:00 **Miki Ohotaguro** Collectivism, Social Responsibility, and Cultural Philanthropy in Taiwan

B-14 3:05-3:20 **Serena Dowling** Low Salience, High Opinions: Partisan Cueing and Polarization

B-15 3:25-3:40 **Madeline Camp** Feeling Seen: Parasocial Relationships, Emotional Attachment, and Identity in Fan Culture

B-16 3:45-4:00 **Phoenix Medley** Geriatrics, Garbage Bags, and Giving Back: Managing Waste in the Super-Aged Society of Taipei, Taiwan

ORAL PRESENTATIONS – SESSION C

322 Elizabeth Hall
9:00 am-3:00 pm
Dr. Jeremy Posadas, Session Chair
Judges: Jamie Hartman, Dr. Monét Bradley, Dylan McCain Allen

BONNER COMMUNITY SCHOLARSHIP

C-1 9:00-9:15 · **Abdulraqeeb Oguntade** – Building Frameworks for a Recovery Housing Program at Rising Against All Odds

C-2 9:20-9:35 · **Gabbey Gomez** – Transformations With The Teen Court Program of Volusia County

C-3 9:40-9:55 · **Isabelle Condor da Silva**– A Data-Driven Framework for Optimizing Police Patrol and Response Time

9:55-10:05 BREAK

C-4 10:05-10:20 · **Derrick Doh** – Disrupting Incivility in the Workplace: A Curriculum for Organizations

C-5 10:25-10:40 · **Julia Alves da Costa** – Outreach For Hope: Building a College Network with Cards2Warriors

C-6 10:45-11:00 · **Kendall Dearth** – A Framework for Successful Community Engagement

C-7 11:05-11:20 · **Waniya Hussain** – Refining Curriculum at Brain Fitness Academy: Diverse & Engaged Learning

C-8 11:25-11:40 **Abdullah Maiga Saeed, Mohammed Shuraim Issah** - Building a Centralized Digital Platform For Black Homeschoolers of Central Florida

11:40-1 LUNCH

C-9 1:00-1:15 · **Vitória P. Paiva Batista** – Finding Ways to engage first-year students in the Stetson University

C-10 1:20-1:35 · **Alice Martinelli Oliveira** – Navigating First Year as a Bonner: A Guide for Incoming Students

C-11 1:40-1:55 · **Raissa Borges de Oliveira Leal** – Program development for science teaching at afterschool programs

C-12 2:00-2:15 · **Julia Ramos de Camargo** – Training with Purpose: Preparing Students to Support Cognitive Health Through the Brain Fitness Academy

C-13 2:20-2:35 · **Maddie Wiese** – Teaching and Encouraging New Language Skills in Young Minds

ORAL PRESENTATIONS – SESSION D

Room 213 Sage Hall
10 am-3 pm
Dr. Michael Eskenazi, Morning Session Chair
Dr. Melissa Gibbs, Afternoon Session Chair
Judges: Dr. Matthew Shannon, Dr. Michael Schroeder

SCIENCE ACROSS THE SPECTRUM II:

D-1, 10:00-10:15 **Sophia Toussant** CRISPR-Cas9 Targeting of aristaless1 in *Vanessa cardui* Revealed Molecular Effects in Embryonic Developmental with Minimal Effects on Adult Morphology and Wing Pigmentation

D-2, 10:20-10:35 **Veronica Okeke** Determining whether the FPPTWE region of the Merkel Cell Polyomavirus small tumor antigen has transforming functions independent of nuclear localization

D-3 10:40-10:55 **Nicholas Mauck** Microplastic Abundance and Color Distribution in *Palaemonetes paludosus* across Urban and Protected Freshwater Systems in Central Florida

D-4, 11:00-11:15 **Mclaren Davis** FINCON-SEC: Reinforcing Financial LLMs with Zero Trust and Adversarial Resilience

D-5, 11:20-11:35 **Tyler Falcon** Regional Nutrient Enrichment and Odonate Nymph Diversity in Urban and Forested Freshwater Ponds of Central Florida

11:35-1:00 LUNCH

D-6 1:00-1:15 **Elena Edwards** The Effects of tDCS on Pitch Perception in Musicians and Non-Musicians

D-7 1:20-1:35 **Victoria Horsley** The Effects of Laser Therapy on Pain Management in Dogs

D-8 1:40-1:55 **CJ Barnes** Amyloid beta expression in *Caenorhabditis elegans* neurons affect on osmotic avoidance behavior over time

1:55-2:05 BREAK

D-9, 2:05-2:20 **Natalie Al-Shihabi** RNA-Seq Analysis of JAK/STAT Inhibition During Spermatid Individualization in *Drosophila melanogaster*

D-10, 2:25-2:40 **Nour Amri, Yash Patel** Prompt Optimization for Large Language Models via Squirrel Search Algorithm

ORAL PRESENTATIONS – SESSION E

317 Flagler Hall
9:00 am-3:00 pm
Dr. Kyle Longest, Morning Session Chair
Eve Payor, Afternoon Session Chair
Judges: Emily Kanicsar, Dr. Suok Kwon

WAR, CRIME AND NATIONALISM

E-1 9:15-9:30 **Serena Dowling** Women Take Flight: Soviet and American Women challenging Gender Dialogue in WWII

E-2 9:35-9:50 **Jacqueline Toribio** The impact of the 1950's Red Scare on the organization and goals of NATO

E-3 9:55-10:10 **Griffin Whitacre** When God Went Silent: The Confrontation of Faith in the Vietnam War, 1965-75

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

E-4 10:20-10:35 **Genevia Gayden** Invisible Hand of The Balkans: Post-Soviet Interstate Warfare as a Comparative Confederal Concept

E-5, 10:40-10:55 **Dionna Wrather** War Films, Asian History, and Violence

E-6 11:00-11:15 **Rayah Yehnert** "*Ein radikaler Bruch*…": Christian Identity and the Deutsche Christen Revision of Hymns (1933–1945)

E-7 11:20- 11:35 **Samuel Scaccia** Wholly on the Balance of Sea Power, The Contribution of the British Navy to the Fall of the Spanish Empire, 1784 to 1821

11:35-1:00 Lunch

DIPLOMACY, JUSTICE AND LAW

E-8 1:00-1:15 **Isabelle Sanco Keis** Development and Diplomacy: How Socioeconomic Development Shapes Relationships in the Global South

E-9 1:20-1:35 **Wyatt Hammerle** A Tale of Masculinity and Honor: The Duel in Europe

E-10 1:40-1:55 **Jacob Prueter** Finding Liberal Naturalism

1:55-2:05 BREAK

E-11 2:05-2:20 **John Young** The United States and the Chimurenga: Evolution of U.S Diplomacy Towards Rhodesia and Zimbabwe, 1965–1987

E-12 2:25- 2:40 **Anwyn Schiek** How do philosophy and literature together reveal the gap between legal justice and moral
justice?

E-13 2:45-3:00 **Patrick Galloway** Punishment as Political Language: The Ideational Foundations of Rehabilitation's Marginalization in U.S. Prisons

E-14 3:05-3:20 **Raissa Borges de Oliveira Leal** Evaluating the Impact of Vaccination on Dengue Incidence: An Econometric Analysis of São Paulo

SESSION F
THE SCHOLARSHIP OF BUSINESS
Lynn Business Center 108
10:00 am-2:00 pm
Dr. Matthew Imes, Session Chair
Judges: Dr. Erin Nickell, Dr. Mahsa Khoshnoud

F-1 10:00-10:15 **Nathan Llano** The Employment and Wage Effects of Florida's Minimum Wage Increase

F-2 10:20-10:35 **Aayusha Sapkota, Kaleeanne Orestis, Michael Petrovic, Lukasz Bajorek** Strategies to Protect and Sustainably Manage Washington, D.C.'s Urban Landscape

F-3, 10:40-10:55 **TJ Macesko** Fields of Influence: Agricultural Stakeholder Engagement and Food Policy Outcomes in the United States

F-4, 11:00-11:15 **Caitlyn Kulczyski, Sacha Roiena, Sydney Jenkins, Chris Furton, and Gigi Kiniyalocts** Broadcom Stock Pitch

F-5 11:20-11:35 **Elizabeth Duffy** Professor Jupiter Industries Showcase Pitch

11:35-1:00 Lunch

F-6 1:00-1:15 **Isabella Degenhardt, Endrik Brettman, Dietre Griesinger and Kamryn Wilson** Lululemon Stockpitch

F-7 1:20-1:35 **Maclaren Davis, Maxwell Bennett, Nicolo Radaelli, Adam Elkhamissy, Conal Walsh** Lennar Corporation Sell Recommendation

F-8, 1:40-1:55 **Felicity K. Mugala Mabuya** The effects of second hand clothing on Kenya and Ghana

1:55-2:05 BREAK

F-9 2:05-2:20 **Alex Faulkner** Economic Evaluation of Increased Green Space in Living Areas of North Central Florida

F-10 2:25-2:40 **Jude Drake, Ingmar van de Griek, Izaac Gonzalez, Lukasz Bajor**ek Should an ESG-focused board member be appointed for a non-ESG Fund?

ORAL PRESENTATIONS – SESSION G

237 Sage Hall
9:00 am-3:00 pm
Dr. Rajni Shankar-Brown, Morning Session Chair
Dr. Joshua Deckman, Afternoon Session Chair
Judges: Katy Webb, Dr. Jacob Walters, Althea Ross Chavers

RACE, POVERTY, SOLIDARITY

G-1 9:10-9:25 **Chellissa Johnson** From Chains to Choice: Autonomy and Resistance in *Wild Seed*

G-2 9:30-9:45 **Tori Watson** The Weaponization of Literacy: From enforced illiteracy to Modern Barriers

G-3 9:50-10:05 **Alexandria Metivier** The Impact of Race and Education on Parenting Style

G-4 10:10-10:25 **Kaise Tinglin** A Comparative Analysis of Brazilian SESC Units through its Military Dictatorship

10:25-10:35 **BREAK**

G-5 10:35-10:50 **Júllya Lopes Machado** A Study of the Relationship Between Religious Coping and Biblical Narratives among Socioeconomically Challenged Individuals in Brazilian Pentecostalism

G-6, 10:55-11:10 **Nautia Dudash** A Forged Melting Pot: The Impact of Aliquippa Steel Mills in a Mid-century Pennsylvanian Town

G-7 11:15-11:30 **Eduarda Machado de Souza** Bridging Movements: From the Children's March to Title IX – Connecting Civil Rights and the Women's Movement

G-8 11:35-11:50 **Aviv Madron** The Business of Anti-Semitism: How a Sixteenth-Century Italian "Magician" Used Jewish Identity to Manufacture Saltpeter and Gunpowder

11:50-1:00 Lunch

HERE IN FLORIDA…

G-9 1:00-1:15 **Aiden Reeve** The Prohibition Party versus Rum Alley: Law and Resistance in Coastal Prohibition Florida

G-10 1:20-1:35 **Phoenix Medley** Evaluation of the motivations and barriers to implementation of Low Impact Development practices in three residential neighborhoods in DeLand, FL

G-11 1:40-1:55 **Reagan Swayze** Zachor/Remembrance: Art and Identity in Floridian Synagogues of the 20th Century

1:55-2:05 BREAK

G-12 2:05-2:20 **Nico Alonso** Conservative State Religion: Miami Cubans as the "Model Minority"

G-13 2:25-2:40 **Leonardo Giorgioni Figueroa** The Influence of Educational Video Interventions on Hurricane Risk Perception: The Role of Affective Response and Graphical Literacy

ON THE LITERARY SIDE

G-14 2:45-3:00 **Sheridan Macon** Posing Oscar Wilde: Surrogation in *Gross Indecency* and *The Judas Kiss*

G-15 3:05-3:20 **Benjamin Miyazato** Merlin in Film: The 21st Century's Favorite On-Screen Wizard

G-16 3:25-3:40 **Luis Buendia** The Superstructuralist Cycle: Explained through Authorial Theory and Animal Farm

HONORS 202 SESSION H

309 Elizabeth Hall
8:00 am-4:30 pm
Dr.Yohan Ripart Session Chair
Judges: Dr. Montaque Reynolds, Dr. Drake Eserhaut

H-1 9:00-9:15 **Danny Moran** The importance of Firefighter Leadership and Decisiveness in Selecting and Operating the First Line

H-2 9:20- 9:35 **Jiya Amin and Haven Gronewold** How social media impacts physical health, and its consequences on your mental wellbeing

H-3 9:40-9:55 **Ella McCoy** The Art of Bored

H-4 10:00-10:15 **Jacob Bradner and Simon Smith** Resonance When Language Fails

H-5 10:20-10:35 **Benjamin Barclay and Adrian Vargas** Currents 222

10:35-10:45 BREAK

H-6 10:45-11:00 **Victor Summers** Indigeneity, Environment, Power

H-7 11:05-11:20 **Alexis Caines and Jack Loo** Mental and Physical Health Disparities in Marginalized Communities

H-8 11-25-11:40 **Ash Miller** A Collection of Unsent Letters

H-9 11:45-12:00 **Joshua Colón** Unshaken. Rooted. Marked

12:00-1:00 LUNCH

H-10 1:00-1:15 **Erika Duerden** Questioning the Prompt

H-11 1:20-1:35 **Amy King** The Log Book: Increasing Access to STEM Education through Digital Mentorship

H-12 1:40-1:55 **Taylor Raymond** First Gen Foreword: Creating a Support-Centered Podcast for First-Generation College Students

H-13 2:00-2:15 **Riley Tarvin** Polarized by the Press

2:15- 2:25 BREAK

H-14 2:25- 2:40 **Kira Zaitsava** Local Impact Score

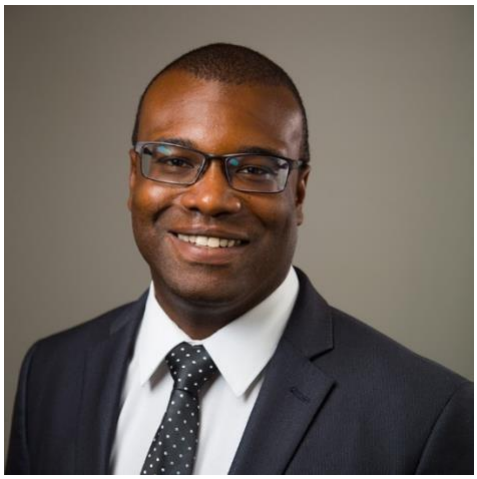
H-15 2:45- 3:00 **Ashley Murphy** A CFC Welcome

H-16 3:05-3:20 **Casey Vallecorsa** Read for Reform

H-17 3:25-3:40 **Diana Fudge** **"**Tech"-ing Timebomb: How Tech has Changed Childhoods Forever

H-18 3:45-4:00 **Issah Abdullah, Anthony Opoku, Levi Cheptoyek, Stephen Wereko** Success for Gen Z

H-19 Eric Ufomadu RAG systems and the illusion of accuracy: Rethinking Attorney Competence Standards for legal AI



6:00 EVENING RECEPTION AND AWARDS

Welcome Center

Keynote Address and Awards Ceremony
Leaonard Nance Award for Excellence in Justice Research
Kathleen Johnson Award for Excellence in the Arts and Humanities
Maris Awards for Excellence in Showcase
2024 SURE Scholars

6:30: 2026 Grady Ballenger Lecturer

Dr. Antonio Byrd

Associate Professor of English, University of Missouri, Kansas City

GenAI Use from Research to Publishing: A Framework for Setting Boundaries as a Young Scholar

The widespread availability of generative artificial intelligence (GenAI) platforms can shift how scholars across disciplines understand what research is and how to conduct it. From reading to analysis to writing, GenAI may be a tempting option for driving a research agenda forward efficiently but at what cost to academic publishing? Based on preliminary work from Modern Language Association Task Force on AI and the Humanities, Dr. Antonio Byrd describes a framework for evaluating GenAI tools in research. He describes the implications of using GenAI for common research practices and how academic editors are navigating this evolution in the knowledge-making landscape. Using his experience as co-editor of two special issues and an editorial board member, Dr. Byrd will give advice on disclosing the use of GenAI to mentors, editors, and peer reviewers. The talk will conclude with a What Would You Do? section where audiences look at three real-world scenarios that "test" their boundaries of GenAI use and refusal.

Dr. Antonio Byrd teaches courses in Black literacies, professional and technical communication, multimodal writing, and composition pedagogy. His research focuses on how the legacies of using literacy for liberation carry forward into present day Black digital literacies and media features. Antonio serves as co-chair for MLA Task Force on Generative AI Initiatives Standing and is a member of the CCCC Special Committee on GenAI. His work has appeared in College Composition and Communication, Literacy in Composition Studies, Technical Communication Quarterly, and Writer: Craft and Context. In 2025, Dr. Byrd published his first book manuscript, Black Tech Ecosystems: How Black Adult Learners Use Computer Code Bootcamps for Liberation with The WAC Clearinghouse.

Abstracts

POSTERS

Naya Adla (Dr. Nathan Wolek, Dr. Michael Schroeder)
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Acoustic Indices as Reliability Indicators for Automated Oyster Toadfish Calls Detection*

Acoustic communication is essential for social interactions in many fish species, including the oyster toadfish (*Opsanus tau*), which produces distinctive vocalizations. Both sexes emit short-duration, broadband grunts during agonistic interactions, while sexually mature males produce long-duration tonal boatwhistle calls to attract mates. These vocalizations, generated by sonic muscle contractions, are influenced by environmental factors such as water temperature. Current detection methods remain largely manual and are prone to human error. This project builds upon Colbert et al. (2023) by exploring the integration of machine learning models and specialized Python libraries to automate call detection. Using passive acoustic recordings from Mosquito Lagoon, a biodiverse estuarine habitat along Florida's East Coast, we developed and tested workflows for preprocessing audio data, extracting spectral features, and computing bioacoustic indices such as signal-to-noise ratio (SNR) and acoustic complexity index (ACI). In addition, we evaluated signal-processing–based detection methods, including FLAM, alongside convolutional neural network (CNN) architectures trained on spectrogram representations of the recordings. This presentation will present methods for comparing automated approaches for identifying *Opsanus tau* vocalizations, so that we can begin evaluating the efficiency and reliability of each technique

*Supported by a 2025 SURE Grant

Anas Aly (Dr. Hala ElAarag)
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EpilepsySpikeNet: A Neuromorphic Approach to Patient-Specific Epileptic Seizure Prediction

Epilepsy affects millions of people worldwide, and for roughly 30% of those living with epilepsy, medications fail to control seizures. Implantable brain-monitoring devices can predict seizures minutes in advance, but running AI models on such tiny, battery-powered devices demands extremely low energy consumption. We investigate Spiking Neural Networks (SNNs) — a brain-inspired type of AI that processes information in energy-efficient bursts rather than continuous computation — as a low-power alternative to conventional deep learning for seizure prediction. We implemented EpilepsySpikeNet, an SNN trained to distinguish between brain activity recorded just before a seizure and normal resting brain activity, using EEG (brainwave) recordings from three pediatric patients. Performance varied by patient: one patient's model achieved perfect classification (100% accuracy), while the other two reached mean accuracies of 93.95% and 86.46%. Strong detection scores across all patients confirm the model reliably identifies seizure-related brain patterns, though results varied across different recording sessions for the same patient — highlighting that these models need to be individually tuned to each person's brain activity.

Anas Aly (Dr. Hala ElAarag)
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No Pedestrian Left Behind: Real-Time Detection and Tracking of Vulnerable Road Users for Adaptive Traffic Signal Control

Current pedestrian crossing signals operate on fixed timing that does not adjust to how people actually walk, which can leave vulnerable road users (VRUs) — such as the elderly, people with disabilities, or children — stranded in the crosswalk when the light changes. We introduce No Pedestrian Left Behind (NPLB), a real-time system that uses a camera to detect these individuals and automatically gives them extra time to cross safely. To power NPLB, we tested five AI-based object detection models — programs that identify people in video footage — and selected the most accurate one. NPLB combines this detection model with a pedestrian-tracking algorithm and a signal controller that triggers a timing extension whenever a vulnerable pedestrian is still crossing as the light is about to change. We tested the system across 10,000 simulated crossing scenarios and found that NPLB reduces the rate at which pedestrians get stranded mid-crossing by 71.4% — from 9.10% down to 2.60% — while only extending signal times in 12.1% of crossings, keeping traffic disruption minima

Elizabeth Baylor (Dr. Kirsten Work)
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Evaluating the Impact of Water Quality on the Growth of Native Apple Snails (*Pomacea paludosa*) and Invasive Apple Snails (*Pomacea canaliculata*).

Invasive species pose a significant threat to freshwater ecosystems by outcompeting native organisms and altering habitat conditions. The invasive apple snail *Pomacea canaliculata* has expanded rapidly in Florida, raising concerns about its competitive interactions with the native apple snail *Pomacea paludosa*. This experiment examined how water quality influences the growth of native and invasive apple snails by comparing natural surface water from Blue Lake to bottled Zephyrhills Spring water. Juvenile snails from both species were assigned to four treatment groups based on species and water source. Snails were housed individually and fed a standardized spinach diet, and shell length was measured weekly to assess growth. Results revealed a significant effect of water source on growth, with snails exhibiting greater growth in lake water than in spring water. Steady growth was exhibited across all treatments, with *P. canaliculata* exhibiting faster and more consistent growth than *P. paludosa* in both water sources. Invasive snails in lake water displayed the highest growth rates overall.

Audrey Best (Dr. Michael Eskenazi)
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Finding Meaning in the Fake: Receptivity to Pseudo-Profound Statements and the Detection of AI-Generated Videos

As artificial intelligence (AI) advances, distinguishing between real and AI-generated videos is becoming increasingly difficult. This study examines psychological factors that influence individuals' ability to detect AI-generated content, focusing on susceptibility to the pseudo-profound and emotional regulation. Susceptibility to the pseudo-profound refers to the tendency to perceive meaningless statements as meaningful and has been linked to greater belief in misinformation. Emotional regulation reflects how effectively individuals manage emotional responses, which may impact judgment when evaluating emotionally charged content. Seventy participants viewed 20 videos (AI-generated or real) presented in random order and rated whether each video was AI-generated. Participants also completed measures assessing susceptibility to pseudo-profound statements and emotional regulation. Data were analyzed using a 2×2×2 mixed-design ANOVA. Results showed a significant main effect of video type, indicating participants were generally able to distinguish between AI and real videos.

However, a significant interaction revealed that individuals with higher susceptibility to the pseudo-profound were less accurate in identifying AI-generated videos. This effect did not extend to real videos. Emotional regulation was not a significant predictor and did not moderate outcomes. These findings suggest that susceptibility to meaningless information, rather than emotional regulation, plays a key role in detecting AI-generated misinformation.

Brianna Boltz (Dr. Corie Charpentier)
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The endogenous tidal rhythms of mangrove tree crab (*Aratus pisonii*) larvae from a microtidal environment

Many coastal invertebrates rely on tidal currents to expedite larval dispersal. Larval crustaceans, such as fiddler, mud, and shore crabs, exhibit endogenous tidal rhythms, which facilitate their ascent to "ride" tidal currents either offshore to avoid estuarine predators or onshore to reside in their parental estuary. Preliminary evidence suggests mangrove tree crabs (*Aratus pisonii*) exhibit similar tidal rhythms in Northern Mosquito Lagoon, FL, which has a strong tidal influence. We hypothesized that mangrove tree crab larvae from Southern Mosquito Lagoon would not adopt this rhythm, as tidal influence is weak with amplitudes as small as 2 cm. To set up the experiment, gravid females were collected from Southern Mosquito Lagoon. Larvae that hatched within 24 h of collection were separated into a vertical column, placed in the dark, and then filmed over a 72-hour period. Every 30 minutes, we recorded the number of larvae swimming at the surface and determined the frequency of rhythmic ascents. Surprisingly, our analyses suggest that these larvae have an endogenous tidal rhythm, despite being from an environment with weaker tides. These larvae may be recent descendants from portions of the lagoon with more tidal influence.

Raissa Borges de Oliveira Leal (Dr. Kristine Dye)
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Molecular characterization and phylogenetic analysis of a non-canonical nuclear localization signal within the Merkel cell polyomavirus Small Tumor antigen*

Merkel Cell Carcinoma (MCC) is a rare, aggressive skin cancer caused by Merkel Cell Polyomavirus (MCPyV). The Small Tumor Antigen (ST) can localize to the nucleus despite lacking a canonical nuclear localization signal (NLS). Because commonly studied polyomaviruses are evolutionarily distinct from MCPyV, this project conducted phylogenetic analyses of all known polyomavirus ST antigens (as of June 2025) at both nucleotide and amino acid levels, aiming to identify a possible motif within MST30, a sufficient and necessary region for nuclear localization. Non-traditional viruses were selected based on similarity or dissimilarity to MCPyV MST30. Comparative analysis of ST proteins, including SV40, Murine polyomavirus (MuPyV), Bovine polyomavirus 2 and 2a, Scotophilus kuhlii polyomavirus 2, and Quebec polyomavirus, showed that BoPyV2 and 2a, MuPyV, SV40, and SkPyV2 also localize to the nucleus, potentially through regions partially resembling MST30. In contrast, QPyV, a human virus, does not localize to the nucleus, suggesting MCPyV may have convergently evolved compared to other human polyomaviruses. These findings support a model in which MCPyV evolved a unique, noncanonical NLS, with future work focused on identifying host binding partners and refining structural predictions.
*Funded by a 2025 SURE Grant. Presented at the Joint Regional Meeting of the Southeastern and Southwestern Regional Meetings of the American Chemical Society and Annual Biomedical Research Conference for Minority Students, organized by the American Society for Microbiology

Brianna N. Camacho Basabe (Dr. Haleigh Ray)
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The effects of temperature on the development and survival of the Carolina Saddlebag, *Tramea carolina,* dragonfly

Climate change is altering aquatic ecosystems and influencing the developmental biology of insect species. This study examines the effects of temperature variation on the growth and development of *Tramea carolina* dragonfly nymphs. Nymphs were exposed to controlled temperature conditions to observe developmental rate and survival. Results suggest that increased temperatures may not accelerate development but did reduce overall survival rates under thermal conditions. These findings highlight the ecological implications of rising temperatures on aquatic insect populations. Further research is needed to better understand long-term adaptive responses to changing thermal environments.

Kevin Cartagena (Dr. Jean Smith)
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Investigating the function of the Fus1 transmembrane domain in yeast cell fusion*

Cell fusion is an important process that occurs during many different events in mammals, such as sexual reproduction and muscle development. In human reproduction, two haploid gametes make contact and eventually fuse to form a diploid. In Saccharomyces cerevisiae, a budding yeast, a cell fusion event occurs during mating similar to that of human reproduction. Yeast mating requires multiple steps to produce diploids. First, the yeast cells polarize their growth towards each other, forming a shmoo, and then make contact at the zone of cell fusion (ZCF) to form a prezygote. Next, the cell walls must be partially removed at the ZCF to allow fusion of plasma membranes, in a process known as cell wall degradation. As the prezygote forms, mating-specific vesicles move and are concentrated at the ZCF. They are hypothesized to contain cell wall hydrolases that mediate cell wall degradation. One of the proteins known to regulate this process is Fus1. Fus1 is a pheromone-induced, transmembrane protein that is localized to the shmoo tip and ZCF. Full deletion of the FUS1 gene causes mislocalization of mating specific vesicles and a reduction of cell fusion. Fus1 is therefore suggested to act as an anchor and a regulator for other fusion proteins at the ZCF. In support of this, Fus1 has been shown to interact with other proteins involved in cell fusion, but its specific mechanism of promoting fusion is unknown. Fus1 has three regions that are conserved throughout evolution, suggesting they are important for the protein's function: the transmembrane domain, an uncharacterized internal domain, and a C-terminal SH3 domain. This research explores the function of the Fus1 transmembrane domain, by determining if the transmembrane domain has a role beyond allowing the protein to be incorporated into the plasma membrane. A previous study replaced the transmembrane residues in the Fus1 protein sequence with the transmembrane residues of another transmembrane protein with a different localization pattern, Mid2, and analyzed the ability of this chimeric protein (Fus1-Mid2TM) to localize to the shmoo tip. The study found that Fus1 could still be localized when it contained the Mid2 transmembrane domain but did not explore the possible effects that this mutation could have on cell fusion. To address this question, we used molecular cloning to create a plasmid that expresses Fus1-Mid2TM tagged with GFP. This construct was then integrated into the HO locus in yeast lacking endogenous FUS1. Sanger sequencing was used to confirm the cloning and integration. To test if the Fus1-Mid2TM is functional in fusion, a standard diploid formation assay was performed. Preliminary results identify a mating defect when cells express Fus1-Mid2TM that cannot be attributed to the altered protein localization. These results suggest that the transmembrane domain of Fus1 may have a functional role in fusion.
*Supported by 2025 SURE Grant. Presented at the 2026 American Society for Biochemistry and Molecular Biology Conference

Jake Catha (Kristine N. Dye)
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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.

Adrian Cerrud (Dr. Candido Diaz)
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A Comparison of Hunting and Capture Behavior between Lycosidae and Salticidae Spider Families
This study examines Spider Families dividing through evolution and the differences in their hunting behavior. There are Sit and wait spider predators who use webs to trap their prey and there are active hunting spiders these do not use webs to capture their prey. We are studying Lycosidae (wolf spiders) and Salticidae (jumping spiders). There is not a lot of research into Lycosidae physiology but there is a lot of research on salticidae. Salticidae have a process information faster and have individual joint movement allowing for the spider to jump at a rapid pace. How does the family of an active hunting spider impact hunting? I hypothesize Salticidae are going to have a faster, farther, and more successful capture behavior than the Lycosidae. We have 10 subjects total 5 Jumping Spiders (Labeled J1-J5) and 5 Wolf Spiders (Labeled W1-W5). We placed the spider at one end of a glass container and the cricket (the prey) at the other end of the container. We then set a 20-minute time limit for capture and recorded the capture of the cricket. We measured Delay of Attack, Capture Distance, and Success Rate of Capture. The mean delay of attack of the Salticidae was 5 minutes: 39 seconds, while the mean delay of attack of the Lycosidae was 2 minutes: 44 seconds. (P=0.041). The mean capture distance of the Salticidae was 1.84566667 cm. The mean capture distance of the Lycosidae was 2.56404545 cm. (P=0.048). The mean success rate of Capture of Salticidae was 56.9%. The mean success rate of capture of Lycosidae was 59.5%. (P= 0.39214922). My hypothesis was not supported by the data.

Isabelle Condor da Silva (Dr. Jean Smith)
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Investigating the Presence of FAST Proteins in *Saccharomyces cerevisiae*
The purpose of this research is to investigate the presence of FAST proteins in the transmembrane domain of *Saccharomyces cerevisiae*. Yeast mating requires membrane fusion to merge haploid cells into a diploid, yet the protein responsible for directly facilitating this fusion, a fusogen, remains unknown in Saccharomyces cerevisiae. Unlike other organisms with identified fusogens, which mediate cell fusion, the mechanism in yeast continues to be unknown.

Consequently, FAST proteins, known for facilitating cell-cell fusion in different organisms, have not yet been identified in yeast cells. However, evidence suggests that these small transmembrane proteins exist in other eukaryotic organisms, making it highly likely that they are also present in yeast. This project aims to bridge this research gap by identifying and analyzing potential FAST-like proteins in yeast, expanding our understanding of membrane protein functionality and cell fusion mechanisms

Harry Denise (Dr. Candido Diaz)
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Environmental Influence on Lycosidae (*Hogna lenta*) Hunting: A Comparative Analysis of Urban and Woodland Habitats

As land development and urbanization spread across Florida, continual development requires shifts in animal behavior to adapt to a changing native environment. This study examined whether the proximity to human development affected the hunting and feeding behaviors of the Lycosidae species, *Hogna Lenta* (Field wolf spider). Fifteen individuals were collected from three separate ecosystems, representing differing levels of human disturbance: urban, rural, and woodland locations, respectively. These animals were observed for several weeks and across five feeding trials; specifically, the behavioral metrics of attack speed and distance were recorded throughout. ANOVA analysis comparing these environments showed no significant differences in either the time between prey introduction and capture or the attack distance. To check whether the varying individual spider sizes across the study had an impact on these outcomes, a regression analysis showed no influence of spider size on capture time, and similarly for the distance covered during the attack. These results suggest that *H. lenta* hunting and feeding behaviors are consistent across environments and development density

Emmanuela Dessaint, Brianna Beer (Dr. Kristine Dye)
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Assessing whether mutants 2/3, 9-11 and MST30 within Merkel Cell Polyomavirus Small Tumor Antigen are Sufficient for Nuclear Localization

Merkel Cell Carcinoma (MCC) is a rare, aggressive skin cancer that is three times deadlier than melanoma. In 2008, Merkel Cell Polyomavirus (MCPyV) was discovered as the driving factor of MCC. MCPyV expresses both small and large tumor antigens (LT and ST, respectively), with ST being the dominant protein. To accomplish cellular transformation, researchers found that MCPyV ST must achieve nuclear localization, despite lacking a known nuclear localization signal (NLS). To pinpoint a possible novel NLS within MCPyV ST, an alanine screen was performed, in which five amino acid substitution mutants were created. Three regions of MCPyV ST (MST30, 2/3, and 9-11) were found to be necessary for nuclear localization and therefore may contain the novel MCPyV ST NLS. Furthering these findings, MST30 and mutants 2/3 and 9-11 underwent sufficiency analysis by fusing to the cytoplasmic green fluorescent protein (GFP) with a 5xGS linker to determine sufficiency in accomplishing nuclear localization. MST30 was confirmed to be both necessary and sufficient for nuclear localization of GFP, whereas mutants 2/3 and 9-11 were not sufficient. These results put greater attention on MST30 to identify the amino acids responsible for nuclear localization of MCPyV ST, possibly getting closer to developing a novel, efficacious MCC treatment.

Mackenzie Enteado (Dr. Michael Eskenazi)
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When Beliefs Turn Violent: A Study of Moral Values & Violent Crime

Murder contradicts societal norms and values. In spite of this, violent behavior continues to occur. Beyond that, a pattern between an individual's moral values and the moral foundations behind acts of violent crime can indicate a reason for the pardon of murderers. One widely accepted principle of morals is the Moral Foundations Theory (MFT; Harper & Harris, 2017) which suggests that there are five psychometrically observed moral foundations including care, fairness, loyalty, authority, and purity (Fargher, 2019; Harper & Harris, 2017). According to the Moral Foundations Theory, individuals have a tendency to align with those who commit controversial acts if they resonate with their moral values (Haidt, 2012; Fargher, 2019; Freeden, 2003). So, how does an individual's moral foundations and alignment affect their acceptance of violent crime? During this study, participants will reply to a survey including: (1) a moral foundations questionnaire which is structured to identify the moral foundations each individual aligns with the most, (2) four violent crime scenarios, two that align with liberal moral foundations and two that align with conservative moral foundations, and (3) a measurement of their acceptance for each crime, involving questions regarding participants response to each crime and how they would like to punish the criminal. Expected findings would support the acceptance of violent crime that aligns with their own moral values.

Katie Evans (Dr. Kirsten Work)
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Land use impact on microplastic accumulation in eastern mosquitofish (*Gambusia holbrooki*)

Microplastic (MP) pollution is an emerging threat to freshwater ecosystems, yet the role of conservation status in mitigating MP accumulation in these ecosystems remains unclear. This study evaluated MP accumulation in eastern mosquitofish (*Gambusia holbrooki*) at two protected sites (Lake Woodruff National Wildlife Refuge and Gemini Springs) and two urban sites (Blue Lake and the Stetson Aquatic Center). Fish samples were collected and chemically digested, and MPs were isolated via density separation and vacuum filtration. MPs were detected in all samples, with the majority being fragments from larger degraded plastics rather than industrially manufactured—such as microbeads or nurdles. Although MP abundance did not differ significantly between urban and protected areas, the highest MP levels occurred at Gemini Springs, a protected site, indicating that recreational use may counteract the benefits of conservation status. These results suggest that traditional land-use protections may not prevent microplastic contamination, and that *G. holbrooki* may serve as an effect bioindicator for local pollution. Effective conservation strategies should focus on reducing plastic input to protect freshwater food webs

Emily Flores (Dr. Sarah Cramer)
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Growing Minds: The impacts of Garden-Based Learning

Garden-based learning (GBL) is an educational approach that functions as an outdoor classroom, where students participate in hands-on activities such as planting, maintaining, and harvesting crops while learning about science, nutrition, and environmental sustainability. This type of learning allows students to connect classroom concepts to real-world problems such as sustainability and healthy food systems. Traditional classrooms often lack hands-on experiences that help students develop a deeper understanding of environmental and nutrition topics. Early exposure to environmental education and healthy eating habits is important for the development of lifelong values, behaviors, and decision-making skills. This study examines how participation in a school garden program influences elementary students' environmental literacy, nutrition decision-making, and engagement in learning. This research

will take place at an elementary school in Central Florida, where students participated in a garden-based learning program with classroom instruction. A mixed methods approach was used to collect qualitative data. Data collection included students' surveys to measure their environmental knowledge and attitudes toward healthy eating; classroom and garden observations to assess student engagement during hands-on activities; and teacher feedback to provide additional insight into student learning outcomes. It is expected that students who participate in the school garden program will demonstrate increased environmental awareness, a stronger understanding of sustainable practices, and more positive attitudes toward healthy food choices.

Diana Fudge (Dr. Corie Charpentier)
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Impact of light intensity on vertical migration of mangrove tree crab larvae in Mosquito Lagoon, Florida

The movement of planktonic crab larvae that live in the water is heavily influenced by outside factors, such as light. Some larvae migrate downwards when there is more light at the surface to protect themselves from predators that would otherwise see them in the daylight. Preliminary findings in Mosquito Lagoon, Florida suggest that this negative phototactic behavior could be a sign of diel vertical migration. In this experiment, we would like to investigate the effect of different intensities of light on late-stage crab larvae movement. We hypothesized that with the increase of light intensity, the downward movement of larvae will also increase, which can be attributed to diel vertical migration. To test this, the late-stage larvae will be exposed to a light that will periodically be flashed onto a mirror, then onto the water to mimic light in a marine environment. We will capture recordings before and after the flashes of light and interpret them using Image J and R coding. Based on preliminary findings, larvae tend to exhibitnegative phototaxis, as predicted. With this information, we can see that this behavior is indicative of diel vertical migration, which can be used as a defense mechanism against the large number of predators found in the estuary. These findings can also potentially be used to further connect movement behaviors of mangrove tree crab larvae and the recent migration of crabs up the east coast of the US.

Natalia Garcia (Dr. Melissa Gibbs)
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The effect of restoration on Florida spring's native fish population

Due to human use and erosion, spring ecosystems require maintenance and restoration to preserve the environment in the most natural way possible. To protect this environment, restoration projects are established to stabilize the shoreline from constant human interaction that has caused destabilization. The purpose of this study was to determine if gar and sunfish populations have changed in Volusia Blue Spring after their current restoration project. We seined, recorded video and conducted snorkel surveys in four stations along the spring run to count the population of both species in the spring. We compared the populations of both fish from 2014-2019 (before restoration) to data from 2024-2025 (after restoration) and found that the population of gar in Blue Spring decreased while sunfish populations increased. Across all years, we found significantly more gar at station 4 compared to any other stations, and that station also had significantly fewer gar in 2024-2025 compared to 2014-2019. We found that there are significantly more sunfish now compared to before the restoration. We also found that the number of sunfish in stations 1 and 3 are significantly different from each other but not from the rest of the stations. The distribution of sunfish in all four stations are not statically different between 2014-19 and 2024-25. We concluded that the variation in population trends for both species could be due an increase in habitat and prey for sunfish but the displacement and disruption of potential prey for gar.

Sean Gaudreault (Dr. Jean Smith)
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Investigating Fus1 and Pea2 Roles in Mating and Protein Localization by Mutating Fus1's Internal Domain in *Saccharomyces cerevisiae*

Cell fusion in *Saccharomyces cerevisiae* is tightly regulated. Cells use pheromones, polarize, and form the zone of cell fusion. For successful fusion, intervening cell walls must be degraded. Fus1, a pheromone-induced transmembrane protein, localizes to the mating projection and ZCF. Fus1 acts as a scaffold, helping deliver mating-specific vesicles crucial for cell wall degradation. Prior studies found that Fus1 and polarisome proteins like Pea2 interact. Pea2 regulates polarity and helps create and organize the actin cytoskeleton. Actin is used for polarization and protein localization during mating. To understand the Fus1-Pea2 interaction, we used AlphaFold3 to structurally model the contact interface. Pea2 residue D254 was predicted to interact with Fus1 residue S259. To test the structural model, we made a FUS1-S259D mutant and tested the interaction using split-ubiquitin assays. We hypothesized S259D would decrease Fus1-Pea2 interaction due to charge repulsion. Since altering Fus1-Pea2 interaction may alter localization, expression and localization of Fus1-S259D-msGFP was checked using fluorescence microscopy. To quantify potential mating defects, microscopy of fusing cells was performed using FM4-64. Current data suggest that S259D may alter Fus1-Pea2 interaction specifically, altered Fus1 localization, and has a moderate mating defect. A NSF grant (2233325) and CAS Dean's Fund helped fund this research.

Kimberly Gill (Dr. Roslyn Crowder)
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Peperomia obtusifolia* Blue Light Exposure Does Not Correlate to Anticancer Properties

This study investigated how light-dependent phytochemical differences influenced the cytotoxic activity of *Peperomia obstifolia* leaf extracts. The white-light extract developed a deeper orange-red chromophore, indicating a higher level of flavonoid formation, and therefore exhibited a higher abundance value than the blue-light extract. This corresponds with its higher absorbance value, and its greater cytotoxicity in Jurkat E9-Clone leukemia cells. Across 4,9, 12-hour timepoints, the white-light extract consistently produced a stronger reduction in live cell concentration, viability, and ATP metabolic activity compared to the solvent control (SC) group. The white-light plant extract with a 1500 µg/mL concentration resulted in complete cytotoxicity after 12 hours. The correlation between flavonoid concentration and pro-apoptotic potency suggested that flavonoids contributed to the observed anticancer activity, although additional compounds may also have played a role. Overall, the experiment demonstrated that light exposure influenced the phytochemical profile of *P. obtusifolia* leaves and that these differences translated into measurable biological outcomes. These findings supported the use of colorimetric flavonoid assays for phytochemical comparison and highlighted the potential anticancer relevance of white light-modulated plant extracts at higher concentrations.

*The funding for my research was completely reliant on the material that Dr. Crowder had in her cancer lab and using some materials from the chemistry department. I was awarded $1000 for being an S-STEM Scholar and it was not used nor for research purposes.

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Relationship Dealbreakers Depend on Personality Traits and Relationship Type

Finding a mate is crucial for the survival of the human race. However, it is not as easy as it seems. Every individual has their own mate preference, with their own dealbreakers that limit the mating pool. Depending on the type of relationship a woman wants, dealbreakers can change. However, there is a lack of research dedicated to studying the relationship between personality and relationship type when rating dealbreakers. To fill in this gap, the present study investigates if relationship type moderates the relationship between an individual's personality and their dealbreakers. Sixty-eight female participants took the 10-item Big Five Inventory to measure personality levels and rated the importance of dealbreakers in the context of short-term and long-term relationships. Results showed there was four significant interactions, with relationship term moderating the relationship between levels of agreeableness, conscientiousness, and neuroticism for the dealbreaker gross, and the relationship between levels of extraversion for the dealbreaker of apathy. Overall, the results showed that women rate dealbreakers differently depending on the type of relationship they are looking for and their personality traits. Personality traits do not independently determine how an individual rates a dealbreaker, but they interact with the type of relationship being considered.

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Vastus Lateralis* Thickness and Isometric Force in Postmenopausal Women: Preliminary Observations from a Cross-Sectional Feasibility Study

Muscle thickness is a proxy for the structural force-producing capacity of skeletal muscle. However, voluntary force output reflects both the available contractile substrate and the neural processes governing its activation. The association between muscle thickness and force is positive but variable across populations, with a paucity of data exploring this association in postmenopausal women. The purpose of the study was to measure the association between vastus lateralis (VL) thickness and peak isometric leg-extension force in postmenopausal women. Seven postmenopausal CrossFit-trained women were included in this cross-sectional sub-analysis. VL thickness was measured via B-mode ultrasound and force via load cell dynamometer. Within-session reliability was assessed via a two-way random effects model (ICC2,1). Peak force was regressed on VL thickness via ordinary least squares with body mass as a covariate. Model assumptions were evaluated via residual diagnostics. VL thickness reliability was ICC2,1 = 0.993 (CI95%= 0.980—0.998, SEM = 0.081cm). Force measurement reliability was ICC2,1 = 0.821 (CI95%= 0.321—0.957, SEM = 1.64kg). The partial coefficient for VL thickness was 0.68kg/cm (CI95% = -8.28—9.64, adjusted R2 = 0.075). In conclusion, VL thickness and force reliability were excellent and acceptable, respectively. The association between VL thickness and force, however, was trivial with insufficient precision to characterize the relationship in this sample.

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

Merkel Cell Polyomavirus (MCPyV) can cause Merkel Cell Carcinoma (MCC), an aggressive skin cancer with a mortality rate significantly higher than melanoma. The small tumor antigen (ST) is the primary transforming protein of MCPyV, and nuclear entry is essential for its oncogenic function. When ST is

fused to a Nuclear Export Signal, it cannot enter the nucleus and loses transformative capacity, demonstrating the requirement for nuclear localization despite lacking a canonical nuclear localization signal (cNLS). To identify the mechanism of ST nuclear import, subcellular fractionation was performed on Rat-2 cells expressing ST alanine scan mutants in which five–amino acid segments were sequentially substituted with alanine. This revealed a critical 30–amino acid region, termed MST30, required for nuclear translocation. When fused to GFP, MST30 was sufficient to redirect GFP to the nucleus. Residue evaluations of MST30, based on polarity, surface exposure, and comparison with cytoplasmic ST proteins from related polyomaviruses, identified a unique nine–amino acid stretch (FPPTWESFD) characterized by hydrophobic and surface-exposed residues. Despite these features, this segment alone was unable to direct GFP to the nucleus, indicating it is not sufficient for nuclear localization.

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Assessing the Contribution of Merkel Cell Polyomavirus Small Tumor Antigen Cellular Interactors in Nuclear Import and the Development of Merkel Cell Carcinoma

Merkel Cell Carcinoma (MCC) is a rare, aggressive skin cancer with rising incidence, yet nearly half of patients fail to respond to current therapies. Approximately 80% of MCC cases are driven by genomic integration of Merkel Cell Polyomavirus (MCPyV), which promotes oncogenesis through continuous expression of viral tumor antigens, particularly the small tumor antigen (ST). For transformation to occur, ST must localize to the nucleus; however, it lacks a recognizable nuclear localization signal (NLS), suggesting it relies on alternative import mechanisms, including piggybacking on host proteins. Prior work identified three regions within ST: 2/3, 9–11, and MST30, that are necessary and sufficient for nuclear localization, implicating them as potential binding sites for host nuclear transport proteins. To test the hypothesis that ST utilizes a piggybacking mechanism, known ST interaction domains with cellular proteins, including NEMO, PP4C, and EP400, were selectively mutated. Their cellular localization was then analyzed through subcellular fractionation. Notably, the 4M mutant within region 2/3, corresponding to the L-Myc binding site, failed to localize to the nucleus. These findings demonstrate that MCPyV ST may piggyback on L-Myc for nuclear import. Disrupting this interaction provides a targeted strategy to block nuclear localization and inhibit MCPyV-driven tumorigenesis in MCC.

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Computational Analysis of Active Site Modifications in [NiFe] Hydrogenase for Enhanced Biomimetic Catalysts

Current green hydrogen production is limited by its use of expensive and rare platinum electrodes. This study computationally explores biomimetic modifications to the natural Hydrogen catalyst [NiFe] Hydrogenase in hopes of supporting the development of an earth-abundant alternative to Platinum. Electronic structure calculations were performed using Gaussian 16 with density functional theory (DFT) to model the impacts of biomimetic inspired changes to the active site geometry and energetics of three ligand substitutions on the Fe center: cyclopentadiene (Cp), pentamethylcyclopentadiene (Cp*), and a pyrrolidine ring (C4H4N-5). While these ligands are common in synthetic catalysts, past research has demonstrated limited effectiveness in reducing energetics of synthetic analogues to [NiFe] Hydrogenase. We propose that removing the three existing Fe-bound ligands instead of leaving the carbonyl group attached (like in literature) will reduce steric hindrance and allow for a more natural active site geometry. By comparing the reaction energies of this new configuration of Cp, Cp*, and a pyrrolidine ring, this work aims to identify stable configurations of cp-based ligands that can inform the design of more efficient and sustainable synthetic catalysts for the hydrogen fuel economy.

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Effects of Nutrient Enrichment on Odonata Nymph Diversity and Abundance in Central Florida Ponds

Freshwater pollution is widely recognized as a driver of biodiversity loss in aquatic ecosystems, with Odonata nymphs serving as sensitive bioindicators of environmental stress. This study examined whether elevated nitrogen and phosphorus concentrations were associated with reduced diversity and abundance of Odonata nymphs in central Florida ponds. Four ponds were sampled during fall 2025, including two located near urbanized areas in DeLand and two within the more secluded Ocala National Forest. Each pond was visited three times over two months for water sampling and dip-net collection of nymphs. Nitrogen and phosphorus concentrations were measured using an Autoanalyzer AQ300, and nymphs were identified to genus to calculate abundance and Shannon-Wiener diversity indices. T-tests tests revealed no significant differences in nymph abundance or diversity between urban and forest ponds. Nitrogen concentrations also did not differ significantly between locations. However, phosphorus concentrations were significantly higher in one location compared to the other. Results suggest that nutrient enrichment alone may not immediately alter Odonata assemblages, or that nutrient levels were not sufficiently elevated to produce detectable biological effects.

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Mangroves & Salt Marshes: Accretion, Erosion, & Egrets

Post industrial-revolution anthropogenic actions have led to an increase in global temperatures. Due primarily to this, global sea levels are increasing and affecting coastal ecosystems like mangrove forests and salt marshes. Previous research has shown that increasing temperatures have led to the expansion of mangroves into salt marsh territories globally. This phenomenon is important in Florida since it is located on a latitude where the two ecosystems meet (an ecotone). Further north salt marshes dominate since they can tolerate freeze events, while mangroves dominate the more southerly regions because they can shade out salt marsh grasses in plant competition but cannot tolerate hard freeze events. A former Stetson Student used aerial photographs to document mangrove expansion within Ponce Preserve Park, within Ponce Inlet, Florida. I expanded on this research in Ponce Preserve Park by analyzing aerial photos of the park from Volusia County Property Appraiser and documenting how much mangroves have further expanded since the previous study. I also placed sediment accretion disks within sections of the park that possessed mangroves, salt marshes, and at the ecotone to see whether the sites were experiencing erosion or accretion. Finally, I completed an observational study to see how any changes might be affecting Great Egrets and Snowy Egrets in the area. My findings show that mangroves have been steadily encroaching and overtaking salt marsh habitats over the past 10 years. I also found that the salt marsh sites are experiencing erosion, while the mangrove sites are accreting sediment. Snowy and Great Egret behavior could not be linked to salt marsh and mangrove changes within the timeframe of my work. Future researchers can use my aerial data to continue to document mangrove expansion or contraction and my sediment disk data to document future erosion or accretion in the area.

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Will restoring the eastern Florida shore increase benthic biodiversity evermore?

Hardened shorelines, like seawalls, mitigate storm impacts along developed coastal communities. However, seawalls are not ideal habitats for coastal organisms, leading to environmental degradation. For example, benthic animals in the intertidal zone flourish in complex 3-dimensional habitats not provided by seawalls. We can prioritize shoreline protection and habitat restoration by replacing

hardened barriers with living shorelines, which encourage native plant growth and key habitat-providing species, like oysters. To evaluate the impact of shoreline restoration, we studied benthic fauna along a living shoreline in Mosquito Lagoon, FL, which was restored in 2023. We hypothesized that benthic diversity and species abundance would increase over time, since the restored habitat would encourage more species to settle. Within the intertidal zone, we conducted periodic and randomized surveys of benthic animals before restoration (2022 – 2023) and after restoration (2023 – 2026). While abundance declined, particularly of oysters, the total number of species increased after restoration. These mixed findings suggest that long-term observation is needed to understand living shoreline impacts to intertidal biodiversity.

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Analyzing the environmental effects of the anticancer properties in the *Peperomia Obtusifolia*

Acute Lymphoblastic Leukemia (ALL) is a type of blood cancer with a 51% chance of survival for patients after 5 years of treatment. The *Peperomia obtusifolia* was used to assess whether we can induce programmed cell death within specifically the ALL-cell line called the Jurkat cell line. This cell line is an isolated line of cancer cells that was originally sampled from the blood of a patient with ALL and has been used as a foundation for modern understanding with signaling pathways since then. *Peperomia* obtusifolia is an herbaceous plant from the same genus that is used in some communities to treat infections because the phytochemicals produced within the plant bodies create antibacterial properties. This species is related to *Peperomia pellucida*, which is an ornamental plant that was studied as an antimicrobial medicine traditionally used in many countries for diseases including abscesses, skin wounds, and convulsions. A dose-depending experiment was conducted using ethanolic extracts from *P. obtusifolia* grown in different soil environments to determine whether the plant has similar anticancer properties within their phytochemicals as the P. pellucida, and if the phytochemical concentration changes within different environmental conditions. Results demonstrated that when introduced to ethanolic extracts, cell reproduction and viability had severely decreased. However, both the control and experimental extracts had the same effect on the Jurkat cell line. This suggests that while the *P. obtusifolia* can induce apoptosis, the environmental conditions exposed to these plants did not produce a difference.

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Effects of Sodium Carbonate on Taste Perception and Neural Activity within Rats Highlighting Enhanced Fos Expression in Amygdala Subregions

Salt taste perception plays an important role in terms of adequate dietary regulation and balance of electrolytes, but different sodium salts elicit distinct neural and behavioral responses. Although sodium chloride (NaCl) is the standard salt that is transmitted through epithelial sodium channels (ENaCs), sodium carbonate (Na_2CO_3) has demonstrated an enhanced perceived saltiness and stronger aversiveness in rodents despite their distinct ionic properties. This study distinguishes the behavioral responses and the neural activation caused by Na_2CO_3 and NaCl in rats. By using intraoral infusions (0.05 M) in male Wistar rats, we calculated the taste reactivity behaviors that include ingestive (tongue protrusions, licking) and aversive (head shakes, gapes) responses, under sodium depletion and sodium repletion conditions. Neural activation will be assessed by Fos immunohistochemistry inside the gustatory cortex, amygdala, and lateral hypothalamus which are crucial parts of the central relay system for gustatory processing. Fospositive neurons were quantified across the agranular insula (AI), dysgranular insula (DI), the granular insula (GI), the lateral amygdala (LA), the basolateral amygdala (BLA), the central medial amygdala (CeM), the central lateral amygdala (CeL), and the lateral

hypothalamus (LH) will be its own region. Subregions were divided to assess the regional differences in salt-specific activation patterns. We hypothesized that Na_2CO_3 elicits a significantly greater aversive taste reactivity and elevated Fos expression in comparison to NaCl, which reflects a recruitment of gustatory and hedonic processing pathways. Results indicated that most behavioral measures, including ingestive and aversive responses, did not significantly differ between Na_2CO_3 and NaCl across sodium replete and depleted conditions. Similarly, Fos expression in the gustatory cortex and lateral hypothalamus showed no significant differences between treatments. However, selective increases in neural activation were observed in the central medial (CeM) and central lateral (CeL) subregions of the amygdala, suggesting region-specific sensitivity to sodium carbonate. These findings suggest that while Na_2CO_3 does not broadly alter taste reactivity or overall neural activation compared to NaCl at the tested concentration, it may preferentially engage amygdala circuits involved in aversive processing. Overall, this study highlights that differences in salt perception may be mediated by targeted limbic system activity rather than widespread changes in gustatory processing. By evaluating both behavioral and anatomical measurements, this study will clarify the different neural coding of sodium salts, as well as building on the current understanding of salt perception, aversive taste processing, and odiumdriven ingestive behavior.

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Effects of Bifenthrin exposure on *Ambystoma mexicanum* embryonic development

Agrochemical pollution poses a substantial threat to wetland ecosystems and their biodiversity. *Ambystoma mexicanum*, a critically endangered species native to Mexican wetlands, is negatively affected by exposure to pesticides, especially during embryonic development. I hypothesized that axolotl embryos exposed to high concentrations of the common insecticide bifenthrin would experience increased mortality, develop edema and tail curvature defects, as well as decreased head and body size and decreased interocular distance. Two trials of axolotl embryos were exposed to increasing concentrations of bifenthrin, 0.006 µg/L (trial one) and 0.06 µg/L (trial two), up to 600.0 µg/L, for 24 hours. After hatching, I measured the axolotl hatchling's body, head, and interocular distance, and identified any morphological defects that had developed. Axolotl hatchling head size and interocular distance were significantly reduced at high concentrations of bifenthrin. Early hatching and total defect development were also significantly more common after exposure to bifenthrin. The results of my study indicate that axolotls are not resistant to sublethal effects caused by pesticide exposure. Understanding how pesticides negatively affect axolotl embryonic development may be crucial for developing species protection plans that limit pesticide pollution in global wetlands.

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Impacts of restoration on fish assemblage in Volusia Blue Spring

Freshwater springs are important ecosystems that are increasingly impacted by recreational use and erosion. Restoration efforts aim to reverse this damage, yet few studies have examined how these activities affect fish assemblages in freshwater spring systems. Our study aimed to evaluate the effects of two restoration projects on fish density, species richness, and diversity in Volusia Blue Spring in Orange City, Florida. These variables were compared across three different time periods: before restoration (2014-2019), during restoration (2021 and 2024), and after restoration (summer of 2025). Snorkel surveys and seine net collections were conducted at two different stations with three sites within each. Fish density and species richness were significantly lower during restoration than the other two time periods, while diversity did not differ between time periods. In addition to the effect of time,

fish density and species richness were greater after restoration than during restoration. This effect was consistent over the three sites in Station 2 and the three sites in Station 3. Results suggested that restoration temporarily reduces fish density and richness due to disturbance, but that numbers recover shortly after restoration completion. These findings highlight short-term impacts of restoration and suggest that long-term monitoring would be an important evaluation of restoration in the future.

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Investigating The Impact of a Fus1 Point Mutation on *Saccharomyces cerevisiae* Cell Fusion

Cell fusion is an essential part in life from fertilization, muscle development, eye development, tissue repair, and many more aspects. We can use *Saccharomyces cerevisiae*, commonly known as baker's yeast, as a model organism due to conserved eukaryotic processes, allowing information gained from baker's yeast to apply to other organisms. Cell fusion is a highly regulated process involving many proteins because one wrong step or mistiming could lead to cell death. Fus1 is one of many proteins involved in this process and acts as a scaffold for other proteins to localize and be held at the fusion site. To better understand interactions taking place between Fus1 and other proteins computational modeling was used. This modeling showed Fus1-Y495 to be interacting with another protein, Fus2. To determine the significance of Fus1-Y495 we mutated it to Fus1-Y495A, replacing the tyrosine for an alanine structurally changing the interaction. This mutation showed significant impairment in cell fusion capability without outright eliminating it and trending to a possible decrease in protein interaction with several proteins, including Fus2. These findings show the importance of a singular amino acid on the overall function of a protein and its ability for cell fusion.

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TikTok as a learning tool: A cognitive load study

TikTok's "brain rot" videos — which pair informational content with simple, repetitive background gameplay such as Subway Surfers — have surged in popularity, yet their impact on learning remains unclear. Cognitive Load Theory proposes that occupying unused cognitive capacity with low-demand stimuli can sustain attention and improve retention. This study examined whether brain rot videos enhance memory the same way Cognitive Load Theory suggests. Ninety-three participants were randomly assigned to one of three conditions and subsequently completed a 10-question memory quiz alongside validated measures of boredom proneness and mind wandering. Multiple linear regression revealed that predictors accounted for significant variance in memory scores ($R^2 = .29$, $p < .001$). A significant interaction was found between boredom proneness and video condition: participants high in boredom proneness performed significantly worse in the text-only condition but demonstrated high retention in the brain rot condition. These findings suggest that brain rot videos may function as an effective learning tool, particularly for individuals prone to boredom and mind wandering.

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Behavioral and Neural Responses to Combined Bitter and Sweet Taste in Male Wistar Rats: Interaction of Gustatory and Visceral Cortex

Taste perception involves the integration of multiple sensory signals that guide adaptive feeding behavior. This experiment examined how combined sweet and bitter taste stimuli influenced behavioral taste reactivity (TR) and neural activation within the gustatory cortex (GC) and visceral cortex (VC) of male Wistar rats. We hypothesized that sucrose would attenuate quinine-induced aversive responses at both the behavioral and neural levels. Rats received sucrose, quinine, or sucrose-quinine mixtures, and

we recorded ingestive and aversive TR behaviors using the taste reactivity paradigm. We used Fos immunohistochemistry to quantify neuronal activation across GC subregions and the VC. Behavioral responses varied across treatments, with quinine containing solutions producing greater aversive responses than sucrose alone. Mixture treatments produced behavioral responses that differed from those observed following quinine alone, indicating that the addition of sucrose altered responses to bitter stimulation. Quinine exposure also increased Fos expression within both gustatory and visceral cortical regions, whereas sucrose alone produced relatively low activation. When sucrose was combined with quinine, neural activation patterns differed from those observed following quinine alone. These findings suggested that sweet taste modulated bitter-evoked behavioral rejection and neural activation within gustatory and visceral cortical regions. Overall, the results supported the idea that gustatory and visceral cortical regions integrated competing taste signals to guide feeding behavior.

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Utilization of Cellular Fluorescence to Determine the Sufficiency of Domains Within the Merkel Cell Polyomavirus Small Tumor Antigen in Nuclear Import

Merkel Cell Polyomavirus (MCPyV) is the only human oncogenic polyomavirus, and is the etiologic agent of 80% of Merkel Cell Carcinoma (MCC) cases due to genomic integration and constitutive expression of its Large and Small Tumor Antigens (LT and ST, respectively). With transformation assays, ST was identified as the dominant transforming protein of MCPyV, largely through its ability to localize to the nucleus despite the absence of a known nuclear localization signal (NLS). To locate the novel NLS of MCPyV ST, an alanine scan was performed and the localization of MCPyV ST mutants were assessed through subcellular fractionation. Through this approach, a 30 amino acid long region, termed 'MST30', was found to uniquely contain hydrophobic, surface exposed residues necessary for nuclear import. After proving necessity, MST30 was assessed for sufficiency in nuclear translocation via GFP-fusion microscopy and subcellular fractionation, both of which proved the sufficiency of MST30 in nuclear localization. Therefore, it is hypothesized that the novel NLS of MCPyV ST is located within MST30, and therefore may be largely responsible for the development of MCC. As such, further narrowing down the non-canonical NLS of MCPyV ST may facilitate the development new treatments for the rare and aggressive MCC.

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Evaluating Behavioral Responses of Small-Bodied Fishes in Response to Oxygen Manipulation in a Groundwater-Dominated Spring

Dissolved oxygen (DO) strongly influences fish physiology and behavior, yet responses of small-bodied fishes to fine-scale oxygen variation in groundwater-dominated spring systems remain poorly understood under natural conditions. This study evaluated the relationship between DO concentration and surface-oriented behavior in two common Florida spring fishes, *Gambusia holbrooki* (Eastern Mosquitofish) and *Fundulus Seminolis* (Seminole killifish), within Volusia Blue Spring, Florida. In-situ experimental tanks were constructed and deployed adjacent to the spring run over five weekly sampling events. Four treatment conditions were established across tank chambers that manipulated aeration and algal substrate to generate variation in DO concentrations. Fish behavior was recorded using underwater video, and surface occupancy was quantified through surface counts at the end of each trial. Dissolved oxygen, temperature, and conductivity were measured during each trial. Across 28 observations, no statistically significant relationship was detected between DO concentration and surface-oriented behavior for both species, suggesting that surface use may represent a baseline behavioral strategy rather than a response directly driven by hypoxia. Despite lack of significant

treatment effects, this pilot study demonstrates feasibility of manipulating oxygen availability in a natural environment and highlights the importance of species-specific tolerance and environmental context when evaluating behavioral responses to dissolved oxygen dynamics in spring ecosystems.

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Effects of Species Identity and Competition on Growth of Native and Invasive Apple Snails

This study investigated the effects of the growth of interspecific native Florida apple snail (*Pomacea paludosa*) and the invasive apple snail (*Pomacea canaliculata*). Three treatment groups were used, one with an animal alone, one with an animal and a congener, and one with an animal and the other species. Each treatment group consisted of ten replicates placed into containers with water collected from Blue Lake in Deland, FL, that were observed over an eight- week period. Shell length was measured weekly to assess the effects of species identity and competition treatment on growth rates. Invasive snails had a significantly greater mean growth compared to the native snails across all treatments. However, invasive snails cultured alone did not differ significantly from those grown with a native snail. Perhaps, suggesting that invasive snails tend to compete more with each other rather than with a native snail within the same space. Parasitic nematodes were present in the water which disproportionately affected native snails, resulting in higher mortality and potential reduced growth. But overall, these results highlighted how tolerant the invasive snails are suggesting that they have a very strong competitive advantage.

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Temporal trends in fish diversity after restoration from a man-made seawall to a living shoreline

Coastal shorelines are modified by human infrastructure, with seawalls often replacing natural habitats along developed coastlines. These alterations can substantially influence local biodiversity, particularly fish communities that rely on shallow coastal zones for foraging, refuge, and nursery habitat. This study examined patterns of fish abundance and diversity along a living shoreline in Mosquito Lagoon, FL, which was restored from a 20-m concrete seawall in 2023. The living shoreline includes native vegetation and a fringing oyster reef. We hypothesized that the living shoreline would support a higher fish diversity than a hardened seawall due to increased habitat complexity. Fish species were surveyed with intermittent seine hauls along the shoreline between August 2023 and March 2026. We quantified abundance and biodiversity using several standard indices, such as species richness, the Shannon-Weiner index, and evenness. Despite seasonal variation, fish abundance and diversity have remained steady since restoration in 2023. We stress the importance of continued monitoring along this restored site, to better evaluate the importance of living shorelines as a sustainable coastal management strategy that protects shorelines while reducing biodiversity loss.

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Long Term Trends in Native Fish Density and Nitrate Environment in Florida Spring Ecosystems

Florida's natural springs are important ecosystems but are increasingly threatened by pollution from human activities. This study looked at 25 years of data from Blue Spring State Park in Volusia County, Florida to understand how rising nitrate levels, often linked to fertilizers and land use, may be affecting fish populations. By comparing long-term water quality data with fish surveys, we found that nitrate levels have generally increased over time, while populations of common native fish, like sunfish (Centrarchidae spp.) have declined. Other species like gar (Lepisosteus spp.), showed slight increase but

remained relatively low. Although we did not find a strong direct link between nitrate levels and fish numbers at specific locations, the overall trend suggests that long-term environmental changes are likely influencing the ecosystem. These findings highlight the importance of continued monitoring and protection efforts to preserve Florida's spring ecosystems.

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The effect of human activity on the sunfish populations at Volusia Blue Spring

Volusia Blue Spring's ecosystem provides a stable environment that serves as vital refuges for multiple sunfish species; however, this habitat experiences high volumes of human recreation. This study investigated whether human visitation has negatively affected sunfish populations in Volusia Blue Spring by integrating fish counts, conducted via GoPro cameras, and beach seining, with 25 years of historical population records and Florida State Park Service visitor data. Linear regression analyses of both yearly (2001-2025) and monthly (July 2024-July 2025) revealed no significant correlation between sunfish density and visitor attendance. While visitor numbers have risen steadily since 2001, sunfish density experienced a sharp, sudden decline between 2003 and 2008 and has only recently begun to rise again. These findings suggest that direct human recreation is not the primary driver of sunfish decline in Blue Spring, but the observed population trends may be linked to broader anthropogenic threats such as habitat degradation, land-use changes, or non-point source pollution, all of which require further targeted research to ensure effective conservation.

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Spectroscopic and Microscopic Analysis of Fluorescent Markers (Fluorescein and Quantum Dots) in *Vanessa Cardui* Butterfly Embryos

The trackability of fluorescent markers that are biologically compatible is important in the field of medicine as a means of tracking specific genes and cures. This project demonstrates the trackability of fluorescent markers, including Fluorescein and Quantum Dots, in living butterfly embryos. I initially spectroscopically analyzed each of the Quantum Dots and the Flourescein to have original data for their respective emissions. I then developed a technique for microinjection that preserved the viability of such embryos. I also curated a method of dissection of the embryos that proved to be successful in obtaining an intact caterpillar that could be used for microscopic analysis. I used wavelengths of light that matched the expected emission of the fluorescent marker to excite the marker to determine if cells of the embryo divided with traces of the marker. The Fluorescein dye was used for technique developments and proved to be trackable within forty eight hours of injection. The 630 nanometer Quantum Dot proved to be toxic to the embryos and was not biologically compatible. However, further investigation proved that there are biologically compatible fluorescent markers on the market that could be used in the future to prove their trackabilit

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Identifying afferent projections to the gustatory cortex activated by taste stimuli that utilize GABA as a neurotransmitter

The brain's gustatory cortex (GC) is a center as taste information integration from many areas of the brain including the somatosensory cortex, the hypothalamus, thalamus, and visceral cortex. This information travels to the gustatory cortex using a neurotransmitter. To investigate this connection, an intraoral canula was used to deliver a bitter stimuli and sweet stimuli individually to separate rats. The

brains were sectioned and treated, and Fos labeling was used to find active cells. Red retrograde tracer rhodamine spheres were used to label cells that projected to the GC, and green labeling was used to see which cells used GABA as the neurotransmitter. The locations and count of Fos labeled neurons, red retrograde tracer rhodamine spheres, and green label cells which mark for the neurotransmitter GABA were recorded in the contralateral GC, somatosensory cortex, hypothalamus, thalamus, and visceral cortex. The labels were analyzed for double labeling meaning that a cell was labeled for both Fos and red labeled cells or both red and green labeled cells. There were double labeled Fos and retrograde tracer cells, and only a very small amount of GABA and red labeled cells. Active cells did project to the gustatory cortex in response to the bitter and sweet stimuli, but the use of GABA as the neurotransmitter was not supported.

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Shoreline profile changes associated with beach nourishment and regional sediment characteristics in Volusia County, Florida

Coastal erosion is a persistent problem influenced by tropical cyclones, sea level rise, and human impacts. Beach nourishment replaces eroded sediment to maintain shoreline position, but because the drivers of erosion persist, projects typically require costly renourishment, highlighting the importance of evaluating sand persistence. This study assesses shoreline change during a beach nourishment project in the Ponce Inlet area and characterizes regional sediment grain size variability along Volusia beaches. Periodic beach transects were conducted before and during nourishment at Ponce Preserve, Winterhaven Park, Inlet Harbor, and Lighthouse Point Park. At Ponce Preserve, mean elevation along an 81m cross-shore transect increased from 0.96m above sea level prior to nourishment to 1.40m during sand placement, before declining to 0.90m. At Inlet Harbor, mean elevation along a 69m transect increased from 0.81m to 2.02m, before declining slightly to 1.93m. Winterhaven Park showed a smaller increase (0.66m to 0.87m) before returning to 0.66m, while Lighthouse Point Park, outside the nourishment area, exhibited minor variability. Data collection is ongoing. Sediment samples collected from Ormond-by-the-Sea to New Smyrna indicate alongshore variability in grain size. Although these sites did not coincide with monitored transects, grain size strongly influences beach slope and sediment transport and information about grain size distributions can inform nourishment strategies. Northern beaches were dominated by medium to fine sand (0.50-0.125mm) and had visibly steeper slopes, whereas middle and southern beaches consisted primarily of finer sand fractions (0.125-0.063mm) with gentler profiles. Baseline data collected before nourishment provides a reference for continued analysis of shoreline change.

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Temperature effects to fish biodiversity along a restored shoreline

Thermal preferences in fish are closely linked to their native habitat, and abrupt temperature shifts influence their behavior and physiology, such as upregulation of heat shock proteins. In addition, warmer oceans are causing changes in species distribution and loss of habitat. In this study, we evaluated the effect of temperature to fish abundance and biodiversity along a recently restored shoreline in Mosquito Lagoon, FL. We hypothesized that fish abundance and diversity would decrease at higher temperatures, due to thermal stress. During the sampling period (2023 – 2026), fish were collected via periodic seine hauls, and temperature ranged from 17 – 33 °C. The most abundant species was spotfin mojarra (*Eucinostomus argenteus*), followed by the bay anchovy (*Anchoa mitchilli*) and silver anchovy (*Engraulis eurystole*). While E. argenteus was commonly caught at lower temperatures, species richness increased at higher temperatures, contrary to our hypothesis. Rather than temperature alone,

we suspect that biodiversity was linked to seasonal patterns in reproduction, since Mosquito Lagoon serves as a nursery for juvenile fish.

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When to Deceive: Factors Influencing Caudal Luring in Pygmy Rattlesnakes

Many species of snake use caudal luring as a foraging tactic. Caudal luring is the movement of the snake's tail to mimic an insect to attract the snake's prey. A few factors that influence caudal luring have been studied, such as light levels and prey type, but these studies are often laboratory based or only looking at one factor. To find out what factors influence pygmy rattlesnake caudal luring, we recorded snakes foraging in the field. Younger snakes were more likely to lure than older snakes. We found that snakes were more likely to lure during the night, but time of day did not impact time spent luring. The amount of time it took a snake to start luring did not differ between the day and the night. Luring just before leaving only occurred during the day. Luring during the night increases the snake's likelihood of successful deception. Younger snakes may prefer different prey than older snakes, leading snakes to use different foraging strategies depending on their age. Understanding the factors that influence the use of deceptive signals allows us to better understand predator-prey dynamics and the evolution of aggressive mimicry.

Papers

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Success for Gen Z.

This project is a podcast mini-series that explores how university students navigate the pressure to define success while they are still becoming who they want to be. Through structured conversations and a pilot episode, the project creates space to examine expectations, uncertainty, and how definitions of success are formed during college.

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The Investigation of the Tautomerization of Symmetrical β-Diketones in Different Solvents*

β-diketones are chemical compounds that play an important role in medicine, including in the development of anti-cancer drugs. These compounds can exist and switch between two forms, 'keto' and 'enol', in a process known as keto-enol tautomerization. The balance between these two forms is determined by each tautomer's stability, which can be influenced by the nature of their substituents and solvent polarity. Understanding the stability of the tautomers in solution is imperative to maximize the overall effectiveness of β-diketone containing drugs. In this study, six symmetrical β-diketones will be analyzed in solution using computational (DFT Calculations) and experimental (IR and 1H NMR) techniques. The compounds have been categorized into two series based on the size and electronic properties of their substituents. Results indicated that the larger and more electron-withdrawing substituents favored the enol form, while solvents with a higher polarity favored the diketo form.

*This research was supported by the start-up funds provided by Stetson University's Department of Chemistry and Biochemistry, as well as the NSF S-STEM Scholarship.

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Conservative State Religion: Miami Cubans as the "Model Minority"

Why do Cuban Catholics in the United States overwhelmingly align with conservative ideologies, especially those of Donald Trump, in contrast to other Latin American minority groups? Cuban Americans are a statistical anomaly, differentiated as a "special" refugee class from other U.S. racial and ethnic minorities, as evident from specialized immigration policies (Maestrey 2022), government-funded business assistance (Mohl 1993) and political mobilization efforts (Ceresa 2017). Inspired by the work of Hank Johnston (1989) on "religio-oppositional subcultures" in Poland and Catalonia and the framework established by Jon Butler (1991) to observe the paradigm shift in Miami Cuban religiosity. This diaspora was once outwardly Catholic, structured in opposition to the communist regime after the 1959 Cuban Revolution, closely tying their faith to political agendas. However, traditional forms of religion and religiosity have become secondary to the Miami Cuban community since the turn of the 21st century. In this project, I propose that their devotion to conservative politics, wealth creation, and entrepreneurial success has culminated in the creation of a new 'state religion.' This movement carries observable characteristics of moral behavior, ethnic and spiritual heterogeneity, sacred space, and institutional authority (Butler 1991), in turn, classifying it as a religious movement that exists within the American experience.

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RNA-Seq Analysis of JAK/STAT Inhibition During Spermatid Individualization in *Drosophila melanogaster*

Spermiogenesis in *Drosophila melanogaster* provides a powerful model for studying the molecular mechanisms of sperm maturation and soma–germline communication. The terminal step of *Drosophila* spermiogenesis is individualization, where actin-based individualization complexes (ICs) migrate along interconnected spermatid bundles to remove cytoplasmic bridges and produce individual sperm. Individualization requires JAK/STAT signaling in somatic cyst cells, but the underlying signaling mechanisms of this process remain incompletely defined. A previous RNA-Seq study has identified 336 genes that were significantly downregulated in the absence of JAK/STAT pathway in the somatic cyst cells. My research investigated the possible roles of these candidate genes in regulating individualization and soma-germline interactions. To do this, I analyzed the functional and regulatory features of the 336 candidate genes by performing gene ontology (GO) analysis utilizing DAVID, PANTHER, and then integrated these results with STAT92E binding-site proximity. This study revealed that the downregulated gene set was significantly enriched for functional categories related to membrane localization and cell fate commitment, suggesting that JAK/STAT signaling in somatic cyst cells may regulate genes involved in membrane-associated processes and developmental regulation during individualization. These findings enabled the prioritization of a subset of candidate genes for further functional analysis using gene knockdown approaches to determine their roles in individualization.

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Outreach For Hope: Building a College Network with Cards2Warriors

My project is with cards2warriors, a nonprofit that sends encouraging, handmade cards to warriors fighting illnesses to uplift and support them. My project addresses challenges Cards2Warriors faces with low sign-ups for letters, limited fundraising and donations, and difficulties recruiting volunteers. Working with the organization, we realized that college campuses are the perfect environment to help

tackle these challenges. With that, I have created a networking guide for college campuses, that aims on using their big student communities to address the needs of the organization. The main steps in my project are breaking down ways to network and connect with different campus groups, like clubs, community centers, and the mental health, and health departments. My project so far resulted in a guide of do's and don'ts, effective spaces, and ways to reach the right audiences. This guide provides Cards2Warriors with a sustainable framework for outreach and networking on college campuses, which can be reused, adapted, and adjusted over time.

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How social media impacts physical health, and its consequences on your mental wellbeing

Our project is designed in order to relay exactly how social media impacts our mental health. As young adults we are aware that social media has negative impacts, but it is important to understand exactly how. By establishing the effects of both social media and physical health on mental wellbeing we are able to gather a understanding how these two have their own individual role in mental health. Our project joins these two different factors allowing us to gather a deeper understanding of how mental health is on a decline due to social media, which plays a defining role in the lives of all young adults. By doing so we may be able to find a solution that targets exactly why social media is harmful.

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Prompt Optimization for Large Language Models via Squirrel Search Algorithm

Adapting Large Language Models (LLMs) to perform effectively on specific tasks remains challenging. Traditional methods such as Full Fine-Tuning (FFT) employ backpropagation to update model parameters, incurring substantial computational and temporal costs. Furthermore, access to internal parameters is restricted for black- box models deployed through APIs, rendering gradient-based approaches infeasible. Parameter-Efficient Fine-Tuning (PEFT) techniques, particularly prompt tuning, address these limitations by optimizing task performance on frozen LLMs through systematic prompt engineering rather than parameter modification. However, prompt optimization constitutes a discrete combinatorial problem amenable to metaheuristic solutions that seek near-optimal configurations rather than guaranteed global optima. This work presents a novel application of the Squirrel Search Algorithm (SSA) to automated prompt optimization, encoding prompts as continuous genome vectors representing instruction templates, reasoning strategies, and output formats. We evaluate our approach on sentiment analysis tasks using 3.8B-20B parameter models, achieving relative fitness reductions of up to 57% with convergence within 10-33 iterations. Our results demonstrate that nature-inspired meta-heuristic algorithms provide a viable gradient-free alternative for black-box LLM adaptation.

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Rapamycin Inhibits Developmental Progression and TOR Signaling in *Vanessa cardui* Painted Lady Butterfly Larvae*

Aging is associated with an increased risk of many diseases, creating an urgent need to find therapeutic strategies to mitigate its associated burden. The Target of Rapamycin (TOR) signaling pathway is tightly linked to longevity because of its role in regulating cellular growth. Inhibiting this pathway with rapamycin has been shown to extend lifespan in multiple organisms, but its effects in butterflies remain unknown. We hypothesized that if TOR signaling is conserved in *Vanessa cardui*, chronic rapamycin

treatment would alter developmental progression and the activity of key proteins within this pathway. To test this, larvae were chronically treated with rapamycin and assessed for developmental timing and lifespan, while TOR signaling activity was evaluated using western blot analysis of S6K1, 4EBP1, and Akt proteins. Interestingly, rapamycin significantly delayed larval development, doubling larval lifespan, but impaired successful metamorphosis into butterflies. Additionally, the activity of proteins involved in the TOR pathway was altered in treated larvae. Overall, these findings support functional evolutionary conservation of the TOR pathway in butterflies and underscore the importance of continued research into its role in development and aging.
*This research was supported by the 2025 Stetson SURE Grant. Presented at Annual Biomedical Research Conference for Minoritized Scientists

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Sounds of Resistance: A Rhetorical Criticism of Bad Bunny's *Debí Tirar Más Fotos*
This study analyzes Puerto Rican artist Bad Bunny's 2025 album *Debí Tirar Más Fotos* as a form of anti-colonialist rhetoric. Using rhetorical criticism, it examines how lyrics, sound, and persona communicate Puerto Rican identity and Latin American identity for global audiences. The project focuses on the intrinsic elements of persona and audience to explore how Bad Bunny's fusion of traditional and modern Caribbean sounds create different listening experiences across different cultural contexts. Performances will also be studied as extrinsic elements as they extend the album's message. This research contributes to communication scholarship by showing how popular music operates as a persuasive medium, transforming entertainment into protest against colonialism and cultural resistance

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Currents 222
The five-track conceptual EP Currents 222 chronologically moves the listener through the stages of grief, from the disoriented shock of denial through the fear of losing someone or something, bargaining, and depression to a nuanced yet honest acceptance.

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Amyloid beta expression in *Caenorhabditis elegans* neurons affect on osmotic avoidance behavior over time
Pan-neuronal expression of human amyloid beta ($A\beta_{1-42}$) in *Caenorhabditis elegans* is used to model Alzheimer's disease–related neurodegeneration, but its impact on basic nociceptive behaviors remains unclear. In this study, I used an 8 M glycerol ring osmotic avoidance assay to compare escape behavior in wild-type N2 worms and the pan-neuronal Aβ-expressing strain CL2355 at 3, 7, and 9 days post egg hatching exposure. These findings indicate that, under the strong hyperosmotic conditions tested, pan-neuronal Aβ expression in CL2355 does not produce a detectable deficit in osmotic avoidance, suggesting that the ASH-centered nociceptive circuit remains functionally competent in young Aβ-expressing animals. I propose that future experiments using lower osmolarities and more sensitive, continuous behavioral measures (such as escape latency) will be necessary to uncover subtler Aβ-induced impairments.

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Resonance When Language Fails

We are developing a narrative-based project that examines music as a primary mode of self-expression, one in which individuals choose melody, harmony, and rhythm over spoken opinion, to engage reflective listeners and emerging musicians, and by April it will culminate in a refined, academically grounded work that articulates music's role as an inner voice.

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Evaluating the Impact of Vaccination on Dengue Incidence: An Econometric Analysis of São Paulo

This study examines the determinants of dengue fever incidence in São Paulo, Brazil, with a focus on evaluating the impact of environmental, socioeconomic, and public health factors before and after the introduction of dengue vaccination. Using a time series and panel data econometric framework, the analysis incorporates variables including precipitation, humidity, temperature (minimu and maximum), gross domestic product (GDP), health expenditures, education levels, and vaccine implementation. The model applies a log-linear specification to account for nonlinearity and to allow for elasticity interpretation of key variables. Environmental factors such as precipitation and humidity are expected to increase dengue cases by expanding mosquito breeding sites, while temperature effects are modeled with a nonlinear specification to capture biological thresholds in mosquito development. Socioeconomic variables, including GDP and education, serve as proxies for urbanization and population density, while health expenditures and vaccination are expected to reduce transmission. By comparing pre- and post-vaccine periods, this study aims to isolate the policy impact of dengue immunization efforts while controlling for confounding factors. The results of this study will inform on the impacts of vaccination in dengue prevention and contribute to evidence-based public health policy.

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Program development for science teaching at afterschool programs

This project aimed to develop an accessible science education booklet for kindergarten through 5th grade students, as well as for volunteers without a science background. The booklet includes 25 interactive science demonstrations and games designed to teach key concepts in natural science, including acid-base reactions, amphiphilic molecules, and the electron transport chain in cellular energy production. Activities were intentionally designed to be hands-on, engaging, and adaptable to different learning levels. In addition to developing and editing the booklet, the material was distributed both as a physical copy to the Chisholm Community Center and digitally through the American Chemical Society student chapter's Instagram page. To demonstrate practical implementation, outreach visits were conducted at the center, where selected activities, such as the brown apple experiment, diffusion art, soap tag, and the electron chain race, were facilitated with students. Instruction was tailored to meet the needs of different age groups, specifically kindergarten through 2nd grade and 3rd through 5th grade, ensuring clarity and engagement across developmental levels. Overall, this project contributed to capacity building and program development at the Chisholm Community Center by providing sustainable, accessible, and engaging science education resources.

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Agent-Based Modeling of Patrol Operations: Staffing Analysis for the DeLand Police Department

Police departments rely on a single number sent from the FBI to determine staffing levels. This number has proven insufficient for many police departments in the US, which believe the population-based

model that the FBI uses does not properly capture the city's demand for officers. This study develops a predictive model to more accurately estimate the number of officers needed in DeLand, Florida. The analysis uses 10 years of calls-for-service datxxxxxxxxa, and maps received from the police department and DeLand office of planning. We propose an agent-based computer simulation to model patrol officer behavior and test various staffing changes. The resulting model aims to provide actionable guidance for staffing decisions that account for city growth and departmental changes.

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The Superstructuralist Cycle: Explained through Authorial Theory and *Animal Farm*

This project reconsiders the relationship between structuralism, post-structuralism, and authorship to propose what is called The Superstructuralist Cycle. Literary theory is often taught as a linear progression that culminates in Derridean Deconstruction and the pessimistic claim that meaning can never stabilize. In contrast, this paper argues that meanings and structures do in fact re-form over time, and that we need a model capable of accounting for both instability and re-stabilization. Drawing on Richard Harland's concept of Superstructuralism, (which inverts Marx's "base–superstructure" model), this system prioritizes language, discourse, and culture over the economic base. The paper first sketches the emergence of structuralism (Saussure, Lévi-Strauss, early Barthes) and its critique by post-structuralism (Derrida). Then, turns to "authorial theory," focusing on Roland Barthes's "The Death of the Author", Sean Burke's *The Death and Return of the Author*, and Jane Gallop's *The Deaths of the Author*. Burke and Gallop both reveal that the "death of the author" itself operates cyclically and temporally: the author is repeatedly declared dead only to return in critical practice and in changing historical receptions. Building on Harland's dynamic structures and these cyclical theories of authorship, the paper presents the Superstructuralist Cycle as a model in which existing structures are periodically destabilized by post-structuralist critique and new contexts, then partially re-stabilized in revised forms. This allows for a system in which both the original meaning intended by the author and the readers' new interpretation are equally acknowledged and can be compared and contrasted. Finally, the paper applies this model to George Orwell's *Animal Farm*, demonstrating how the text navigates between socialist, anti-Stalinist, and anti-socialist Cold War structures without altering its words. The paper concludes by suggesting that the Super-structuralist Cycle offers a productive way to rethink literary theory and provides a more complete lens for engaging literary texts.

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Mental and Physical Health Disparities in Marginalized Communities

Healthcare disparities are a continuous barrier that keeps individuals from receiving equitable care, particularly those within low-resource and low-access communities. The different social determinants of health (SDOH), including income, education, employment, housing, and access to care, all shape the outcomes of health. Marginalized populations disproportionately experience inadequate healthcare access, lower preventive screening rates, higher chronic disease burden, and unmet mental health needs. This Scholarly Article examines the interconnected effects of healthcare disparities on mental and physical health, highlighting evidence from community-based research and interventions. By distinguishing between global health and international health frameworks, the importance of equity-focused, interdisciplinary, and sustainable strategies both domestically and abroad is emphasized. Current initiatives—including community health centers and equity-driven hospital outreach programs—demonstrate progress but also reveal ongoing systemic challenges. Ultimately, expanding culturally responsive care, embedding services within communities, and addressing social determinants

of health are critical steps toward reducing disparities and promoting equitable mental and physical health outcomes worldwide.

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Feeling Seen: Parasocial Relationships, Emotional Attachment, and Identity in Fan Culture

Fandom today is more than just entertainment – it's a way people find belonging, comfort, and connection. In this research, I looked at how fans form emotional attachments to celebrities through parasocial relationships and how those bonds shape identity. My study focused on young adult fans, ages 18–30, who are active in different fandoms and social media communities. Using qualitative semistructured interviews and narrative inquiry, I completed ten interviews and analyzed them through primary and secondary coding. Through the lens of affect studies, parasocial relationship theory, and Goffman's theory of the performance of self, I organized my findings into two major themes. The first theme shows that fans form imagined bonds with celebrities through repeated media exposure, familiarity, comfort, and one-sided feelings of closeness. The second theme shows that fandom can shape identity performance by giving fans role models, qualities to admire, and ways of expressing who they are or want to become. Overall, this research shows that fandom is not just a hobby – it's a meaningful part of how people understand themselves and feel connected in today's digital world.

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Unshaken. Rooted. Marked

How can a person find a rooted Christian identity to become unshaken by modern confusion and marked with purpose? The answer for many young adults today is hidden by a world that determines their identity. The first episode of a three-episode podcast series aimed towards 15 to 21 year-olds will explore how individuals can establish a firm Christian identity, enabling them to resist confusion and embrace a sense of purpose. This first episode will consist around the first name if my tittle "Unshaken." This podcast will provide guidance to those who feel lost in themselves living in a society that impacts us all. It could be our jobs, colleges or universities, our friends, bad influences, families, etc. These factors all impact our thoughts and shape who we are. I want to encourage those who are feeling lost in Christ that it is not society who tells you who you are, but your Father in Heaven who calls you His own.

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A Data-Driven Framework for Optimizing Police Patrol and Response Time

This project develops a data-driven framework to optimize police patrol allocation and improve response times in collaboration with the DeLand Police Department and the City of DeLand. Using realworld police and municipal datasets, the study analyzes spatial and temporal patterns of crime, service calls, and traffic incidents across Volusia County. By applying computa4onal modeling and sta4s4cal analysis, the project identifies high-demand areas and predicts future patrol needs under varying conditions. The framework incorporates factors such as call frequency, officer availability, and geographic distribution to simulate and evaluate different patrol strategies. These simulations aim to reduce response times, improve resource efficiency, and enhance overall public safety. The long-term goal is to develop a scalable decision-support tool that assists law enforcement agencies in making proactive, data-informed decisions. This research demonstrates how mathematical and computa4onal approaches can be applied to real-world public safety challenges

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FINCON-SEC: Reinforcing Financial LLMs with Zero Trust and Adversarial Resilience

Artificial intelligence systems that manage financial portfolios are becoming increasingly powerful, but they remain vulnerable to manipulation. When multiple AI agents work together to make trading decisions, a single compromised agent can mislead the entire system, leading to financial losses or exploitation. This research extends FINCON, a multi-agent financial AI framework presented at NeurIPS 2024, by adding a Zero Trust security layer called FINCON-SEC. In this design, no agent is automatically trusted and every message is verified through identity checks, role enforcement, performance tracking, and integrity validation before it can influence a trading decision. The system also defends against adversarial attacks including message tampering, agent impersonation, and prompt injection. Testing on a portfolio of technology stocks demonstrates that the security layer successfully detects simulated attack types while preserving the system's ability to coordinate financial analysis across sentiment, quantitative, and fundamental domains. This work establishes an architectural foundation for building AI trading systems that are both intelligent and resilient against adversarial threats.

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Lennar Corporation Sell Recommendation

Lennar Corporation faces a convergence of structural and cyclical pressures that challenge the durability of its current earnings profile. The firm’s operating model prioritizes sales pace over price, which has historically supported volume growth but becomes margin-destructive in a slowing demand environment, where incentives rather than price cuts sustain sales. This dynamic is amplified by elevated cost structures, with construction inputs representing roughly 65% of average selling prices, leaving limited flexibility as affordability deteriorates. Demand itself is increasingly constrained with the U.S. price-to-income ratio doubling since 2000, placing most households below the income threshold required to purchase Lennar’s homes. Their geographic concentration also amplifies this exposure. Approximately half of Lennar's closings are in Florida and Texas, markets that led both pandemic-era appreciation and subsequent price correction. While mortgage rate lock-in has temporarily restricted resale supply, any easing in rates would release existing inventory onto the market, intensifying competition and prolonging incentive-driven selling. From a valuation perspective, Lennar’s earnings remain sensitive to declining returns on equity and fading residual income. The firm’s current positioning reflects a fragile balance that depends on sustained demand, controlled costs, and limited resale competition, all of which appear increasingly difficult to maintain.

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Trans Feminine Creatives: Trans Women Within the Arts*

Whether it be in the music you listen to on a daily basis, a videogame either you or someone you know holds dear, or a model you have seen on the cover of a magazine, there is a chance that the woman behind the art is talented, successful, and transgender. The more representation given to those who are transgender, the more the idea of someone transitioning becomes normal to those who do not already deem it so. Even though it may be a small step towards a much longer road of self-education on the topic, it is certainly a spark that can lead society to a more understanding and accepting future. Not only does this representation serve the purpose of helping those who are less tolerant than others, but it also helps those who may not know why they feel so wrong. The first step down the road of

transitioning is being knowledgeable that you can transition as well as being in an environment where that is possible.
*Recipient 2026 First Year Seminar Essay Award

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A Framework for Successful Community Engagement

This project presents two structured event planning timelines for the major community events "FORE the Village" and "Stuff Your Face Race". Each timeline outlines key tasks required for successful execution, paired with brief descriptions that clarify the purpose and expectations of each step. Tasks are organized by relative deadlines to ensure effective time management and coordination.
"Stuff Your Face Race" is a multi-format race event featuring a 5K, 10K, and relay, while "FORE the Village" is a TopGolf-based fundraiser that includes a 50/50 raffle and silent auction. Proceeds from both events benefit IMPOWER, supporting its mission and community impact. The timelines incorporate a wide range of responsibilities, including developing social media strategies, coordinating volunteers, securing photographers, requesting donations, and obtaining vendor sponsorships. By breaking down complex planning processes into manageable steps, this project provides a practical and user-friendly framework for student organizations and nonprofit teams. Ultimately, it serves as a replicable model that promotes organization, collaboration, and proactive preparation for large-scale events.

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Lululemon Stockpitch

This research evaluates Lululemon Athletica as an investment opportunity within the athletic apparel industry, with a focus on the intersection of financial performance and corporate social responsibility (CSR). As the industry faces increasing scrutiny around supply chain practices, labor conditions, and environmental impact, firms are no longer evaluated solely on financial outcomes, but also on how effectively they manage operational and reputational risk. Our analysis compares Lululemon to key competitors including Nike, Adidas, and Under Armour, assessing performance across growth, profitability, capital efficiency, and risk exposure. We introduce a risk-adjusted growth framework, demonstrating that Lululemon generates superior revenue growth per unit of risk relative to its peer group. This reflects disciplined execution, strong brand positioning, and a high-margin direct-to-consumer model. In addition to financial strength, we evaluate Lululemon's ESG framework, including supply chain oversight, environmental commitments, and governance structure. The company's high supplier audit coverage, third-party validation, and proactive sustainability initiatives position it as a lower-risk operator in an industry often exposed to ethical and regulatory challenges. Our findings support a buy recommendation, supported by strong margins, international expansion opportunities, and continued category growth. More broadly, this research highlights how integrating CSR into core strategy can enhance long-term value creation and reduce downside risk.

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Morgan Le Fay: Enchantress Through the Ages

The project explores the evolving portrayal of Morgan Le Fay in literature, reflecting broader societal changes and attitudes toward femininity, power, and autonomy. Initially depicted as a healer and a respected figure in Geoffrey of Monmouth's Vita Merlini, Morgan's character underwent a significant transformation during the medieval period, being portrayed as a power-hungry villainess, as notably seen in Thomas Malory's Le Morte D'Arthur. This narrative shift illustrates how medieval literature often

demonized strong female characters, aligning them with the fears of patriarchal structures. The research highlights challenges in studying Morgan's character due to the lack of a single defining text and her non-linear evolution through various cultural lenses, from Celtic mythological roots to modern reinterpretations. These layers of complexity reveal tensions between traditional and contemporary views of female power, particularly as feminism gained traction. Artistic depictions of Morgan also evolved, with early images presenting her as benevolent and wise, while later interpretations, especially in the Renaissance and Victorian periods, framed her as a femme fatale or a villain. This artistic trajectory underscores shifting perceptions of women's roles, especially regarding their autonomy and sexuality. Ultimately, the project posits that Morgan Le Fay embodies the ongoing struggle for female empowerment and complexity in narratives, transitioning from a figure of fear and misunderstanding to one that is increasingly reclaimed as a symbol of wisdom, strength, and resistance against the onstraints of patriarchal society.

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Disrupting Incivility in the Workplace: A Curriculum for Organizations

This project is connected to the Central Florida Pledge sponsored by the Ginsburg Family Foundation. The Central Florida Pledge is a bold project on a mission to make Central Florida America's most welcoming community, where neighbors treat each other with dignity and respect, especially when we disagree. The Pledge encourages businesses, academic institutions, public offices, among others, to commit to this vision by signing the Pledge. With the rapid growth of the movement, my project is to respond to the need to find ways not only for organizations to sign and commit to the values of the Pledge but also to live them out. This involves creating a curriculum built purposely to provide organizations with the tools and resources to practice and live out the Pledge. The process began with a deep dive into what and who was doing this work, and what we could learn from them; we called this "going big", and then narrowed down on those we found could apply to organizational contexts; going narrow. The result was a comprehensive resource pool compiled with organizations in mind.

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Low Salience, High Opinions: Partisan Cueing and Polarization

Education is often considered a cornerstone of democracy, traditionally siting outside of the sphere of partisanship. However, increasing polarization in the United States has recently affected educational policies, with issues such as Critical Race Theory, LGBTQIA+ students, superintendent elections, and book restrictions drawing more attention. What causes increased polarization among the public on low salience education policy issues like education? To settle scholarly debate on this issue, this project public attitudes towards book restrictions, a critical case of polarization on educational policy. Through two separate survey experiments, I test how exposure to indirect cueing, through partisan values such as issues of gender identity and race, and direct cueing of elite political actors influence the public's opinions. I find that cueing increases partisan polarization on book restriction legislation. This research expands scholarship on low-salience issues, identifying a key underlining mechanism of public polarization.

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Women Take Flight: Soviet and American Women challenging Gender Dialogue in WWII*

In World War II, many women were eager to use of their gifts as pilots, engineers, navigators, and more to serve their country in the Airforce. Marina Raskova in the Soviet Union and Jacqueline Cochran in the

United States gained authorization for all female regiments. However, their programs had varied authorizations. Women in the Soviet Union flew thousands of combat missions on the front lines. Women in the US WASP program acted in “arial dishwashing” roles, such as ferrying pilots and tow target carriers to allow men to take on more missions. In both cases, there was an erasure of their efforts after the war. This project views the legacies of these women and how they viewed their service. This work advances the understanding of women’s mobilization globally in WWII by analyzing the extent womanhood presented itself as a barrier to service in the military. This is a crucial moment where women fought to step into traditionally masculine fields, one step on the journey of opening doors for the generations of women who come after them.
*Supported by 2025 SURE Grant. Presented at the 2026 Florida Society of the Social Sciences Conference

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Should an ESG-focused board member be appointed for a non-ESG Fund?*

This presentation by the McGill Team examines the ethical dilemma confronting a BlackRock fund manager deciding whether to support a climate-focused board seat proposal at Peabody Energy. Research was conducted using Peabody's board composition data, BlackRock's fund prospectus, antitrust case filings, and peer-reviewed financial economics literature. Findings revealed that the fund carried no ESG mandate, Peabody's board already held meaningful climate-aligned representation, and a coordinated yes vote risked violating Sherman and Clayton Act provisions. The team recommended voting against the proposal while implementing a Financially-Driven Stewardship framework. Five solutions were proposed: immediate voting rationale disclosure with fiduciary duty linkage, a Client-Aligned Stewardship Framework distinguishing passive from ESG mandates, a public transparency dashboard, an Independent Ethics and Risk Committee, and continuous compliance auditing with bias detection. These recommendations provide BlackRock a clear path toward preserving mandate integrity while responsibly exercising its systemic influence as the world's largest asset manager
* McGill Business Ethics Competition, Business Ethics Case Competition Team

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A Forged Melting Pot: The Impact of Aliquippa Steel Mills in a Mid-century Pennsylvanian Town

The study that follows investigates the intertwined economic and social forces thar shape Aliquippa, Pennsylvania as well as the various other cities found in the steel valley, also now referred to as the Rust Belt, during the high of the American steel industry. Though James & Laughlin Steel Company created various work opportunities for waves of a immigrants, a majority coming from Eastern Europe, and economic growth for Aliquippa this research argues that the legacy that follows J&L Steel is not solely industrial power and prosperity but instead the unique cultural divisions that the company created throughout the city. The center piece of this research is the Plan System, though other factory towns across the United States also use deliberate social divisions in their cities Aliquippa’s Plan System segregated workers by ethnicity, race, and occupational status which reinforces divisions of the time. Using oral histories, municipal documents, and work from John Bodnar, John Hinshaw, S. J. Kleinberg, and others this paper explores Aliquippa in the constellations of factory towns in the US. This study concludes that the collapse of the steel industry exposes the fragile nature of industry/factory towns, whose economic survival and social organization depended on overall corporate paternalism.

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Questioning the Prompt
This project attempts to see if undergraduate students can discern between a human written piece and an AI generated one. The project will use student responses from various backgrounds compiled together as well as various sources that will back up these claims.

Elizabeth Duffy (Daniel James Scott)
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Professor Jupiter Industries Showcase Pitch
Professor Jupiter Industries founded by Elizabeth Duffy is going to be pitching its first venture, vending machine management. This entrepreneur has set out to change how vending machines are managed to remove all the frustrations that come with using a vending machine. Four aspects that will revolutionize the industry are a more rigorous maintenance schedule, inventory management reminiscent of proper store fronts, unique branding, and finally a communication app and system that will connect customers directly to a management hub ran by people that can solve customer problems that come up. This start-up was conceived in Fall 2025, but this Spring ideas have been fleshed out under the advice of Daniel Scott and other business school professors. Multiple pitch competitions have been attended to secure funding. Elizabeth Duffy is looking forward to presenting her management system innovations for vending machines.

Elena Edwards (Dr. Sarah Beaumier-Garcia)
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The Effects of tDCS on Pitch Perception in Musicians and Non-Musicians*
Pitch perception is the ability to distinguish musical notes of different frequencies and intervals, allowing one to perceive the shape and characteristics of melodies. Improving this process may enhance musical ability. Transcranial direct current stimulation (tDCS) can influence cognition, perception, and behavior by decreasing neuronal activation thresholds. Using tDCS on the right Heschl's gyrus, an area suggested to process pitch perception, may improve intonation detection by lowering the threshold for just noticeable difference (JND) between two notes. This study investigated tDCS effects on pitch perception in musicians and non-musicians. We hypothesized that active tDCS will lower JND threshold compared to control, and that this difference will be more pronounced in musicians. Participants completed questionnaires, were randomized to active or sham tDCS, and performed a pitch discrimination task. The study collected 35 participants, with a mean age of 20.7 (SD = 2.83), 20% male (n = 7), and 28.6% musicians (n = 10). Results indicated no significant difference between musicians and non-musicians, ($F(1, 35) = 1.86$, $p = .18$) or tDCS groups ($F(1, 35) = 2.93$, $p = .10$) and no significant interaction ($F(1,35) = 0.63$, $p = .43$). These findings suggest that tDCS on Heschl's gyrus may not benefit pitch perception, though other temporal lobe areas should be investigated such as the inferior frontal gyrus (Leipold et al., 2019).
*Supported by a 2025 SURE Grant. Presented at the 2026 Southeastern Psychological Association Conference

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Regional Nutrient Enrichment and Odonate Nymph Diversity in Urban and Forested Freshwater Ponds of Central Florida
Freshwater ecosystems are sensitive to nutrient pollution, making aquatic insects valuable indicators of water quality. This study investigated the relationship between nutrient levels and odonate (dragonfly

and damselfly) nymph diversity and abundance across four freshwater ponds in Central Florida. Two sites in the Ocala National Forest (Hop 1 and Hop 2) represented less-disturbed reference habitats, while two urban ponds in DeLand (Earl Brown and Painter Pond) reflected human impacted conditions. Odonate nymphs were collected weekly for three weeks using standardized net sweeps, identified to genus, and analyzed alongside water samples for total nitrogen and phosphorus using an Autoanalyzer AQ300. Diversity was quantified using the Shannon Wiener Index (H'), and t-tests compared mean nutrient levels and nymph abundance between regions. Phosphate concentrations were significantly higher in DeLand ponds than in Ocala sites ($p = 0.01$), while nitrate ($p = 0.12$) and odonate abundance ($p = 0.37$) differences were not significant. Painter Pond exhibited the highest diversity ($H' = 1.67$) and Earl Brown Pond the lowest ($H' = 0.53$), indicating variation in diversity among ponds that was not strictly aligned with regional nutrient differences. These findings indicate that nutrient loading is associated with variation in odonate assemblages and highlight their potential as effective bioindicators of freshwater ecosystem health in Central Florida.

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Economic Evaluation of Increased Green Space in Living Areas of North Central Florida

This study evaluates the economic impact of green space on residential property values in North Central Florida. Using hedonic pricing models and Geographic Information System (GIS) methods, we analyze sales data of single-family home from counties participating in the Surface to Springs conservation program. Backing initial expectations, results indicate that proximity to green space is associated with higher housing values, with properties experiencing a 0.13% decrease in sales price per additional kilometer of distance from green space. These findings suggest that strategic green space developments, with simultaneous infrastructure development considerations can yield as a favorable option for city and county planners

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Ladies, Let's Get In Formation: Beyoncé, Therapeutic Rhetoric and Depoliticization in Pop Culture

In this research project, I argue that Beyoncé's self-presentations of feminist empowerment in her music videos function under therapeutic rhetoric and therefore depoliticize women from taking collective action against a bigger discriminatory system through the incentive of individual action. I specifically look at Beyoncé's "Run the World (Girls)" (2011) and "Formation" (2016) music videos to show how her lyrics and visuals point at women's issues being portrayed as individual and relatively easy to solve through individualized action powered by bold effort. Beyoncé does so through the inclusion of elements that hint at genuine empowering representations of feminism but that in reality fall short as depoliticizing messages because they encourage individual blame rather than collective action. I analyze the lyrics and music video visuals through the theory of "therapeutic rhetoric" in popular media and culture brought by Naomi Rockler (2006). I argue that, even after Beyoncé shifted to a more systemic representation of race in her album Lemonade, her self-presentations surrounding gender identity remained therapeutic and depoliticizing.

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"Tech"-ing Timebomb: How Tech has Changed Childhoods Forever

In preparation for my Honors Nexus project, I have made five (simple) models of each of the main sculptures I plan on creating for my final exhibit next year. My project is being used to portray the

effects of internet access on children, more specifically, young girls. Each model focuses on a different aspect of this topic, and I hope to tell a story with them as a whole. The effects of technology on children are important to consider, especially with the rapid development of our world. Children are no longer seeing themselves as children and spend a large amount of time on their devices, which distance them from reality. My future goal is to represent these widespread issues in a sculptural format using found materials and hopefully providing an understanding of a currently normalized problem.

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Punishment as Political Language: The Ideational Foundations of Rehabilitation's Marginalization in U.S. Prisons

Why does punishment continue to dominate the United States penal system despite strong empirical evidence supporting rehabilitation? This paper addresses this paradox by examining the historical and ideological foundations of American penal policy. While existing explanations rooted in historical institutionalism, cultural theory, and political-economical perspectives account for the persistence of punitive practices, they do not fully explain their origins. This study argues that the marginalization of rehabilitation reflects a punitive logic embedded in the moral and political language of early American thought. Using Quentin Skinner's contextualist method, the analysis examines founding-era texts to identify how concepts such as virtue, order, discipline, and responsibility were used to justify punishment as necessary for maintaining social and political stability. The findings demonstrate that punishment was consistently framed as essential to moral order and civic authority, while rehabilitation emerged within a framework already structured by discipline and control. This historical logic continues to constrain the role of rehabilitation in contemporary American prisons.

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Invisible Hand of The Balkans: Post-Soviet Interstate Warfare as a Comparative Confederal Concept*

In this paper, I reframe Russian military intervention in the FSU through a comparative confederal lens to resolve research debates regarding Russian aggression. Building on Valerie Bunce's (1998) analysis of Yugoslavia's collapse, I conceptualize the Commonwealth of Independent States and its affiliated institutions as a loose "CIS+" confederation. Within CIS+, Russia perceives a confederal-like sphere encompassing most of FSU. Therein, former Soviet states' elite-and-public pursuit of integration with other confederal or federal structures constitutes a *de facto* secession bid. Russia resorts to military intervention to preserve CIS+ when other methods fail. Using qualitative process tracing, I test this hypothesis across paired comparisons: a) Russian intervention in Georgia (2008), Ukraine (2014); b) Russian escalation in Ukraine (2022), non-intervention in Georgia (2023-2025). I find that four-factor elite-and-public bids for secession from CIS+ – elites framing Russia as an enemy, elites and publics aligning with alternative (con)federations, and publics perceiving Russia as a threat – precede Russian invasions. When these bids are withdrawn, like by the elites during Georgia's current constitutional crisis, Russian military escalation does not follow. The CIS+ framework reconciles contradictions in institutional, historical, and geopolitical explanations of post-Soviet warfare and proposes a generalizable secession-proofing model for informal confederacies.

*Supported by 2025 SURE Grant. Presented at the 2026 Southern Conference on Slavic Studies.

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The Influence of Educational Video Interventions on Hurricane Risk Perception: The Role of Affective Response and Graphical Literacy*

The cone of uncertainty has been shown to be frequently misunderstood by the public (Cass et al., 2023; Witt et al., 2023). This study examined how different educational interventions influence people's understanding of hurricane risk and the role of graphical literacy and cognitive-affective risk perception in shaping risk judgments. A total of 160 online participants completed measures of graph literacy and cognitive-affective risk perception before being randomly assigned to one of three conditions: Control (no video), NOAA (professional educational video), and TikTok (short-form, visually engaging video). After the intervention, participants rated the perceived risk of three locations in a hypothetical hurricane scenario representing low, moderate, and high-risk zones. Results from 3 x 3 Mixed ANOVA revealed a significant interaction between intervention type and risk level, with participants from the TikTok condition better interpreting risk than the other groups. No significant effect was found for graphical literacy however multiple regression analysis demonstrated that affective risk perception was a significant predictor of high-risk ratings in the control condition, but this emotional influence was significantly attenuated in both video intervention conditions. These findings suggest that short, visually engaging educational videos may improve public comprehension of hurricane forecasts by reducing reliance on emotional responses.

*Supported by a 2025 SURE Grant. Will present at the 2026 Association for Psychological Science Annual Convention, May 2026.

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From repression to human rights: the case of Michelle Bachelet in Chile

How do women presidents' personal experiences of repression shape the priority and implementation of human-rights policies once in office? Through a case study of Michelle Bachelet's presidency, I combine content analysis and process tracing of primary sources and presidential speeches from both terms in office, to examine the concept of biography salience, defined as the extent to which a president's experience with repression is publicly invoked and treated as central to her political identity. Drawing on Christian Davenport's ideas that repression has afterlives, I argue that when repression-linked biography is politically salient, it can function as a source of moral authority which helps elevate human rights on the executive agenda and encourages a rhetorical register centered on dignity, recognition, memory, and care. However, these effects are conditional on whether rights-based commitments become durable policy outcomes which depend on coalition alignment, institutional capacity, and the legal-institutional legacies of authoritarian rule. These findings contribute to the scholarship on women's executive leadership, transitional justice, and human rights politics by showing that repression-linked biography matters not as an automatic cause of rights-based policy, but as a conditional source of moral authority whose effects depend on institutional capacity, coalition alignment, and the gendered politics of the executive power.

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Transformations With The Teen Court Program of Volusia County

My Junior Capstone project is titled "Transformations with Teen Court: State of Florida's 7th Judicial Circuit." Teen Court programs aim to prevent and reduce juvenile delinquency by offering an alternative to the traditional justice system. These judicial diversion programs emphasize accountability and personal growth by using "positive peer pressure" and appropriate sanctions to help young offenders

understand the consequences of their actions while encouraging constructive behavior. The problem my project addresses is the lack of clarity in the descriptions of the optional sanctions that the jury panel of teenagers can impose as part of a defendant's verdict. My project addresses this problem by proposing a new pamphlet for Teen Court volunteers that describes each sanction. The main steps in my project were finding the appropriate platform to create the document and following the previously established formatting used by Teen Court. After completing these steps, I was able to create a draft PDF pamphlet that can be updated if any new sanctions arise. This will allow Teen Court staff to use this pamphlet indefinitely. Once finalized, this pamphlet will help the volunteers assign sanctions that better align with the defendant's case and charges

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A Tale of Masculinity and Honor: The Duel in Europe*

Dueling was a deeply ingrained aspect of upper-class identity in Medieval Europe. Dueling would be used to settle legal disputes in court, as a private method of settlement between nobles, as a sporting activity, and as a method to settle battles between countries. Dueling was so central to the identity of the Medieval Noble that it would be incorporated into various law codes across Medieval Europe. However, as Europe evolved and modernized, dueling started to lose favor. In the court room, trial law was starting to gain a foothold as the preferred method of legal arbitration. On the battlefield the ideals of chivalry and the duel between champions were slowly being replaced by conscript and mercenary armies. Dueling was being denounced by the Catholic Church and various other state authorities that saw dueling as an archaic practice that modern society no longer needed. Despite everything, dueling would survive. The nobles of Europe were not about to let the tradition that they banked their identity on die, but why? The reason was simple; dueling filled a void that trial law could not. Dueling provided a means to arbitrate honor and manhood, ideals that existed outside of jurisprudence.

*Supported by a 2025 Evans Johnson Grant

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Fan Edits and Feminism: TikTok's Participatory Practices

This study explores how fans use textual poaching to initiate conversations around real-world values and build communities within online digital media spaces like TikTok. Focusing on a specific group of TikTok content creators called "editors," I observed 10 editor profiles within the fanbase of the romance series The Summer I Turned Pretty. To determine how real-world beliefs function in this online community, I used a netnography approach for data collection and a constant comparative method for coding and analysis—with an additional feminist coding lens. I found that editors and their consumers overall challenge yet simultaneously reinforce normative male emotions, that fans reassert hierarchies and draw lines between beliefs through "ship" subcultures, and that editors reinterpret female individualism in their textual poaching in a way that enforces post-feminist ideologies. These findings are significant because they reveal the ways in which fan editors, who inherently challenge the ideas of contemporary media through poaching, foster a community that is progressive in ways yet also hegemonic in others. Ultimately, this study shows how participatory fan practices on modern social media platforms function as hubs where real-world ideologies around gender and sexuality are negotiated, even under the guise of glitzy edits about a teen romance show.

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The Evolution of Contemporary Feminism: Mirrored & Shaped Through *Barbie*

Despite efforts to evolve Barbie's identity as a rhetorical figure for contemporary feminists, Barbie remains contentious within the temporalities of feminist discourses. This tension originates from the Barbie doll which started as a symbol of progression, but overtime became a representation of modernist designs that perpetuated heteronormative gender norms and white supremacy. However, the live action film *Barbie* (2023) has added another layer of complexities that has left feminist scholars in an entangled debate of whether the films reinterpretations of Barbie is disempowering or empowering to the contemporary feminist movement. By entering the debate, this research will explore the Barbie film as a postmodern text that complicates Barbie's character as an ever-changing ideal that is shaped by contemporary culture, as it equally influences the shaping of cultures. Thus, this analysis will address the shifting of feminist ideals mirrored through the *Barbie* film as well as how the character Barbie confronts the changing conditions in contemporary culture like women's roles in private and public life, the power of embedded patriarchal structures, and implications of consumer culture.

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The Effects of Laser Therapy on Pain Management in Dogs

This pilot study evaluates the therapeutic potential of laser therapy as a pain-management modality in dogs. The primary objective was to assess whether increased use of laser therapy could reduce pain-related symptoms across common clinical conditions in veterinary medicine. A self-designed Qualtrics questionnaire was administered to pet owners, who provided responses regarding their dogs' experiences with laser therapy relative to their specific ailments. The dependent variable was the Laser Pain Management Scale (LPMS), a measure of perceived changes in pain. Statistically significant improvements were observed in dogs receiving laser therapy for arthritis and for post-operative recovery, indicating meaningful benefits across these treatment groups. Average LPMS for post-operative procedures was 27.5 (± 1.5) out of 30. Average LPMS for arthritis 25.6 (± 1.5) out of 30. Overall, the findings suggest that laser therapy may serve as an effective, holistic option for reducing pain and improving quality of life in veterinary patients, warranting greater consideration within clinical practice.

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Refining Curriculum at Brain Fitness Academy: Diverse & Engaged Learning

The Brain Fitness Academy (BFA) is a cognitive rehabilitation program which helps older adults who suffer from dementia or memory impairment. BFA creates a supportive space which enables participants to take part in activities that promote brain health and light physical exercise and social interaction help in their overall wellbeing. One challenge in this program is keeping participants consistently engaged while also learning something new each day. To address this, my project introduces a "Cultural Fact of the Day" component. Each fact is followed by a "Question of the Day", that prompts group discussion, allowing participants to connect new information with their own travel memories and life experiences. The project involves selecting engaging, lesser known facts about different countries. After revisiting the curriculum and testing out some new activities this semester, I noticed increased engagement and curiosity among participants when it comes to learning about the new cultures. By combining cultural learning with guided discussion it will have an impact that will strengthen cognitive stimulation and improve diverse learning environment at BFA.

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Examination of *Hamamelis virginiana* HeLa Cervical Cancer Cytotoxicity

At the start of the century, it was estimated there would be over 10 million new cases of cancer, 6.2 million cancer-related deaths, and 22.4 million individuals living with cancer in that year alone. Of these cases, cervical cancer would make up 4.7% of new cases, 3.8% of cancer-related deaths, and 2.3% of all cancer cases worldwide. Treatments for cervical cancer range from platinum-based chemotherapies, like Cisplatin, to radical hysterectomy and/or chemoradiation. With chemotherapeutics like Cisplatin, providers reconcile the benefits of using comparably aggressive treatment options for early intervention alongside the drawbacks of these treatments. Plant-based alternatives often lack some of these harsh side effects, which making them a well-studied alternative to traditional chemotherapeutic. In my study, I tested the effects of *Hamamelis virginiana* (American witch hazel) on HeLa cervical cancer cells. I hypothesized that upon treatment with HAM, there would be decreased metabolic activity and impaired viability of the HeLa cervical cancer cells. The hypothesis of decreased metabolic activity was not supported by the data while the evidence for decreased viability, as originally hypothesized, was inconclusive.

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From Chains to Choice: Autonomy and Resistance in *Wild Seed*

In *Wild Seed* (1980), Octavia Butler reimagines freedom not as escape, but as survival within systems of domination. The novel follows Doro—an immortal being who controls others by taking over their bodies—and Anyanwu, a shapeshifting healer whose ability to adapt allows her to survive his control. Through their relationship, Butler shows how power operates through the control of reproduction and the body. These dynamics reflect the legacies of slavery and colonialism, particularly the doctrine of *partus sequitur ventrem*, which determined that a child inherited the status of the mother. Drawing on Black feminist theory and the history of slavery, this project argues that Butler presents autonomy not as escape from oppression, but as something practiced within it. In *Wild Seed*, the body becomes both a site of control and a source of resistance, where survival itself becomes a form of agency. I examine how Anyanwu's ability to adapt and transform allows her to resist domination, showing that freedom can exist within constraint. Ultimately, this project demonstrates that Butler redefines freedom as endurance within systems of power

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The Log Book: Increasing Access to STEM Education through Digital Mentorship

Despite efforts to expand STEM education, significant gaps in engagement remain for students from underrepresented communities. Without the guidance to engage in advanced STEM experiences like science fair, these students face additional challenges to develop their skills and identities as scientists. To address this, I developed The Log Book, a website designed to provide students with resources to guide them through every step of the science fair process, from design and implementation to presentation. Inspired by the pedagogical theories of scaffolding and the zone of proximal development, The Log Book aims to be an easily accessible method of connecting students with articles, videos, and downloadable resources written by science fair alumni. This presentation will demonstrate the site's design and discuss how peer-to-peer digital resources can lower entry barriers in STEM education by increasing student confidence and STEM literacy.

Caitlyn Kulczyski, Sacha Roiena, Sydney Jenkins, Chris Furton, and Gigi Kiniyalocts (Dr. Matthew Imes)
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Broadcom Stock Pitch

This stock pitch presents a comprehensive investment analysis of Broadcom Inc. (NASDAQ: AVGO), a global technology company specializing in semiconductor solutions and infrastructure software. Our analysis evaluates Broadcom's competitive positioning within the semiconductor industry, examining the company's diversified product portfolio, revenue streams, and strategic acquisitions. We assess key financial metrics including revenue growth, profit margins, and valuation multiples relative to industry peers. Our research explores the macroeconomic tailwinds driving demand for Broadcom's offerings, particularly the accelerating adoption of artificial intelligence, cloud computing, and data center infrastructure. We also consider potential risks, including market cyclicality, customer concentration, and integration challenges from recent acquisitions. Drawing on fundamental analysis and comparable company benchmarking, this pitch concludes with a formal investment recommendation and target price, offering a data-driven perspective accessible to investors and non-specialists alike.

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The Employment and Wage Effects of Florida's Minimum Wage Increase

This Project examines how the increasing minimum wage in Florida has impacted employment and wages in limited-service restaurants. It is hypothesized that increasing the minimum wage will not reduce employment and will increase wages. This topic is important because answering this question can help inform policy makers on the tradeoffs related to minimum wage policy. Employment and wage data from the Current Population Survey is used. Two Differences in Differences models are estimated, one for the impact on employment and the other for the impact on wages. The findings are that increasing the minimum wage in Florida had no statistically significant impact on employment and had a positive and statistically significant impact on wages.

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Fields of Influence: Agricultural Stakeholder Engagement and Food Policy Outcomes in the United States

This paper examines how agricultural stakeholder engagement influences food policy outcomes in the United States through a comparative case study of New Jersey, Colorado, Idaho, and Utah. While existing literature emphasizes the role of interest groups in policymaking, less attention has been given to how variation in stakeholder engagement
at the state level affects policy responsiveness. Drawing on interest group theory, regulatory capture theory, and collaborative governance frameworks, this paper argues that states with more institutionalized and inclusive stakeholder engagement produce more responsive and adaptive food policies. However, this relationship is mediated by disparities in economic power, organizational capacity, and institutional access. Using qualitative analysis of state-level policy frameworks, advisory structures, and agricultural programs, the findings demonstrate that structured engagement mechanisms improve policy inclusivity and adaptability. At the same time, persistent inequalities allow dominant agricultural actors to shape outcomes disproportionately. These findings contribute to broader debates on democratic representation, governance, and policymaking in the agricultural sector.

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A Study of the Relationship Between Religious Coping and Biblical Narratives among Socioeconomically Challenged Individuals in Brazilian Pentecostalism*

This study explores how religion impacts coping with hardship in socioeconomically disadvantaged Pentecostal communities in Rio de Janeiro, Brazil. Using survey data collected from seventy-five participants across eight churches, the research examines how individuals respond to stressful life situations through religious beliefs and biblical narratives. The study combines Kenneth Pargament's Brief Religious Coping Scale (RCOPE) with an original questionnaire that asked participants about their worries and the biblical passages they turn to during difficult circumstances, such as illness, financial problems, social challenges, or emotional distress. Results show that participants reported significantly higher levels of positive religious coping than negative religious coping. However, higher church attendance was also associated with greater levels of worry. Analysis of participants' responses revealed that passages such as Matthew 6, Psalm 23, Philippians 4, and Psalm 91 were frequently used as sources of comfort and guidance. These findings suggest that biblical narratives help individuals interpret hardship, find meaning in suffering, and maintain hope during difficult times. This research contributes to understanding how scripture functions as a practical coping resource in contemporary Brazilian Pentecostal communities.

*This research was supported by the Stetson Undergraduate Research Experience (SURE) Grant. Presented at American Academy of Religion Southeast Region meeting.

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Bridging Movements: From the Children's March to Title IX – Connecting Civil Rights and the Women's Movement

This research examines the intersection of the Civil Rights Movement, particularly the Children's March, and the Women's Movement, focusing on their influence on the passage of Title IX in 1972. Although the movements had distinct goals, both fought against systemic discrimination, playing pivotal roles in shaping legislative changes. By exploring the interplay between these movements, this study uses a mixed-method approach, combining a literature review with archival research at key institutions such as the Library of Congress and the National Archives in Washington, D.C. Congressional records, legal texts, and advocacy materials will help trace the trajectory from the Civil Rights Act of 1964 to Title IX, shedding light on how race and gender activism influenced policy. This research aims to deepen our understanding of the historical foundations shaping contemporary educational policies and practices, offering valuable insights for both specialists and non-specialists. In today's political climate, where civil rights achievements are under threat, this study contributes to scholarship on intersectionality and policy, while also serving as a tool for civic engagement.

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Posing Oscar Wilde: Surrogation in *Gross Indecency* and *The Judas Kiss*

In his 1996 monograph *Cities of the Dead: Circum-Atlantic Performance*, performance theorist Joseph Roach argues that survivors use performance to attempt to fill the social vacancies created by loss, death, and/or other forms of departure—a "doomed search for originals by continuously auditioning stand-ins." This three-sided relationship of memory, performance, and substitution is a process he dubs "surrogation," which drama scholars have since used to examine the relationship between a dramatic text and/or character, its initial performer(s), and subsequent iterative productions. Meanwhile, in June

of 1997, Moises Kaufman's *Gross Indecency: The Three Trials of Oscar Wilde* began performances off-Broadway. Nine months later, in March of 1998, David Hare's *The Judas Kiss* opened on the West End. Both biodramas (alongside a few others in the 1990s) feature Victorian dandy playwright, novelist, and essayist Oscar Wilde as the main character. Using these two plays, I will be examining the surrogative relationship between the historical figure "Oscar Wilde", the biodramatic characters of "Oscar Wilde", and their initial performers, while also seeking answers to the question "what social vacancy is being filled by these performances of Oscar Wilde nearly 100 years after his death?"

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The Business of Anti-Semitism: How a Sixteenth-Century Italian "Magician" Used Jewish Identity to Manufacture Saltpeter and Gunpowder

This mixed methods research project concerns the biosynthetic replication of early modern European recipes for saltpeter and gunpowder production, investigating namely one Italian Jew Abramo Colorni (d.1599), simultaneously labeled a 'genius' and 'charlatan', who converted the anti-Semitism of his day into a recognizable brand of the "Saltpeter Jew", rising to the ranks of industrial producer of alchemical materials for the Holy Roman Emperor himself amidst Christian prejudice. This research serves a two-part historiographical intervention that examines, first, Jews outside the synagogue, noting their wider contributions to greater Christian society (in this case, within the "business of alchemy" and weapons engineering) and, second, the secret and proprietary (that is, entrepreneurial) agendas that complicate the "open science" mission of what became the Scientific Revolution.

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Microplastic Abundance and Color Distribution in *Palaemonetes paludosus* across Urban and Protected Freshwater Systems in Central Florida

Microplastic has been found in freshwater systems all around the world including in Florida. We determined the abundance of microplastic in protected versus urban collection sites in Volusia County, FL. The Eastern grass shrimp (*Palaemonetes paludosus*) is a benthic detritivore that has a primary diet of algae, which can be a transportation vector for microplastics in freshwater systems. Microplastics are found in various colors, in freshwater blue microplastic is most abundant. We hypothesized that shrimp collected in urban locations would have more microplastics and have more blue colored microplastics than those collected in protected locations. We collected 240 shrimp from four sites, dissolved the shrimp with nitric acid, we then ran the solution through a 45-micron vacuum filtration disk and counted the microplastics present. The amount of microplastics did not differ between the collection sites. There was no interaction between the collection site and color of microplastics. These results suggest that microplastic pollution is not limited to urban freshwater systems but is found in various freshwater systems around the county. Shrimp are primary consumers that play a critical ecological role for freshwater food chains. Testing multiple different water sources such as a spring, a lake attached to the St. Johns River, an isolated lake, and a regulated wetland habitat, provides a central and holistic idea of how far the microplastic pollution has spread. Finding microplastics in every sample collected from every site suggests that the microplastic problem is broader and in higher abundance than initially proposed.

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The Art of Bored
The negative effects of boredom on education and how to mitigate these effects.

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Evaluation of the motivations and barriers to implementation of Low Impact Development practices in three residential neighborhoods in DeLand, FL
Housing a growing population while protecting natural lands that provide stormwater absorption is a major challenge for residential developers in Florida. Traditional "gray" stormwater management is constructed to convey stormwater from its source to containment areas on- or off-site. However, a trend is emerging in Volusia County, Florida of integrating gray stormwater infrastructure with the green stormwater infrastructure strategies of "Low Impact Development" (LID). LID incorporates design tools and practices that protect as much of the natural environment as possible and emulate natural systems in the built areas. While the efficacy and cost-savings of LID are well-established, cultural barriers remain that prevent consistent application across development projects. Through interviews with residents as well as professionals involved in the development of three LID neighborhoods in DeLand, Florida, this study identified the main benefits, drawbacks, and barriers of LID implementation. In proposing LID strategies, professionals believed that its popularity with local governments facilitated the approval of their development plans, but persistent state and local restrictions still impede implementation. Residents enjoyed the reduced risk of flooding and the presence of wildlife provided by LID features but were concerned by the inconsistent maintenance of these features, as well as the incomplete delivery on some of the promised amenities by developers. Overall, residents were generally unaware of the purpose and complications of LID. This lack of resident education was a commonly cited concern among professionals. To close this gap in resident education, I recommend that development teams and property managers plan for more intentional branding and education of homeowners during the buying process and beyond through signage in the community centers, nature preserves, and community websites, and that they also provide workshops to both residents and landscape maintenance contractors about the purpose and benefits of the LID features of the neighborhood.

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Geriatrics, Garbage Bags, and Giving Back: Managing Waste in the Super-Aged Society of Taipei, Taiwan*
Taiwan is a superaged society, meaning that those over age 65 account for more than 20% of the total population (Yu-chen and Chieh-yu 2026). As a country proceeds through a demographic transition such as this, it becomes crucial to address the many problems associated with old age. A common such affliction in Taiwan includes dementia. Rates of dementia worldwide have increased as a result of the many aging societies developing globally (Chen et al. 2024:2). With these trends in mind, it's become important for Taiwan as a country to adapt to accommodate the elderly, as well as establish preventative programs of degenerative diseases common in old age. An innovative and multi-pronged approach to support the elderly of one neighborhood in Taipei was the Tzu Chi Recycle Education program, which educates and empowers volunteers to help manage recycled waste in the Zhongshan District of Taipei City (Tzu Chi Foundation N.d.). This project, using ethnographic data gathered from a visit to their facilities in March of 2026, examines how this program addresses social and environmental concerns in Taipei. This project argues that this program not only tackles common issues with recycling,

those being a lack of infrastructure, education, and incentives (Kuo et al. 2025:12), but also helps prevent common mental and physical ailments associated with old age. This program exhibits the strong sense of environmental and social responsibility fundamental to Taiwanese society, while also protecting, nourishing, and building up their community, and is a great example for how similar countries can address the arising issues of an aging, urban society.
*My ability to study abroad in Taipei, Taiwan was made possible by the WORLD study abroad scholarship.

Alexandria Metivier Dr. Rachel Core)
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The Impact of Race and Education on Parenting Style

My project looks at how race and education shape parenting styles. I examine whether race or class has a stronger influence on how Black parents raise their children. Using Annette Lareau's framework from her book Unequal Childhoods, my research compares parenting strategies like concerted cultivation and natural growth. While past research shows that social class and education affect parenting, it often overlooks how race and lived experiences also play a role. My study focuses on how race and education work together to influence parenting and contribute to inequality. I use data from the National Longitudinal Survey of Youth 1997 to examine how Black parents approach raising their children. My goal is to understand whether parenting choices are shaped more by socioeconomic status or by racial experiences. My research is important because it examines the social dynamics of families and analyzes how those differences can lead to larger social inequalities. I expect to find that race plays a unique role in shaping parenting styles, even among families with similar levels of education or income. This means that Black parents may adopt specific parenting approaches different from those of White parents of the same class

Ash Miller (Dr. Yohann Ripert, Michele Randall)
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A Collection of Unsent Letters

A work-in-progress poem collection of letters I wish I had sent. Frequent themes include love, loss, yearning, heartbreak, and grief, in hopes of showing others that they are not alone in their personal experiences and emotions. A Collection of Unsent Letters plans to provide comfort and boost the reader's mood during moments of trauma, grief, and love, and hopes to connect communities together. This project currently has roughly thirty poems written that are still going through editing, with the plan to be a fully published book with a seventy plus poems by graduation.

Benjamin Miyazato (Dr. Kimberly Reiter)
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Merlin in Film: The 21st Century's Favorite On-Screen Wizard

Merlin in Flim looks at the how Merlin rose to become a central character in film media. Starting with Merlin's earliest appearance in 1949s film adaptation of A Connecticut Yankee in King Arthur's Court through 2019s The Kid Who Would Be King this research not only explores Merlin's role as a central figure, audience's expectations of him, but also our need for a fantasy escape throughout the decades and how the tone of the films have changed to better suit audience's appetites. This research stems from the historical significance of Merlin in Arthurian legend which was primarily literary up until the advent of film media. Stepping further into cultural history, this research also looks at how figures like President John F. Kennedy had a particular interest in Arthurian legend and how that may have shaped the film media of mid-century America. Through this research we are able to see how Merlin evolves from a side character to becoming a key central figure to the titular character in films.

Danny Moran (Dr. Yohann Ripert)
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The importance of Firefighter Leadership and Decisiveness in Selecting and Operating the First Line

The selection and operation of the first attack line is one of the most critical decisions made on the fireground. This project examines the leadership, critical thinking, and decisiveness required of a first-due engine captain when determining whether to deploy a 1¾-inch or 2½-inch hoseline during structural fire operations. While the 1¾-inch line offers increased mobility and ease of advancement, the 2½-inch line delivers significantly greater gallons per minute, providing enhanced fire control in advanced or large-volume fire conditions. The research explores operational considerations such as nozzle reaction, total hose kickback force, and water flow capabilities, as well as decision-making frameworks including the ADULTS acronym and the Recognition-Primed Decision (RPD) model. Studies on fire service leadership and decision-making styles demonstrate that effective officers combine rapid critical thinking with decisive action under pressure. The findings emphasize that selecting the correct initial attack line is not merely a tactical choice but a leadership decision that directly influences fire control, firefighter safety, rescue operations, and overall incident outcomes.

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The effects of second hand clothing on Kenya and Ghana

This research investigates the impact of second-hand clothing imports on domestic manufacturing performance in Kenya and Ghana. While second-hand clothing imports provide affordable garments and support informal economic activity, they are often criticized for weakening local textile and manufacturing industries. This study uses annual data from 1990 to 2024 and applies a regression model to examine whether increases in second-hand clothing imports are associated with lower manufacturing value added as a percentage of GDP. The analysis controls inflation, labour in manufacturing and textile, country level differences, and changes over time. By comparing Kenya and Ghana, the study provides a broader understanding of how second-hand clothing imports interact with industrial development in African economies. The findings will help assess whether second-hand clothing imports are a major cause of industrial decline or whether wider structural factors also play an important role.

Ashley Murphy (Dr. Yohann Ripert)
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A CFC Welcome

Genetic diagnoses come with a significant amount of uncertainty, worry, and stress. Due to this, CFC International is in the process of making a platform to alleviate some of these stressors. A video podcast to raise awareness and answer the questions new and current CFC Families have not only about the disorder, but also about CFC International as an organization itself, and establishing our community from the initial diagnosis on.

Lily Neville (Dr. Drake Eserhaut)
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Low-intensity Aerobic Exercise Reduces Blood Lactate Concentrations Acutely in Division I Male and Female Rowers*

Blood lactate (BLa) accumulates when glycolytic energy demands outpace BLa clearance. BLa reductions may occur during low-intensity aerobic exercise as skeletal muscle blood flow and oxygen availability increase, facilitating the oxidation of lactate as a useful energy source. Further, determining lactate thresholds during maximal effort graded exercise tests (GXT) requires a low starting BLa for "baseline + 0.5 mmol×L-1" calculations. Thus, low-intensity exercise prior to GXTs may improve threshold detection accuracy. The purpose of this study was to evaluate whether a 10-minute bout of low-intensity aerobic exercise decreases BLa acutely in a mixed-sex cohort of rowers. Fourty four NCAA Division I rowers (M=24, F=20) performed a 10-minute bout on a Concept 2 rowing ergometer at 36% of their average wattage from their most recent 2,000m rowing ergometer time trial. BLa was sampled immediately before and after via finger lance and a Lactate Pro 2 analyzer. Shapiro-Wilks test showed non-normally distributed data, and a Wilcoxon signed-rank test was performed. A significant moderate strength reduction in BLa (rrb=0.39 [95% CI: 0.06-0.65], p=0.03) occurred after the 10-minute low-intensity bout of exercise. Median BLa decreased from 2.1 to 1.9mmol×L-1. Completing a 10-minute low-intensity exercise bout effectively reduced BLa in NCAA Division I rowing athletes.
*This work was done by the Human Advancement Through Translational Exercise Research (H.A.T.T.E.R.) Laboratory

Brooke O'Brien (Dr. William Chavez)
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Exploiting Disability as a "Narrative Prosthesis" in (Extra)biblical Texts
I argue that disability, as presented in Christian (extra)biblical texts exploit the disabled condition of others for dramatic and theological effect. I analyze various passages of physical, mental, and "social" disability where they are used as a "narrative prothesis" (Mitchell and Snyder (2001), as well as how disability is viewed as gendered. The first type of "narrative prosthesis" I observe provides an impetus to tell a story: disabilities function as narrative elements, efforts of meaning making, and/or problems to be corrected. The second type serves as moral sensationalism: metaphorical devices wherein disability is exploited for dramatic effect in its source, dominion, resolution, and/or consequence. Thereafter I engage verses of Jesus where such a "prosthesis" remains pronounced. I engage various works of disability advocacy which present Jesus as the "Disabled God," further signifying, I argue, Jesus' wounds as a visual exploitation of the disabled condition. Jesus is presented with the visual wounds of disability but not its lived experience.

Abdulraqeeb Oguntade (Dr. Jeremy Posadas)
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Building Frameworks for a Recovery Housing Program at Rising Against All Odds.
This Junior Capstone Project is built for Rising Against All Odds (RAAO). RAAO's mission is to improve HIV and general health awareness in Central Florida by offering free HIV testing, linking clients to healthcare professionals, and connecting them to community resources like shelters. RAAO administration has observed the need to establish a Recovery House, to support clients with housing insecurity, in substance recovery or remission. This comes from an understanding of the strong correlation between secure housing and completion of care plans for chronic conditions like HIV. In response, this project focuses on designing a comprehensive framework for the proposed RAAO House. The model is based on the Oxford House approach, a democratically run housing system, and adapts its structure to meet the

specific needs of RAAO's client population. This includes the integration of an Intensive Outpatient Program (IOP) to further support recovery and continuity of care. The project resulted in the development of three key deliverables: an application document for prospective residents, a general information guide for the RAAO House, and a Housing Regulation Booklet. Collectively, these materials aim to support the successful launch and sustainable operation of RAAO House.

Miki Ohotaguro (Dr. Rachel Core)
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Collectivism, Social Responsibility, and Cultural Philanthropy in Taiwan

Taiwanese people live with a strong sense of social responsibility and cultural philanthropy, shaped by traditional Confucian values and their shared history with Japan. Taiwan's distinctively collectivist character, expressed through voluntary civic participation, institutionalized social responsibility, and cultural continuity, is strongly influenced by Confucian principles. In addition, the 50 years Taiwan was under Japan's colonial rule reinforced norms such as group loyalty and a harmonious social order that continue to shape public life today. Through the Study Abroad Program to Taiwan under the class "Population, Society, and Environment in Asia," I witnessed how cultural values are recognized, reinterpreted, and adapted. Hence, drawing on various readings and site visits, the presentation aims to put into perspective the influence of a collectivist culture on individuals' mindsets and what foreigners can learn from it.

Veronica Okeke (Dr. Kristine Dye)
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Determining whether the FPPTWE region of the Merkel Cell Polyomavirus small tumor antigen has transforming functions independent of nuclear localization

Merkel cell carcinoma (MCC) is a rare but aggressive neuroendocrine skin cancer primarily driven by Merkel cell polyomavirus (MCPyV), a ubiquitous virus that becomes oncogenic only when its genome clonally integrates into the host cell. The viral small T antigen (ST) is the dominant transforming protein; however, its mechanism of oncogenesis is currently unknown. This project investigates the potential role of the FPPTWE amino acid sequence in ST's nuclear localization and cellular transformation. To test this, three constructs were generated: wild-type MCPyV ST, wild-type ST fused to a nuclear localization sequence (NLS), and an NLS-tagged mutant lacking the FPPTWE segment. We compared the protein expression levels, subcellular localization, and transformation capacity across the three constructs. The deletion of FPPTWE reduced transforming activity relative to wild-type and NLS-tagged ST, indicating the FPPTWE region contributes to ST-mediated transformation beyond its role in nuclear localization. This fills a critical gap in our understanding of the molecular mechanisms underlying ST's nuclear activity and viral oncogenesis, and ultimately lays the groundwork for therapeutic strategies that exploit viral dependencies in MCC.

Alice Martinelli Oliveira (Dr. Jeremy Posadas)
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Navigating First Year as a Bonner: A Guide for Incoming Students

The Bonner Program focuses on building community, service, and leadership, while also providing academic opportunities to students. The program starts as soon as students arrive on campus, making the first weeks very important for new Bonners. This project is to create a guide for first-year Bonner students coming to Stetson. The goal is to give new students clear guidance and support before they arrive on campus. Many first-year Bonners struggle with not having enough information early on, which can make them feel lost during their first weeks of college. To help with this, the guideline includes

important information students need before starting. This includes things such as life at Stetson, Bonner important dates and meetings, Summer of Service, site partners, and key steps in the program. The guide was built using feedback from upper-class Bonners, who shared what they wish they knew when they first started and from meaningful conversations with campus offices providing insights to support students in the best way. The goal is for new Bonners to feel more confident, prepared, and supported when they arrive on campus. Having this information ahead of time can help them adjust more easily and feel less stressed during their first days.

Vitória P. Paiva Batista (Dr. Jeremy Posadas)
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Finding Ways to engage first-year students in the Stetson University

This project focuses on improving engagement among first-year students at Stetson University by better understanding their experiences and needs. Many students do not feel fully welcomed or connected to the campus community, which can affect their social well-being and contribute to lower retention rates. To explore this issue, interviews were conducted to gather students' perspectives on engagement, including their challenges and suggestions for improvement. Questions aimed at understanding why engagement may be low and what factors influence their experience. A common theme was a lack of awareness about campus events. Students mentioned not knowing when events occur, schedule conflicts, and difficulty navigating Engage. Suggested solutions included improving event visibility and sending clear, weekly updates. The goal is to interview eight students; as of March 25th, four have been completed, reinforcing the need for stronger community-building efforts

Faith Patterson (Dr. Holley Lynch)
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Evaluating Sensitivities in the MIT Tropical Cyclone Downscaling Model Through Relativizing Parameter Input

This presentation explores how different input to the MIT Open Source Statistical-Dynamical Downscaling Model influences the path and strength of synthetic tropical cyclones (TCs). We test three parameters: intensity-dependent beta drift, area-averaged winds, and 95th percentile entropy deficit. A combined multi-parameter track is also evaluated to see whether using the strongest inputs together improves model performance. Observed TC data comes from IBTrACS and HURDAT2 to define observed tracks and case-dependent input, and synthetic tracks are generated using ERA5 data. Intensity-dependent beta tracks perform best when the model uses input that accounts for storm strength before the chosen initialization time. Area-averaged winds produce consistent results when considering a radius 2.5 times larger than the radius of tropical depression-force winds as the referenced storm intensifies. Entropy deficit tracks are most consistent when considering the average radius of TC-force winds at and after initialization. Multi-parameter tracks showed early signs of producing very minimal error, though more testing will need to be completed to confirm this.

Ramon Patton (Dr. Haleigh Ray)
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The Role of Circadian Rhythm in *Vanessa cardui* Development and Growth

Artificial light at night (ALAN) is an increasingly prevalent form of pollution that has been shown to disrupt circadian rhythms and developmental processes in many insects. Lepidoptera play important ecological roles as herbivores and pollinators, yet the role of circadian rhythm in their development

remains understudied. This study investigated how constant light, a 12 hour light dark cycle, and constant darkness influenced growth and development in the Painted Lady Butterfly (*Vanessa cardui*). Seventy-eight larvae were evenly assigned to treatments, of which 10 reached pupation and 8 successfully emerged as adults. Maximum larval length, final larval length, time to pupation, and time to adult emergence were measured. No significant differences were observed among treatments for maximum length, time to pupation, or time to emergence. Although developmental timing and growth did not differ significantly, the constant darkness group had the highest mortality. These findings suggest that altered light regimes do not influence growth or developmental rate in *V. cardui*; however, light availability may influence survival. Given increasing global exposure to ALAN, further research using larger sample sizes and additional measurements such as mass are needed to better understand its potential ecological impacts.

Jacob Prueter (Dr. Joshus Rust)
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Finding Liberal aturalism

This presentation argues that Dan Priel's account of legal naturalism relies on an overly narrow conception of reality that excludes higher-level social and normative actualities. Through exploration of the manifest image I outline a more sensible version of legal naturalism informed by the manifest image and defined by its opposition to supernaturalism.

Julia Ramos de Camargo (Dr. Jeremy Posadas)
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Training with Purpose: Preparing Students to Support Cognitive Health Through the Brain Fitness Academy

The Brain Fitness Academy (BFA) at Stetson University is a community-based program that promotes cognitive engagement among older adults, including individuals experiencing age-related cognitive decline and Alzheimer's disease. As the program has expanded, the need for a structured and consistent training system for student interns has become increasingly important to ensure effective participant support and high-quality program delivery. This project focuses on the development of a comprehensive student training course designed to prepare undergraduate interns to work within the BFA. The curriculum integrates foundational knowledge in cognitive health, aging, and eurodegenerative conditions with applied skills such as communication, activity facilitation, and professional engagement. The course is delivered through a modular format using Canvas learning management system, allowing for flexible, accessible, and scalable implementation. By bridging scientific knowledge with real-world application, this project establishes a sustainable training model that enhances student preparedness while strengthening community impact.

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First Gen Foreword: Creating a Support-Centered Podcast for First-Generation College Students

First Gen Foreword is a podcast created to support first-generation college students as they learn to navigate higher education. Many first-generation students enter college without clear guidance on the everyday and often normalized expectations of college life, including selecting courses, accessing campus resources, communicating with professors, and managing personal finances. This project translates those expectations into clear, practical conversations. The podcast combines research, campus resources, and personal perspectives to develop episodes focused on academic survival, financial literacy, mental health, campus involvement, and long-term planning. Rather than only discussing challenges, it offers realistic strategies students can apply to their own experiences. The goal

of this project is to help first-generation students feel supported, informed, and confident in their ability to succeed.

Aiden Reeve (Dr. Jacob Walters, Dr. Kimberly Reiter)
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The Prohibition Party versus Rum Alley: Law and Resistance in Coastal Prohibition Florida

Florida in the time of Prohibition had a great impact on the law and in turn, Prohibition had a great impact on Florida. It is by tracking the course of the two forces in Florida, where the conflict was the most prevalent, that I see something far more prevalent. To me, it unfolds as a prolonged struggle between two deeply rooted cultures, those who believed temperance could reform society, and those who saw government control over drinking as an intrusion to resist at all costs. My goal in this essay is to map out that entire struggle: to build a clear timeline of how the Prohibition Party and temperance groups rose to power, how Rum Alley and the networks of smugglers grew in response, and how both sides escalated their tactics until the whole system buckled under its own contradictions. As I trace this timeline, I aim to show why Prohibition in Florida was essentially doomed from the start. The state's geography, its culture of independence, widespread corruption, and the sheer profitability of smuggling made enforcement nearly impossible. Yet I also want to highlight the unexpected legacies that emerged—how women, through organizations like the WCTU, carved out new forms of civic power, and how Black Floridians found economic footholds and community influence through the rum-running trade, despite the era's racial oppression. Ultimately, what I hope this essay demonstrates is that Prohibition didn't simply fail; it reshaped Florida. It exposed longstanding racial and political tensions, created new heroes and villains, and left marks that still echo today in everything from local culture to NASCAR's origins. In telling this story, I want to show that Prohibition was never just about alcohol, it was about identity, power, and who gets to decide how people live.

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Inhibition of the Hedgehog Pathway via CRISPR-induced gene knockout in *Vanesa cardui* butterflies.

The Hedgehog (Hh) signaling pathway is a highly conserved biological signaling cascade that regulates genes which play important roles in cellular growth, development, and embryogenesis beginning with ligand- dependent activation of the transmembrane signal transducer Smoothened (SMO). While the HH pathway can become unintentionally activated in some cancers, such as Basal Cell Carcinoma (BCC), and can be treated with chemical inhibitors of SMO, efficacy of these treatments often depends on a mutant protein that still has a high enough binding affinity for the administered chemotherapeutic agent. As such, this study aims to use a CRISPR based approach targeting the SMO protein and causing inhibition of the HH pathway. HH signaling was inhibited via microinjection of the monoclonal antibody 5E1 into early embryos and through CRISPR/Cas9-mediated mutagenesis of SMO. Adult wing height, wing area, and eyespot size were quantified to assess developmental outcomes. Neither antibody-treated individuals nor CRISPR-injected butterflies that survived to adulthood exhibited statistically significant differences in these morphological parameters relative to controls. However, CRISPR injection resulted in a marked reduction in hatch rate, indicating compromised developmental viability. Molecular genotyping confirmed efficient interaction with the SMO locus. Sanger sequencing identified both complete deletions spanning guide RNA target sites and predicted truncated, nonfunctional SMO proteins lacking essential functional domains. These results demonstrate successful disruption of HH signal transduction at the genomic level. The disparity between confirmed SMO loss-of-function alleles and the absence of adult wing phenotypes among survivors suggests that severe HH pathway disruption primarily affects early developmental processes, with strongly affected individuals failing to complete embryogenesis. Thus, the developmental inhibition observed here reflects a generalizable mechanism of

pathway suppression at the level of signal transduction, which could have therapeutic benefits for diseases caused by mutated SMO proteins.

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Building a Centralized Digital Platform For Black Homeschoolers of Central Florida

Black Homeschoolers of Central Florida (BHCFL) is a community organization that supports Black families who choose to homeschool their children by providing resources, events, and opportunities to connect. However, the organization currently faces challenges such as limited visibility, difficulty sharing information online, and the lack of a central place where everyone can easily access what they need. To solve this problem, we developed a modern web platform that brings everything into one place - a centralized digital platform for BHCFL. The platform allows users to easily access resources, stay updated on events, and connect with the community. It is built using modern web technologies to ensure speed, accessibility, and a good user experience. So far, the project has improved how information is shared and accessed within the organization. It has made it easier for families to find what they need and stay engaged. In the long term, this platform can increase visibility, strengthen partnerships, and support the growth of the homeschooling community in Central Florida.

Isabelle Sanco Keis (Dr. Alison Parks)
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Development and Diplomacy: How Socioeconomic Development Shapes Relationships in the Global South

How does Brazil's socioeconomic development shape its relationships with other countries in the Global South? While existing literature focuses on traditional North-South aid dynamics, it does not fully explain South-South relationships and aid. Focusing on the 2000s, this study shows how economic growth, political stability, and social policies enabled Brazil to expand its role in South-South development cooperation. This paper argues that increases in Brazil's socioeconomic development strengthen and expand these relationships. Using process tracing for the countries of Angola and Uruguay, this analysis identifies causal mechanisms linking domestic change to international engagement. The findings show that internal development drives cooperation, and its influenced by domestic politics.

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Strategies to Protect and Sustainably Manage Washington, D.C.'s Urban Landscape

Historic preservation non-profits play a vital role in maintaining the cultural and architectural identity of American cities. Yet organizations like the DC Preservation League (DCPL) often operate with limited funding and outdated internal structures that threaten their survival. This study, presented at the Georgetown University Business Strategy Case Competition, examines how DCPL can diversify its revenue and reform its governance to remain financially stable. Research was conducted using DCPL's IRS Form 990 filings, its official website, and analysis of comparable non-profits. Findings revealed that DCPL's board lacked fundraising capacity and its revenue model was too narrow to sustain long-term operations. The team proposed five solutions: a board restructuring plan, two short-term fundraising initiatives called "Capital Classics 5K" and "DCPL After Hours," and two long-term strategies called the "DCPL Legacy Steward Program" and a "Multi-Year Corporate Partner Strategy." These recommendations provide DCPL a clear path toward financial stability and stronger engagement with Washington D.C.'s younger community members

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"Wholly on the Balance of Sea Power, The Contribution of the British Navy to the Fall of the Spanish Empire, 1784 to 1821."

A review of the British Navy's effect on the fall of the Spanish Empire during the time directly following the American Revolution (1784) to the point when Spain lost Florida and Mexico to the Americans and Rebels respectively (1821) provides an interesting view into how much the Royal Navy affected Spain's rapid decline during the period. While many contemporary sources place the blame of Spain's fall squarely on either Napoleon's invasion in 1808 or Spanish mismanagement beginning in the 1790's, my view puts more focus on how the Royal Navy played a part in all of this. By 1784, the Spanish Empire controlled the most territory it had ever controlled in its history. However, due to the defeats caused to the Royal Navy by American Privateers, the British began reworking their navy. Coinciding with the outbreak of the French Revolutionary and Napoleonic Wars (1793), the British Navy would go on to inflict major defeats on the Spanish Navy culminating in the decimation of the Spanish Navy at Trafalgar (1805). Along with this, a British blockade of Spain lasting from 1796 to 1808 completely separated Spain from its colonies thus bankrupting Spain and causing disorder in their colonies. By 1821, the Spanish Empire had in effect, completely collapsed due to these factors and Spain retreated from major European politics as a result. Thus, the argument can be made that a large factor in the fall of the Spanish Empire from 1784 to 1821 was resurging British naval and imperial supremacy.

Anwyn Schiek (Dr. Joshua Rust)
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How do philosophy and literature together reveal the gap between legal justice and moral justice?

The primary goal of my presentation is to examine the distinction between legal justice and moral justice in order to critique overly legalistic conceptions of law. Legal systems are designed to promote consistency, predictability, and adherence to established rules; however, judicial decisions that are legally correct can nevertheless produce outcomes that appear morally troubling. This project argues that such outcomes are not exceptional but arise from structural features of legal reasoning itself. Using a republican theoretical framework, the analysis draws on Robert Atkinson's interpretation of Herman Melville's Billy Budd, Ronald Dworkin's theory of law as integrity, and Plato's Republic. Through the character of Captain Vere, Billy Budd illustrates how rigid adherence to legality can eclipse ethical responsibility, particularly in cases involving discretion and human consequence. Read together, philosophy and literature reveal the limits of legality and underscore the necessity of moral judgment in the pursuit of justice

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A House Divided, A Home Preserved: Gender, Nationalism, and the Preservation of George Washington's Mount Vernon

he Mount Vernon Ladies' Association (MVLA) was the first national women's historic preservation organization. It acquired and restored George Washington's Mount Vernon plantation in the 1850s amid sectional tensions leading up to the American Civil War. The MVLA leveraged gendered rhetoric rooted in patriotism, Christianity, and domesticity to justify its mission and mobilize bipartisan support. This paper situates the MVLA within antebellum gender politics and explores how its members negotiated ideals of femininity while actively taking part in the public sphere. It also examines the intersection of

gender, race, and nationalism to reveal how Mount Vernon was a contested site during the Civil War and contributed to differing Union and Confederate claims over national memory. The MVLA's work established a framework for women's leadership in historic preservation, but it also contributed to a lasting memorialization of slavery and the planter class that is being reckoned with at historic sites today.
*Funded by a 2025 SURE Grant. Presented at the 2026 Florida Society of the Social Sciences Conference

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Don't Sugar Coat It: Exploring the Invitational Rhetoric of Queer and Crip Temporalities in Contemporary Art
This project explores how queer and disabled artists employ Foss and Griffin's theory of invitational rhetoric to challenge normative conceptions of time, legacy, and memorialization. Focusing on Felix Gonzalez-Torres's "Untitled" (Placebo) (1991) and Galen Marquess's It should reset on its own without a problem (If you leave it alone it will only get worse) (2025), I argue that both works transform physical interaction into a rhetorical act that invites empathy, recognition, and participation. Through queer and crip temporal frameworks, these installations reimagine public mourning and self-memorialization outside heteronormative and able-bodied expectations of continuity and inheritance. My analysis combines intrinsic visual critique with extrinsic contextualization to reveal how these works create alternative spaces of collective memory. Ultimately, this study demonstrates how queer and disabled communities use participatory art to resist erasure, forging tactile and temporal legacies that redefine what it means to be remembered.

Victor Summers (Dr. Yohann Ripert)
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Indigeneity, Environment, Power
Generated from the study of environmental science, there is environmentalism, a movement that advocates for preservation and improvement of the natural world. By rendering these discussions as scientific, it obscures the realities of the communities with cultural significance to the natural world. Environmental Native American advocates are noted by their historical displacement to continued exposure to environmental hazards that perpetuates poverty and health struggles. It's by their efforts and their distinct relationship to the Earth that environmentalism has ignited, yet it's their significance that mainstream environmentalism struggles to acknowledge. Caring about the environment demands more than concern for nature alone; it requires in the acknowledgement of how history and power shapes the involvement of Native Americans in environmental decision-making.

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Zachor/Remembrance: Art and Identity in Floridian Synagogues of the 20th Century
Despite the long and multifaceted presence of Jewish communities in Florida, their histories remain understudied within the broader discourse of American Jewish life. In this current climate, there is a need to highlight the adaptation and preservation that the American Dream required of immigrants. Through the documentation and analysis of an historical synagogue in Florida, the sacred space of the synagogue will be positioned as both the physical and symbolic markers of communal identity. Three synagogues in Pensacola, St. Augustine, and Miami Beach will serve as a focal point for tracing the histories of the diverse Jewish diasporas that shaped Florida's cultural landscape in the 19th and 20th centuries. As sites of collective memory, the synagogue encodes the evolving relationship between tradition and modernity, revealing how architecture and art embody the enduring negotiation between

faith, identity, and place. Through this lens, the project interrogates the role of built environments in preserving cultural heritage while reflecting the broader dynamics of Jewish life in the American South.

Riley Tarvin (Dr. Yohann Ripert)
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Polarized by the Press

This presentation introduces The Media and Democracy Project, a digital platform examining how social media has transformed political identity, communication, and polarization in the United States. Over the past two decades, platforms such as Facebook, Twitter, and Instagram have reshaped political engagement by emphasizing personalized expression, rapid information sharing, and algorithm-driven interaction. While these developments have expanded access to political participation, they have also redefined how individuals understand their political identities and engage with opposing viewpoints. The project explores how digital environments—structured by algorithms, partisan signaling, and networked communities—encourage identity-driven discourse and contribute to ideological division. By analyzing changes in social norms and communication patterns, the website highlights the mechanisms through which social media intensifies political polarization. Ultimately, The Media and Democracy Project provides an accessible, research-based framework for understanding the evolving relationship between media and democratic life, encouraging users to critically evaluate the role of digital platforms in shaping political behavior and civic culture.

Ezra Tatterson (Dr. Christopher Jimenez)
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Just a Little Woman: Jo, Amy, and Gender in Louisa May Alcott's Little Women

This Senior research paper—written by Ezra Tatterson, under the advisory of Dr. Christopher Jimenez—is titled "Just a Little Woman: Jo, Amy, and Gender in Louisa May Alcott's Little Women." This project explores two characters in Louisa May Alcott's novel Little Women (1868)—Jo and Amy March—and their respective relationships with gender expression during a time of immense change, both throughout the country and in their own home. Using feminist and queer theory, through a historical lens, research conducted will take a look at how independent experiences and preferences in their lives shape the way both Jo and Amy define "being a woman" in the United States during the 19th century and how they fit, or do not fit, into this definition. Using Judith Butler's "Melancholy Gender—Refused Identification" and Gender Trouble, this paper focuses on Jo and Amy March's respective relationship with gender expression. Furthermore, research shall explore the ways in which—through both domestic and social 'spheres'—Jo dismisses her femininity, while Amy uses it to her advantage. With this work, I therefore study how gender identity and expression exist within the studied domestic, social, female, and male 'spheres'; how this influences the ways in which Jo and Amy March dismiss and mold these 'spheres,' respectively; and how said 'spheres' influence their lives from young girls to little women.

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A Comparative Analysis of Brazilian SESC Units through its Military Dictatorship

Authoritarian regimes gain legitimatization through various techniques including civil society organizations that are independent from government but represent citizens' interests. To examine this phenomenon, I will analyze government initiatives for lower income communities in Brazil and how they can be used by those in power to secure the support of the people. To understand this, I will focus on one period in Brazilian history, its military dictatorship that lasted for more than 20 years. Using this period of history, I will research how the regime used a key cultural and social initiative called Social Service of Commerce (SESC Units) to secure the support of the

people, which in turn legitimatized the regime's governance. SESC Units can be found throughout Brazil and serve as community centers that provide internet access, food banks, playgrounds, libraries, sports, and other amenities for the public. SESC Units were created in 1946 by the business and services community, as a non-profit which were maintained by the military, and grew to include social services and education in the 1980's. I will focus on the government's indirect funding of civil societies, liberalization, clientele patronage, and regime trust to answer my research question

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The impact of the 1950's Red Scare on the organization and goals of NATO

This paper seeks to analyze the development of the relationship between the United States of America (U.S.) and the North Atlantic Treaty Organization (NATO) to understand international relations from the 1950s until now. Significantly, this research will help historians and scholars of international relations better understand how these developments occurred and how they can be applied to future generations. The analysis will begin by examining how the Second Red Scare happened within the context of the Cold War. NATO documents and historical U.S. records will help contextualize this era and will uncover how the Red Scare internally within the U.S. affected the three main decisions of those in charge of U.S. foreign policy. Afterwards, the context of contemporary U.S and NATO relations will be analyzed from the fall of the Soviet Union to modern foreign policy. Evidence from the Second Red Scare will be used to further contextualize modern times and how modern international relations are still impacted by the developments of the Second Red Scare. Through this analysis, there will be historians from the development of the Cold War until now whose opinions will be present and how important their arguments are to the paper.

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CRISPR-Cas9 Targeting of aristaless1 in *Vanessa cardui* Revealed Molecular Effects in Embryonic Developmental with Minimal Effects on Adult Morphology and Wing Pigmentation

This study investigated the role of aristaless1 (al1) in *Vanessa cardui* to evaluate its potential conservation in appendage formation and its contribution to wing pigmentation. We used CRISPR technology to target al1 in *V. cardui* mutants and create loss of function mutants. Molecular analysis showed we created deletions and point mutations at the CRISPR target sites, confirming the location of the aristaless1 gene in *V. cardui*. Embryonic dissections showed that the CRISPR-injected individuals had less-defined appendage structures, indicating that al1 may play a role in early limb development. Nonetheless, adult butterflies did not show consistent or severe abnormalities in their legs or antennae, and the differences in wing pigmentation were subtle when compared to wildtype individuals. These findings indicate that although al1 is molecularly present and functional during early development, its phenotypic impacts in *V. cardui* are restricted under the tested conditions. The results suggest that the role of aristaless1 may vary among butterfly species, emphasizing evolutionary divergence .

Eric Ufomadu (Dr. Yohann Ripert)
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RAG systems and the illusion of accuracy: Rethinking Attorney Competence Standards for legal AI

Legal AI tools marketed as "hallucination-free" continue to produce fabricated citations and inaccurate legal analysis at significant rates. This article examines how retrieval-augmented generation (RAG)—the architecture underlying leading legal research platforms like Lexis+ AI and Westlaw AI—reduces but

does not eliminate hallucinations. Empirical research from Stanford Law School documents error rates between 17% and 33% for these tools. Current ethical guidance, including ABA Formal Opinion 512 and Florida Bar Opinion 24-1, instructs attorneys to "verify their output" without acknowledging that meaningful verification requires technical understanding of how RAG systems fail. This article argues that compliance with Model Rule 1.1 demands more than surface-level review; it requires attorneys to understand the specific failure modes of RAG architecture, including retrieval errors, hallucinated connections between sources and propositions, and the verification paradox that these tools create. The article concludes by proposing that bar associations develop technical competence standards addressing the unique risks of AI tools that appear authoritative while remaining unreliable.

Casey Vallecorsa (Dr. Yohann Ripert)
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Read for Reform

Read for Reform presents two booklets designed to increase library circulation for banned books and translated books by women. The first campaign, Read for Reform: Banned Books, targets books that are frequently banned or challenged. It offers multiple recommendations under different genres, designed to increase library circulation to stop self-censorship. The second campaign, Read for Reform: Women in Translation, highlights female authors whose work is translated into English. Despite the growing popularity of translated books, women still make up a small percentage of that community. The booklet allows readers to explore voices that are overlooked or ignored and is organized by region. Both campaigns are meant to increase circulation, and both have a QR-code on the back that allows for involvement in the national programs that aim to do the same. The goal is to draw in readers around the Deland area (starting on our Stetson campus) and educate them about how they can read more ethically and diversely. Together, the goal of these booklets is to help readers exercise their right to read different voices, help libraries be able to offer a wide variety of reading options, and get people involved with these issues on both local and national scales. This is the first iteration of the project, and with the assistance of Dr. Ripert and other valued voices; the project is set to expand in the coming years.

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The Impact of Low pH Levels on Carolinas Saddlebags (*Tramea carolinas*) Dragonfly Nymphal Development in Freshwater Habitats

pH is a fundamental aspect of water chemistry that can strongly influence aquatic ecosystem health, affecting species survival, growth, and development. Fluctuations in pH can alter nutrient availability, metabolic rates, and the physiological processes of aquatic organisms. Because direct chemical monitoring provides only a snapshot of conditions at a given time, biological indicators have increasingly been used to assess long-term and cumulative impacts on aquatic systems. To evaluate whether pH impacts dragonfly nymph development, we exposed a collected sample of *Tramea carolina* nymphs to low pH concentrations and recorded body length over the course of five weeks. *Tramea carolina* nymphs were separated into two groups of 15: a neutral-pH control group and a low-pH treatment group (defined as a range of 6.2–6.8). We found no statistically significant difference in growth between the control and low-pH groups over the five-week period. Although the low-pH group exhibited a slight positive trend in mean growth relative to the control, this pattern was insufficient to indicate a reliable effect of pH on nymph development. By examining the relationship between pH variation and nymph growth, this research provides valuable insights into how nutrient dynamics and chemistry influence aquatic insect populations. Given the scarcity of studies directly examining pH effects on dragonfly

nymph growth, the present study addresses an important gap in understanding how abiotic water chemistry influences Odonate development.

Soleille Vertus (Dr. Susan Peppers-Bates)
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Interpreting Identity: Black Feminist Theory and Legal Outcomes for Black Lesbian Women

This paper applies Black feminist theory, particularly the work of Patricia Hill Collins, to examine how legal institutions interpret and adjudicate cases involving Black lesbian women. Through analysis of cases including the prosecution of Wanda Jean Allen and the 2006 Greenwich Village assault, the study argues that legal outcomes are shaped by controlling images, credibility hierarchies, and the matrix of domination. These frameworks reveal how race, gender, and sexuality intersect to influence perceptions of deviance, victimhood, and legitimacy within the criminal justice system. Drawing on sociological concepts such as institutional racism, labeling theory, and social control, the paper demonstrates that legal interpretation is not neutral but embedded in broader systems of power and ideology. Ultimately, this research highlights the epistemological importance of marginalized perspectives in understanding justice and exposes structural limitations within legal frameworks that claim objectivity.

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The Weaponization of Literacy: From enforced illiteracy to Modern Barriers.

This research examines how literacy–and its absence–shapes cycles of disadvantage within African American communities. Far beyond its conventional definition as the ability to read and write, literacy functions as a critical form of social and structural power, influencing individuals' capacity to navigate institutions, access opportunities, and challenge systemic inequities. Historically, literacy served as a tool of liberation for African Americans, yet today, disparities in literacy development continue to reinforce barriers to education, economic stability and civic participation. These disparities are not random but rooted in structural factors such as limited educational access, socioeconomic inequality, and institutional bias. Guided by Critical Race Theory, Social Reproduction Theory, and Life Course Theory, this research examines how functional and critical literacy are developed or suppressed in structurally marginalized contexts. Using a mixed-methods approach, the study incorporates surveys and semi-structured interviews with African American youth (ages 12-17) enrolled in community-based programs, African American young adults (ages 18-25), and adults, including program staff and participant parents. Key variables include life outcomes— such as engagement in civic participation and socioeconomic stability (dependent variables)— and structural factors, including socioeconomic status, institutional bias, and educational access (independent variables). By framing literacy as both a social construct and a determinant of inequality, this research highlights the need to move beyond surface-level assessments of academic performance and toward a deeper understanding of how deeply embedded disparities limit not just academic outcomes, but long-term mobility and participation. Ultimately, this study seeks to reframe literacy as both a structural and social issue—one that reflects and reproduces broader systems of disadvantage—and to advocate for a more justice-oriented approach to literacy development in African American communities.

Maddie Weise (Dr. Jeremy Posadas)
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Teaching and Encouraging New Language Skills in Young Minds

This project focuses on the creation and implementation of a Spanish language program at the Lacey Family Springhill Boys and Girls Club. The purpose of this program is to introduce elementary and middle

school students to basic Spanish in a fun, engaging, and accessible way. At a time when opportunities for early language learning can be limited, especially in under-resourced communities, programs like this help fill an important gap. Rather than using traditional classroom methods, this program emphasizes interactive learning through games, music, and conversation-based activities. Each session focuses on themes such as colors, animals, food, and everyday phrases, helping students build practical vocabulary and confidence in speaking. This project highlights the importance of early language exposure and community-based learning environments. It also reflects the challenges and successes of developing a program that meets students where they are while fostering curiosity and participation. Overall, this program aims to create a positive and encouraging space for language learning and cultural awareness.

Griffin Whitacre (Dr. Carmen Palmer, Dr. Leander Seah)
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When God Went Silent: The Confrontation of Faith in the Vietnam War, 1965-75

This paper examines the profound Crisis of faith that was experienced by American servicemen between 1965 and 1975. The Vietnam War was marred by unrelenting, brutal warfare, an ill-suited strategy, and the army's measure of success via casualties. These tenets of the Vietnam War caused the servicemembers' ethics, morals, and belief in the divine to be shattered, causing a profound crisis of faith. This crisis of faith was furthered by the division of American churches. With Liberal churches condemned American troops' actions as part of a corrupt system that was poisoning the very foundation of American religious morals. While Conservative churches spread the narrative that fighting in Vietnam was fighting against absolute evil. The conflict was framed as a new-age crusade by leaders who positioned themselves as the moral authority and gave soldiers the moral certainty that they were on the right side of a just war. These conflicts and resulting crises resulted in the use of drugs and brutality towards civilians, which only served to further break down their morals and ethics. This paper is a blend of history and religious studies, arguing that the moral collapse, fueled by brutality, poor strategy, the church, and the mandate of casualties, culminated in a collective crisis of faith. Thus, creating an unwillingness to continue fighting for the government or the church.

Dionna Wrather (Dr. Leander Seah)
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War Films, Asian History, and Violence*

While war movies are useful for understanding the theme of violence in Asian history, there are nevertheless limitations, especially when compared with written sources, including books and articles. War films' strengths often reside in their visuals. Historically accurate weaponry helps immerse the viewer in the culture and time during the conflict. Being able to witness the devastation of war also immerses the viewer and resonates with people. The fixed runtime of films allows readers to process historical events far easier than a heavily detailed written recollection of a conflict. But, as a result, films must often prioritize other elements over complete accuracy, such as viewer engagement and budget. Personal beliefs and other decisions from higher ups also play a role in diluting Asian history in film, consequently there is a representation problem both within Asian films and the industry. Even though these war films have no trouble showcasing violence, "Asian history" is too broad a term and there are many other genres which do a better job teaching about violence.

*Recipient 2026 First Year Seminar Essay Award

Rayah Yehnert (Dr. Daniil Zavlunov)
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"*Ein radikaler Bruch*…": Christian Identity and the Deutsche Christen Revision of Hymns (1933–1945)*
The Deutsche Christen (or German Christians) was a movement which attempted to reconcile Nazi ideology with Protestant Christianity. It sought a Christianity that was wholly German—a religion for the Volk, unmarred by anything foreign. Hymns played a significant role in the Deutsche Christen's development of a Volk-oriented Christianity, constructing group identity through community singing and doctrinal content. This paper uses this identity-building function to evaluate hymns and hymnals published or in common use by the Deutsche Christen, paying close attention to differences in conception of identity between the leaders' "official" presentation of Christianity and the congregations' common use of the hymns. These differences are revealed through the texts of individual hymns, the public singing of hymns, and a contemporaneous review of a hymnal. I show that the differentiating factor between the leaders' vision and the true affected musical practice was the leaders' prioritization of a unified German identity founded in ethnonationalism, contrasting with the unwillingness of common people to sacrifice their traditions.
*Supported by a 2025 SURE Grant. Presented at the Butler University Undergraduate Research Conference

John Young (Dr. Emily Mieras, Dr. Kimberly Reiter)
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The United States and the Chimurenga: Evolution of U.S Diplomacy Towards Rhodesia and Zimbabwe, 1965–1987

In the greater context of Cold War geopolitics, the United States of America's diplomacy towards Africa stayed true to the Federal government's commitment to decolonization. In regard to Rhodesia and the war waged against Pan-African nationalists by its white minority government, known today as the Rhodesian Bush War or the Second Chimurenga, the United States affirmed its commitment to supporting black majority rule. However, the doctrines, practices and policies used by the United States to pressure Rhodesia into accepting black African majority rule varied based on each of the four administrations from 1965–1980. Such diplomatic changes continued following the end of white minority rule and the establishment of Zimbabwe's black majority government from 1980–1987. The reasons behind such diplomatic changes cannot simply be summed up in a black-and-white answer. From the sanctions of Lyndon B. Johnson against Rhodesia, to the soft diplomacy of Richard Nixon and Gerald Ford, to the human rights and peace-driven coercion of Jimmy Carter, and finally the sanctions of Ronald Reagan against Zimbabwe. The evolution of U.S diplomacy towards Rhodesia and Zimbabwe was driven by a myriad of factors including domestic politics, Cold War geopolitics, racial politics, and each administration's personal moral and practical beliefs.

Kira Zaitsava (Dr. Yohann Ripert)
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Local Impact Score
This study addresses the limited subnational visibility of corporate social responsibility (CSR) disclosures by developing and applying a Local Social Utility (LSU) framework to measure and compare state-level corporate social engagement over time. The LSU framework operationalizes four dimensions, Local Financial Commitment, Local Employment Quality, Community Reach, and Long-Term Local Capacity, using standardized indicators scored on a 0–5 scale. The framework is applied to longitudinal data from 2022–2024 for Florida and Texas, with pilot cases including Bombas, Starbucks, and Home Depot. The resulting state-level LSU scores reveal substantial

variation in the scale and consistency of local corporate engagement that remains obscured in national CSR reporting, enabling structured comparisons across firms and years. The analysis relies on publicly available disclosures that vary in consistency, requiring proxy indicators in some cases. The focus on two U.S. states and a limited set of pilot firms constrains generalizability. Despite these limitations, the LSU framework provides policymakers, researchers, and community stakeholders with a replicable tool for assessing and comparing corporate social activity at the state level. It also offers practical insights for evaluating alignment between corporate engagement strategies and local community needs and for informing place-based policy and partnership decisions.

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Cell Cycle-Dependent Nuclear Localization of the Merkel Cell Polyomavirus Small Tumor Antigen Suggests a Regulated Import Mechanism

Merkel Cell Carcinoma (MCC) is a highly aggressive skin cancer characterized by its link to Merkel Cell Polyomavirus (MCPyV), specifically the small tumor antigen (ST). For ST to promote cellular transformation, it must enter the nucleus, a highly regulated compartment of the cell. The mechanism of ST nuclear localization remains unknown. Previous work in MKL-1 cells, cells that naturally express ST, demonstrates exclusively nuclear localization of ST, while transduced Rat-2 cells show variable localization between both the nucleus and cytoplasm. This suggests that ST nuclear import may depend on host cell conditions. Sub-cellular fractionations were performed on cells in varying phases of the cell cycle to assess MCPyV ST nuclear localization. Serum starvation synchronizes cells to G0/G1 phase; whereas, releasing cells for 18 hours post starvation accomplishes S phase synchronization. Compared to asynchronous controls, results indicated that ST nuclear localization was highest in released cells. These findings suggest ST nuclear import is regulated by proteins active during S phase. Together, understanding the host factors of MCPyV ST nuclear import could reveal novel targets for therapeutic intervention in MCC

STUDIO AND DIGITAL ARTS

Amelia Heck

Jordan Brewster (Luca Molnar) **(Vitrine, 1st floor Sampson Hall)**
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CYBERSPACE

Aliens are real, and they come from the internet! Tecna, Ozma, and Esnae are cyber-space aliens from the planet-site of Gorlax, and they have come to Earth to learn what it means to be human. Their personalities, dynamics, and appearances reflect different parts of myself, and how growing up the "weird girl" paved the way to unabashed queerness and self-love in my life. CYBERSPACE consists of several types of art: sculpture, performance, installation, conceptual, and visual. Queerness, to me, is every aspect of my life, just like these types of art are all a part of my practice. In this project, there is a unique emphasis on Internet culture, illustrative stylizations, and Japanese culture. These inspirations come from my own interests and were solidified in my life in the way I grew up; on the internet. Everything that I do in my life is influenced by my upbringing on the internet, including the art I create. It felt important to highlight this influence in my project, especially surrounding themes of queer identity.

Amarige Champion (Dr. Katya Kudryavtseva)
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The Making of Bum Painter or So-Called Architect: Oscar Bluemner's Transition to Painting

The exhibition, Bum Painter or so-called Architect?: Oscar Bluemner's Transition to Painting, showcased Oscar Bluemner's artworks from the Vera Bluemner Kouba Collection, and chronicled the artist's challenging journey from architecture to painting. This presentation outlines my curatorial process as a student curator from preliminary research and strategic contextualization, through artwork selection and archival research, to final installation. Through reflection of both practical and conceptual aspects of the preparation for this exhibition, this presentation highlights the translation of curatorial decisions into a structured exhibition, and breaks down the curatorial process that precedes the exhibition's realization. This project reveals the careful construction necessary to transform research and conceptualization into spatial and visual structure.

Amelia Heck (Luca Molnar)
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At the Root*

Hair is a part of the human body that acts as a marker of time. My artistic practice explores depictions of the feminine body, especially hair, often through fantastical imagery. In this series, I place this practice beneath the scope of generational memory and mortality, aiming to examine how narratives of aging and death intersect with the human form. This project became deeply personal after the passing of my grandmother, whose presence continues to shape the aesthetics and storytelling of my work.

During this process, I've reflected on the idea of two separate existences spiritually tied together through the physical symbol of hair. A constant identifying feature in both my body and my art, hair also indicates the duration of a person's life. I use it to weave connections between my subjects in three dimensions. I've created textured facades using apoxie sculpt to envelop them, leaving permanent impressions behind.

Together, these works form a visual allegory bridging personal loss and the mythic nature of death, transforming my grief into a meditation on inherited feminine identity. I hope that, in some way, my grandmother can respond to these works as well as any living viewer who stands in her place.

*Supported by the LaValle Experiential Learning Fund

Charlotte Holley (Dr. Katya Kudryavtseva)
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Presenting Scrapped!: A Century of Stetson in Pages*

"Scrapped!" is an exhibition on view in Gallery duPont, featuring four scrapbooks created by women across different eras of Stetson history. These materials foreground scrapbooking as a powerful tool of citizen archivism that offers an intimate connection to the past and invites future generations to see themselves in the lives of students from a century ago. The exhibition challenges traditional notions of what constitutes a "valid" historical record by centering the everyday stories so often absent from institutional archives. This presentation will discuss the exhibition's concept and programming while launching its accompanying catalogue. Guided by both, visitors will catch a glimpse of womanhood across a century through the objects women chose to keep: saved letters, chocolate wrappers, and even locks of hair.

* Made possible by the LaValle Experiential Learning Fund

Moira Hughes (Dr. Katya Kudryavtseva)
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Imagining for Another: Curating Painting Requests from Tomoka 3

"Imagining for Another: Curating Painting Requests from Tomoka 3," explores the creation of the exhibition Imagined for Another: Painting Requests from Tomoka 3, curated by Moira Hughes under the faculty advisement of Katya Kudryavtseva. The exhibition developed from a collaborative project between advanced painting students at Stetson University and incarcerated participants in the Community Education Program at Tomoka Correctional Institution. Building on earlier iterations of Painting Requests from Tomoka, this third exhibition shifts focus from the structure of the project to the artists' experiences responding to commissioned requests from individuals they have never met. Inspired by the participatory model of Photo Requests from Solitary, the exhibition presents the original requests alongside the resulting paintings and artists' reflections on their creative processes. Through themes of longing, isolation, critique of the U.S. justice system, and imagined spaces of comfort or escape, the works reveal the complexities of translating another person's vision and highlight how the curatorial framework fosters empathy, interpretation, and creative dialogue across profound social and physical boundaries.

Maria Latour (Luca Molnar)
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Fish Sermon

Fish Sermon is an exploration of the 'mysterium tremendum', a phrase coined by German theologian, Rudolf Otto, which refers to man's experience of the spiritual, awe-inspiring, and divine. The work draws parallels between underwater phenomena and mythology, philosophy, and religion, ultimately reflecting humanity's relationship with what we perceive to be unknowable. Inspired by specimens washed up from the deep, long-lasting legends and maritime folklore prod some of the earliest instances of interaction between creatures of land and creatures of sea exemplifying mankind's relationship with the awe-inspiring mystery. We try to make sense of the unknown; we want to find our place in relation to something far bigger than we can imagine. Through science and religion we try to make sense of the sea much in the same way we try to make sense of the world, yet we instinctually fear what we cannot understand.

Isabella McKinney (Luca Molnar)
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Gay Movie Night

I've always been a lover of the performing arts: theatre, films. I remember being a little girl, watching any movie musical I could get my little hands on, and this is a passion that has lasted long into my life. As a queer woman myself, it is clear to me that the LGBT+ community has found a home in the artform, as reflected by how closely our history intertwines with the history of film and theatre. This series of paintings serves as a love-letter to a few 1990's and 2000s films, exploring the relationships and characters portrayed through a queer lens. I wanted to explore different types of love seen in media, including the "queering" of romantic love. The scale of my paintings evokes the size of a common TV screen, as if you yourself are sitting and watching each film. Over the course of working on this series, I have become quite a physical media enthusiast. For every film I sought to paint, I bought a second-hand DVD to serve as my reference. There is something really beautiful to me in owning a DVD in the physical world to be viewed at any time. They remind me of paintings in that way. In the current day, films have become so commodified, and the industry is overall showing a disregard towards the artistry of film as a

medium. By bringing these films into the realm of the fine arts, I hope my audience's view of film as an art form will be challenged. Every frame of a film could be regarded as a painting.

Ashley Phillips (Luca Molnar)
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Midnight Dinner

I work with visual textures in multiple mediums, representing a whimsical and fun imagination. I love to work with vibrant colors in a limited palette, using contrast and clean lines to create an eye-catching aesthetic. My personal style consists of red, black, white, and purple, used here as a form of self-portraiture. Three-dimensional media such as ceramics, woodworking, and sculpting are the focus of my practice. My desire to expand my knowledge in various media has led me to incorporate painting and found objects into this body of work.

This exhibition presents a dinner table scene constructed from wood, paint, ceramic, and soft sculpture. The animals chosen are typically misunderstood, as people are quick to judge them from their exterior, so I portray them in a childlike, friendly manner, enjoying each other's company.

The empty void of space, its mystery, and odd planetary shapes and constellations serve as inspiration for this work. The dining table for my exhibition resembles space, with black paint and glitter to represent stars, and the underside of the table coated in silver rhinestones to resemble a night sky. The food selection is based off of my favorite meals and desserts.

Emil Rasen (Katya Kudryavtseva / Luca Molnar)
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We Were Children Once… and Soldiers*

The diorama depicts a battlefield that is littered with toy soldiers and vehicles set in a detailed, realistic landscape. When looking from far away the piece appears playful, but closer it shows the brutality of war, symbolizing the loss of innocence and the universal suffering caused by conflict. Taking inspiration from media that often presents conflict as entertainment, while in reality it is violent and dehumanizing. The overall goal of this diorama is to challenge the viewers to reconsider the narrative of using conflict for entertainment by presenting a familiar childhood imagery in a different and unsettling way. *

*Supported by the LaValle Experimental Learning Fund

Travis Romero (Dr. Natalia da Silva)
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What is Disturbance and How Do Varying Types of Media Portray It?*

Folk Art itself is derived from outsider art, a term once used to describe art made by those in insane asylums. While those roots may be outdated, Folk Artists are still known to keep away from the spotlight. Most of them do not even consider themselves artists and try their best to separate themselves from the label. Reminiscent of the fascinating individuals, their artwork, similar to the Terracotta Toddler, is inherently unconventional. It shares many components with artists such as Alyne Harris, Carl Knickerbocker, and Mario Messa. If their intentions are innocent, why are pieces such as the Terracotta Toddler so disturbing? If not the mystery surrounding them and their origins, why must they pull such an unnerving sentiment out from within one's self?

*Recipient of 2026 First Year Seminar Essay Award

Arnold Shakirov (Dr. Dengke Chen)
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Crossover
Video Game*
Arnold Shakirov, mentored by Dengke Chen, created Crossover, a puzzle adventure set inside one house that exists in two forms: a 2D world and a 3D world. The game was designed so you switch between these views to solve problems. What you do in one view changes, the other opens a path in 2D, a door unlocks in 3D. You can also collect items in one dimension and use them in the other. The medium is an interactive game built in Unity with C#.

Arnold Shakirov collaborated with composer Luke Paxton on the original score so that the music supports the atmosphere of the game. This project was created to explore perception - how the same space can feel different depending on how you choose to see it. I want people to leave noticing how their own viewpoint shapes the world - and to try looking at it from different angles.
*Supported by the LaValle Experiential Learning Fund and the FIEA Undergraduate Summer Research Grant

Ella Swartz (Luca Molnar)
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The Show Ponies
Through large-scale paintings and sculptural elements, my work draws parallels between the “painted ladies” of the American West and my recurring figures, the “show ponies.” Painted ladies survived through spectacle, highly visible yet tightly controlled, admired but dismissed. History often reduced them to decoration, overlooking the resilience required to exist under constant scrutiny.

Similarly, my show ponies perform within systems that demand visibility. What first appears playful reveals fatigue and resistance beneath a sexualized surface. These figures shift between human and horse forms, not as costume, but as an extension of identity. While painted ladies were confined to narrow portrayals, the horse evokes strength, autonomy, and a connection to freedom.

The carousel recurs throughout the exhibition as a symbol of cyclical performance, movement without escape. The Show Ponies reclaims these histories, offering space for women, past and present, to exist on their own terms. It asks viewers to confront their gaze, question their perceptions of beauty, and recognize the tension embedded within it.

Lily Woolard (Dr. Katya Kudryavtseva)
lwoolard@stetson.edu
Danielle Hunt: Evolution in 3D
Danielle Hunt: Evolution in 3D was an exhibition on view from December 2, 2025, to February 28, 2026, examining the role of 3-D printing within contemporary artistic practice. Since its emergence in the 1980s, 3-D printing has evolved from a primarily industrial technology into a rapidly expanding artistic medium. This exhibition explored that transformation through the work of recent Stetson graduate Danielle Hunt. Featuring a selection of Hunt’s 3-D printed objects alongside photographic and mixed media works, the exhibition emphasized process as a central component of artistic production. A number of “in-progress” pieces were included to provide insight into the technical and conceptual stages of 3-D printing, allowing viewers to better understand how the medium operates and how artists engage with it creatively. Developed as a senior project in Museum and Curatorial Studies at Stetson University, the exhibition highlights both the curatorial challenges and opportunities of presenting

process-based contemporary art, while situating 3-D printing within broader conversations about innovation and materiality in the art world.

MUSIC

9:00 AM

Nicholas Lowther (Kathy Thomas) horn
nlowther@stetson.edu
Heather Langs, piano

Bagatelle — **Hermann Neuling** (1897–1967)

Laudatio — **Bernhard Krol** (1920–2013)

Roaring Fork (1993) — **Eric Ewazen**
III. Buckskin Pass
David Jaimes, flute Cole Duncan, oboe Rachel Kirkland, clarinet Raisa Carrillo, bassoon

Fantasy on Schubert's Sehnsuchtswalzer — **Franz Strauss** (1822–1905)

9:45 AM

Jordan Hanstein (Tammy Phillips) flute
jhanstein@stetson.edu
Kristie Born, piano

Minuet and Dance of the Blessed Spirits — **Christoph Willibald Gluck** (1714–1787)
from Orfeo ed Euridice

Suite Mythologique — **Leonardo De Lorenzo** (1875–1962)
I. Pan
II. Marsyas

Serenade for Karya — **Greg Harradine** (b. 1991)
Donovan Hancock, flute

La Flûte de Pan — **Jules Mouquet** (1867–1946)
I. Pan et les bergers
II. Pan et les oiseaux
III. Pan et les nymphes

10:30 AM

Danae Tran (Routa Kroumovitch-Gomez) violin

datran@stetson.edu
Natsumi Shibagaki, piano

Violin Sonata No. 2 in A minor, BWV 1003 — **J.S. Bach** (1685–1750)

III. Andante

Violin Sonata No. 1 in G Major, Op. 78 — **Johannes Brahms** (1833–1897)

I. Vivace ma non troppo

Poéme, Op. 25 — **Ernest Chausson** (1855–1899)

11:15 AM

Andrei Caquimbo (Dione Chandler) oboe

jcaquimbo@stetson.edu
Heather Langs, piano

Three Romances for Violin and Piano, Op. 22 — **Clara Schumann** (1819-1896

I. Andante molto
II. Allegretto
III. Leidenschaftlich schnell

Cinq Pièces pour le hautbois — **Antal Doráti**
La cigale et la fourmie (The Grasshopper and the Ant) (1906–1988)

Essercizii musici, Trio in E-Flat Major, TWV 42:Es3 — **Georg Philipp Telemann** (1681–1767)

II. Vivace
I. Largo
IV. Allegro

Dr. Boyd Jones, harpsichord Tim Floyd, bassoon Ivan Kostornyi, organ

1:00 PM

Alyssa Pimentel (Karen Merritt) soprano

aipimentel@stetson.edu
Kristie Born, piano

Sonnet de Pétrarque — **Émile Paladilhe** (1844–1926)

Preghiera alla Madonna, ***Tre nuove poemi*** — **Franco Alfano**
È giunto il nostro ultimo autunno — (1875–1954)

Our Last Complete Reunion With the Earth **(2026)** — **Lonnie Hevia**

On a March Day
There Will Come Soft Rains
If Death is Kind

1:45 PM

Elisabeth Lundstrom (Chadley Ballantyne, Karen Merritt) mezzo-soprano
elundstrom@stetson.edu
Jacqueline Compton, piano

Early in the Morning — **Ned Rorem** (1923–2022)

Oh, Promise Me — **Reginald De Koven** (1859–1920)

Funeral Blues — **Benjamin Britten**
from Cabaret Songs — (1913–1976)

Abschiedslied der Zugvögel — **Felix Mendelssohn** (1809–1847)

Wenn ich ein Vöglein wär — **Robert Schumann** (1810–1856)

Gretchen am Spinnrade — **Franz Schubert**
Der Tod und das Mädchen — (1797–1828)

Au bord de l'eau — **Gabriel Fauré**
Après un rêve — (1845–1924)

Love Will Come and Find Me Again — **Richard Oberacker, Rob Taylor**
from Bandstand

2:30 PM

Madiann Rivera-Velez (Karen Merritt) soprano

mriveravelez@stetson.edu
Kristie Born, piano

Durch Zärtlichkeit und Schmeicheln — **Wolfgang Amadeus Mozart** (1756–1791)
from Die Entführung aus dem Serail

3 Songs, Op. 21 — **Amy Beach** (1867–1944)

Chanson d'amour
Extase
Elle et moi

Rianne Lee, cello

The Promised Land (2012) — **Gwyneth Walker**
All My Trials
Walk on Up to Heaven

3:15 PM

Caitlin Lasswell (Lynn Musco) clarinet

classwell@stetson.edu
Karl Van Richards, piano

Fantasy Pieces, Op. 73 — **Robert Schumann** (1810–1856)

Zart und mit Ausdruck
Lebhaft, leicht
Rasch und mit Feuer

Capriccio — **Heinrich Sutermeister** (1910-1995)

Suite from The Victorian Kitchen Garden — **Paul Reade** (1943-1997)

Prelude
Spring
Mists
Exotica
Summer

Stetson Undergraduate Research Committee:

- Dr. Kimberly Reiter, Associate Professor of History – Committee Chair
- Dr. Kyle Longest, Dean, College of Arts & Sciences
- Dr. Chadley Ballantyne, Assistant Professor of Music
- Dr. Corie Charpentier, Assistant Professor of Biology
- Dr. Joshua Deckman, Assistant Professor of Spanish
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- Eve Payor, Associate Director Office of Grants, Sponsored Research & Strategic Initiatives

Thank you to the following:

- The Office of the Provost
- Dr. Rosalie Richard, Associate Provost For Faculty Development, Office of Academic Affairs, for support and the Reception and Catherine Wrobel, Program Manager, Office of Faculty Engagement, for administrative and SURE support
- Brian Piazza, Director of Donor Relations, for the Showcase Donors' Luncheon
- The Charles A. Frueauff Foundation, Inc. and Palm Beach Community Trust Fund for generous support of SURE and Frueauff Research Grants.
- Ms. Nancy Farmer and Mr. Darrell Hartke for the Farmer-Hartke endowed fund to support undergraduate research and creativity.
- Mr. and Mrs. Luis Prats for the Prats Family Restricted Fund for undergraduate research and creativity.
- The Offices of the Deans for generous research and travel grants.
- Stetson University Events and Julie Hunter, for the Reception
- Stetson Instructional Technology and University Marketing
- Administrative support staff at Stetson University, including but not limited to:
- Dale Peterson in the Office of Academic Affairs for budget support and organizational help
- The Offices of the Deans of the College of Arts & Sciences, the School of Music, and the School of Business for support with the Maris Prizes and the Reception
- The College of Arts and Sciences Board of Advisors for the Grady Ballenger Lectureship
- Most especially, Showcase Interns Caleb Brower, Nautia Dudash and Kiersten Walker, and Hannah Horne in the History Department for indispensable administrative support.