TSC

TALLAHASSEE
STATE COLLEGE

UNDERGRADUATE RESEARCH SYMPOSIUM 2025

Wednesday, March 26

UNDERGRADUATE
RESEARCH PROGRAM

Thanks to Our Sponsor

The TSC Foundation, through a continuing grant to the Undergraduate Research (UR) Program, has generously supported the Undergraduate Research Symposium every year since its inception, in 2019. Over the years, the TSC Foundation, through the support of its generous donors, has provided funding for publicity, the production of full-color posters, and cash prizes for student presenters. This year, 100% of the TSC Foundation's continuing grant to the UR Program went directly to student scholarships, by way of cash prizes awarded at this year's symposium, as well as through the UR Program's newly launched Undergraduate Research Fellowship opportunity, which provides funding for research equipment and supplies. Our inaugural class of TSC Undergraduate Research Fellows will be recognized at this year's symposium awards ceremony. We are so grateful to all of the TSC Foundation's generous donors for their support of this worthy cause.

TSC
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Symposium Award Winners

In addition to providing opportunities for students to share their research before a larger audience, TSC's Undergraduate Research Symposium is organized as a competition. Panels of expert adjudicators select the very best presentations as recipients of a small number of cash awards. Each is valued at $250 and is generously funded by the TSC Foundation. Listed below are the names of the award winners for the 2025 TSC Undergraduate Research Symposium.

2025 TSC UNDERGRADUATE RESEARCH SYMPOSIUM AWARD WINNERS

Arianna Baucum: Best Oral Presentation in Biology and Environmental Science
Moises Chacon: Best Poster in Computer Science
April Cole: Best Presentation in Performing Arts
Halden Euridge: Best Oral Presentation in Social Sciences
Kevin Frederick: Best Poster in Engineering
Loiss Fuentes Lora: Best Poster in Health Sciences
Maria Garcia and Shaun Jessemay: Best 3-Minute Thesis in STEM
Davisha Hardy: Best Oral Presentation in Humanities
Claire Hart: Best Poster in Social Sciences
Tiliyah Keith: Best Poster in Chemistry
Leoni Mitchell: Best 3-Minute Thesis in Humanities
Annabeth Norris: Best Poster in Biology
Tatianni Pinkston: Best Oral Presentation in Health Sciences
Ashley Power: Best Oral Presentation in Mathematics and Physics
John Quigley and Revan Khan: Best Poster in Physics
Shannon Sandow: Best Poster in Environmental Science
Lydia Shaw: Best Visual Arts Presentation in Two Dimensional Media
Caedmon Sprague: Best Oral Presentation in Business
Mallory Speights: Best Poster in English
Alexander Walker: Best Poster in Humanities
Zachary Ward: Best Oral Presentation in Computer Science and Engineering
Katelyn Wexler: Best 3-Minute Thesis in Social Sciences
Arden Winters: Best Visual Arts Presentation in Three Dimensional Media

Table of Contents

Welcome

It is with great pleasure that I welcome you to the 2025 Undergraduate Research Symposium at Tallahassee State College (TSC). This annual event is a celebration of academic excellence, providing our students with the opportunity to showcase their innovative research and creative endeavors. The student work displayed throughout this event is a testament to our institution's strategic priority of promoting student success.

It is with great pleasure that I welcome you to the 2025 Undergraduate Research Symposium at Tallahassee State College (TSC). This annual event is a celebration of academic excellence, providing our students with the opportunity to showcase their innovative research and creative endeavors. The student work displayed throughout this event is a testament to our institution's strategic priority of promoting student success.

The success of our students is made possible through the unwavering support of our faculty advisors and sponsors. Our faculty dedicate their time and expertise to mentoring students, fostering an environment where emerging scholars can develop into insightful thinkers, innovators, and problem-solvers. We are also deeply grateful for the support of the TSC Foundation, whose generous support provides invaluable resources and opportunities that further enrich our students' academic and professional growth.

We take great pride in the achievements of our students and the impact their research will have on their futures and the broader community. Thank you for joining us in recognizing and celebrating the hard work, dedication, and the spirit of inquiry that drives our students forward to academic excellence.

Calandra Stringer, Ph.D.
Vice President of Academic Affairs and Provost

Welcome

Dear Student Presenters, Faculty Mentors, Invited Guests, and Attendees,

Welcome to the 2025 TSC Undergraduate Research Symposium. Whatever your relationship to our College, we're so happy that you've decided to join us for this much-anticipated celebration of TSC students' scholarly and creative achievements from throughout the 2024-2025 academic year.

This year marks TSC's sixth annual Undergraduate Research Symposium. It is also our largest symposium ever, with nearly 150 student presenters participating this year. This year also marks the launch of the Undergraduate Research (UR) Program at TSC, which sponsors this important annual event, among many other research experiences and opportunities for TSC students. You'll find us at www.tsc.fl.edu/research.

TSC's Undergraduate Research Symposium was modeled on the National Conference on Undergraduate Research (NCUR), the nation's largest undergraduate research conference. Like NCUR, we welcome student participants from all disciplines, with opportunities for students to present research carried out in the natural sciences, social sciences, humanities, and the fine arts. In addition, students have the opportunity to present in a variety of formats, ranging from poster presentations to oral presentations, to *3-Minute Thesis* video presentations, short recorded presentations, no more than three minutes long, delivered "elevator-pitch style." Students in the visual and performing arts have an opportunity to share their work, while also reflecting on the ways in which the techniques developed by artists through the ages have influenced their own work. Truly, there is something for everyone at TSC's annual Undergraduate Research Symposium, and we're so glad that you've chosen to share this special event with us.

With nearly 150 presenters in this year's symposium, presentations will take place in locations throughout TSC's main campus: the Workforce Development Center (WD), the Fine and Performing Arts Center (FPAC), and the Dental Hygiene Building (DH). Opening remarks will be delivered in WD 105, followed by poster sessions later in the day in that same venue. Oral presentations and 3-minute thesis video screenings will take place throughout the day on the second floor of the DH Building. We're particularly excited that fine arts presentations will take place in the Fine and Performing Arts Center this year, with the TSC Fine Arts Gallery hosting visual arts presentations and performing arts presentations taking place in Turner Auditorium. The day will end in WD 105 with our closing awards ceremony and reception, where we will honor our student presenters and announce our award winners; TSC's Undergraduate Research Symposium also includes an element of competition, with roving adjudicators selecting the very best projects to be recognized at the event's conclusion. Everyone is welcome to attend this joyous celebration, and we very much hope that you will join us.

Once again, welcome to the 2025 TSC Undergraduate Research Symposium. We're so happy that you've decided to join us for this important annual event. We very much hope you enjoy your symposium experience.

Daniel Beugnet, Ed.D.
Professor and Chair
Undergraduate Research Program

Event Map

With nearly 150 presenters participating in this year's symposium, presentations will take place in locations across TSC's campus, including the Workforce Development Center (WD), the Fine and Performing Arts Center (FPAC), and the Dental Hygiene Building (DH). Symposium venues are circled in red in the campus map that appears below.

Symposium Schedule

Time	Event and Location
9:00-9:15	**Welcome and Opening Remarks** WD 105
9:30-10:45	**Concurrent Session 1** **Oral Presentations** DH 219, 221, and 225
10:00-11:00	**Poster Presentation Session 1** WD 105
11:00-12:15	**Concurrent Session 2** **Oral Presentations** DH 205, 219, 221, and 225
12:00-1:00	**Poster Presentation Session 2** WD 105
1:00-2:00	**3-Minute Thesis Video Screenings** DH 221 and via Zoom @ 952 1658 8947
1:00-2:00	**Visual Arts *Artist Talks*** TSC Fine Arts Gallery
2:00-3:30	**Performing Arts** Turner Auditorium
2:00-3:00	**FSU Office of National Fellowships / Center for Undergraduate Research and Academic Engagement** *Research Opportunities for Transfer Students* DH 221
4:30-6:00	**Awards Ceremony and Reception** WD 105

Concurrent Session 1 – Oral Presentations
9:30 – 10:45

Biology and Environmental Science
DH 221
Moderator: Dr. Cherie Hodge

"Giraffe Population Decline and Its Ecological and Cultural Impacts"
Arianna Baucum
Faculty Sponsor: Dr. Forster Agama

"The Impact of Noise Pollution on Marine Life: Assessing Miami, FL, As an Urban Coastal Tourist Hub"
Azure Smallwood
Faculty Mentor: Johnny Petit

"A Review on How the Compensatory Response, Drugs, Environment, and Tolerance Interact with Each Other"
Emanuel Wright
Faculty Mentor: Dr. Renee Gordon

Business Administration
DH 225
Moderator: Shekitta Allen

"Teaching a Better Future"
Chase Gray
Faculty Mentor: Dr. Forster Agama

"Discussing the Need for Competitive Sports with Physical Disabilities in Tallahassee, Florida"
Caedmon Sprague
Faculty Mentor: Dr. Ceron Bryant

Computer Science and Engineering
DH 219
Moderator: Dr. Nick Vick

"Why Artificial Intelligence Isn't a Necessary Good for Humanity"
Nicollette Arthur
Faculty Mentor: Dr. Forster Agama

"How a Computing Core Affects a Robot"
Zachary Ward
Faculty Mentor: Dr. Joseph McNeil

Poster Session 1
10:00 – 11:00

Arts, Humanities, and Social Sciences
WD 105
Moderator: Dr. Joseph McNeil

“Should The Use of AI In Criminal Justice be Abolished?”
Emily Bennett
Faculty Mentor: Dr. Forster Agama

“Music and Its Effect on Emotions”
Natalie Bowen
Faculty Mentor: Dr. Renee Gordon

“America: The World's Biggest Gun Range”
Caitlyn Brady
Faculty Mentor: Dr. Forster Agama

“Challenging Stigma: High School Perceptions of Community and State Colleges”
Destinee Britto
Faculty Mentor: Johnny Petit

“The Ethical and Societal Impact of Banning Books”
Zoey Cook
Faculty Mentor: Dr. Forster Agama

“Recreating Art with AI: Human Art vs. Machine Learning”
Damaiah Fuller
Faculty Mentor: Dr. Renee Gordon

“The Role of Tallahassee, Florida, in the Civil Rights Movement”
Samantha Hall
Faculty Mentor: Dr. Lu Vickers and Dr. Daniel Beugnet

“Leveraging Monetary Policy to Optimize Passive Investing”
Claire Hart
Faculty Mentor: Johnny Petit

“Leveling the Playing Field: The Urgent Need for Public School Funding Reform”
Kiersten Hopkins
Faculty Mentor: Dr. Forster Agama

“Breaking the Silence: Addressing Mental Health Barriers for Black Men”
O'Tisha Jones
Faculty Mentor: Dr. Renee Gordon

Poster Session 1
10:00 – 11:00

“Helping Others: Is It Natural or Something Far More Sinister?”
Andrew Lindsey
Faculty Mentor: Dr. Renee Gordon

“Ethics of AI in Animation: Ownership, Jobs, and the Future of Storytelling!”
Charlene Marshall and Mia Willis
Faculty Mentor: Noble Sissle,III

“Why Family Separation at the Border Is A Matter of Importance”
Reynaldo Portugal
Faculty Mentor: Dr. Forster Agama

“From Historical Legacies to Long Lasting Peace: Reforms to Combat Inequality in Latin America”
Dana Rojas
Faculty Mentor: Larry Crombie

“Investigating the Benthic Acretion Rates of Artificial Oyster Reefs in the Apalachicola Bay”
Lydia Shaw
Faculty Mentor: Carl Saltzberg

“The Impact of Extracurricular Activities on Student Performance”
Jason Song
Faculty Mentor: Dr. Hannah Clayton

“Reviving the Affordable Care Act: A Case for Restoring Accessible Healthcare in the United States”
Mallory Speights
Faculty Mentor: Dr. Forster Agama

“The Implications of Underage Drinking Among American Youth”
Sophia Vieitez
Faculty Mentor: Dr. Forster Agama

“Voting Rights in Court and Its Effect on the Laws of Our Country”
Alexander Walker
Faculty Mentor: Jarrett Phipps

Concurrent Session 2 – Oral Presentations
11:00 – 12:15

Health Sciences
DH 225
Moderator: Shekitta Allen

"The Effect of Physical Exercise on Academic Performance in Florida State University Students"
Emily Foggy
Faculty Mentor: Dr. Hannah Clayton

"Therapeutic Impact of Human-Animal Bond on Mental Health"
Katrina Gjendem
Faculty Mentor: Susannah Dorrance

"A College Perspective: Exploring views on Holistic Dentistry"
Tatianni Pinkston
Faculty Mentor: Dr. Hannah Clayton

Humanities
DH 205
Moderator: Dr. Cathryn Meyer

"Finding Common Ground: Effective Gun Control Measures"
Michael Nass
Faculty Mentor: Dr. Forster Agama

"Duplicate vs. Original Art"
Tanner Robinson
Faculty Mentor: Lindsey Smitherman-Brown

"A Deadly Friend: 'The Cask of Amontillado' and the Deadly Happenings of Friendship"
Davisha Hardy
Faculty Mentor: Dr. Donya Samara

Concurrent Session 2 – Oral Presentations
11:00 – 12:15

Mathematics and Physics
DH 219
Moderator: Ross Brooks

“The Role of Calculus in Automated Trading”
Jakhira Berry and Barido Johnbazia
Faculty Mentor: Vijay Subramanian and Dr. Joseph McNeil

“A Comprehensive Summary of the History and Likely Solutions to Dark Matter”
Steven French
Faculty Mentor: Larry Crombie

“Analytical Derivation of Summation Formulas: Discrete and Continuous Perspectives”
Ashley Power
Faculty Mentor: Dr. Robert Billet

Social Sciences
DH 221
Moderator: Melissa Scalzi

“Memes and the Modern Age: How the Internet's Funniest Images Dominate the Media”
Ahsen Beceriklier
Faculty Mentor: Dr. Amber Cresgy

"The Psychology of Penmanship: Can Cursive Writing Boost Mindfulness and Reduce Stress?"
Jan Curran Castro
Faculty Mentor: Kia Sanders

“Why do Civilizations Collapse and Is Our Civilization in Danger?”
Halden Euridge
Faculty Mentor: Jenny McHenry

“Why We Can't Have Nuke Things: An Examination of Media's Role in Causing Fear and Distrust about Nuclear Energy”
Kamden Hatten
Faculty Mentor: Dr. Renee Gordon

“TikTok on Trial: Balancing National Security and Digital Freedom”
Kierceten Leigh
Faculty Mentor: Dr. Forster Agama

"The Heartbeat Bill": Florida's Deceptive Six-Week Abortion Ban”
Cadence Lyons
Faculty Mentor: Dr. Edward Duggan

Poster Session 2
12:00 – 1:00

Science, Technology, Engineering, and Mathematics
WD 105
Moderator: Dr. Joseph McNeil

“Radiation and DNA: The Invisible Threat to Genetic Integrity”
Amber Aguirre
Faculty Mentor: Dr. Joseph McNeil

“Reviving Mars' Geo-dynamo By Increasing the Gravitational Energy of Orbiting Bodies”
Justin Bolt
Faculty Mentor: Dr. Renee Gordon

“Finding What a Material Is Made of from Resistivity”
Clayton Campbell
Faculty Mentor: Dr. Joseph McNeil

“Optimizing Neural Deep Learning Models for Tic-Tac-Toe Strategy Development”
Moises Chacon and Tise Thomas
Faculty Mentor: Dr. Renee Gordon

“Verifying Static Friction Formula on a Steel Surface Using An Incline Plane”
Sally Clavell
Faculty Mentor: Dr. Jorge Monreal

“Sleep Apnea: The Role of Epigenetic and Environmental Factors”
Morgan Craig
Faculty Mentor: Dr. Gina O'Neal Moffitt

“Exploring Time Perception Across Emotions and Species”
Nasir Desiree
Faculty Mentor: Dr. Renee Gordon

“Exploring Silicon as a Viable Alternative to Carbon in the Formation of Extraterrestrial Life”
Jasmine Francois
Faculty Mentor: Dr. Joseph McNeil

“Optimizing Cement Production with Integrated CO_2 Capture and Methanol Synthesis”
Kevin Frederick
Faculty Mentor: Dr. Renee Gordon

“A Spectroscopic and Molecular Analysis of Drug Partitioning, Ionization, and Absorption in the Gastrointestinal Environment”
Grayson Gardner
Faculty Mentor: Dwight Lillie

Poster Session 2
12:00 – 1:00

“Genetics and Health Disparities: The Prevalence of Sickle Cell Anemia in African Americans”
Astoria Hand
Faculty Mentor: Dr. Renee Gordon

“A Call for Action: Strengthening Climate Control Regulations in the US”
Lexie Harrell
Faculty Mentor: Dr. Forster Agama

“The Effectiveness of Genetic Testing in the Three Different Types of Leukemia”
Timeshia Harris
Faculty Mentor: Susannah Dorrance

“Cost and Benefits of Miniaturization”
Nickolas Harvey
Faculty Mentor: Jasun Burdick

“The Increased Accessibility and Sophistication of Artificial Intelligence Language Models: Implications for Cybersecurity and Ethical Oversight”
Aurora Haunsperger Mendoza
Faculty Mentor: Jim Quinn

“Pulse and Melody: Understanding the Interplay Between Music and Cardiovascular Rhythm”
Kailey Hoffman
Faculty Mentor: Santiago Molina

“Cybersecurity & Me: Mounting a Defense for Privacy in the Digital Age”
Rachel Hurley
Faculty Mentor: Dr. Renee Gordon

“What Makes Heavy Metals Neurotoxic?”
Tiliyah Keith
Faculty Mentor: Dwight Lillie

“Computer Hardware - Vital to Society”
Timothy McCall
Faculty Mentor: Dr. Renee Gordon

“The Role of Cannabinoids on Overcoming Drug-Resistance in Breast Cancer Cells”
Zachary Meeks
Faculty Mentor: Dr. Renee Gordon

“Conductivity Meets Flexibility: Understanding Nitinol's Resistivity and Potential Practical Applications”
Owen Mercure
Faculty Mentor: Dr. Joseph McNeil

“Decoding the Root Causes of Obesity Among American Youth”
Alonso Miranda-Tirado
Faculty Mentor: Dr. Forster Agama

Poster Session 2
12:00 – 1:00

“Surgical Site Infection”
Jephte Moise
Faculty Mentor: Daniella Azor Petit

“Effect of Rosmarinic Acid on Cancer-Promoting Bacteria”
Joi Monsanto
Faculty Mentor: Dr. Jillian L. Pope

“Examining The Connection Between The Gut Microbiome and the Development Of Alzheimer's Disease”
Annabeth Norris
Faculty Mentor: Carl Saltzberg

“Driving into Tomorrow: Projecting the Prevalence of Autonomous Vehicles”
Joshua Osborne
Faculty Mentor: Vijay Subramanian

“Similarities Between Canine and Equine Prion Gene”
Maggie Tterlikkis
Faculty Mentor: Harlon Hawthorne

“The 1s and 0s of Exoskeletons”
Elijah Pantophlet
Faculty Mentor: Dr. Renee Gordon

“Addressing the impacts of Climate Change: Rising Sea Levels, Extreme weather, and the Path Forward”
Bryson Pate
Faculty Mentor: Dr. Forster Agama

“Building a Stronger Healthcare System Through Affordability, Accessibility and Technology”
Cayden Pate
Faculty Mentor: Dr. Forster Agama

“Assessing Tallahassee State College Students' Perceptions of Healthy BMI Using Silhouette Analysis”
Noah Perdue
Faculty Mentor: Brett Gourley

“A College Perspective: Exploring Views on Holistic Dentistry”
Tatianni Pinkston
Faculty Mentor: Dr. Hannah Clayton

“Human Physiological Response to Frequencies Produced by Animals”
Gabrielle Powell
Faculty Mentor: Dr. Joseph McNeil

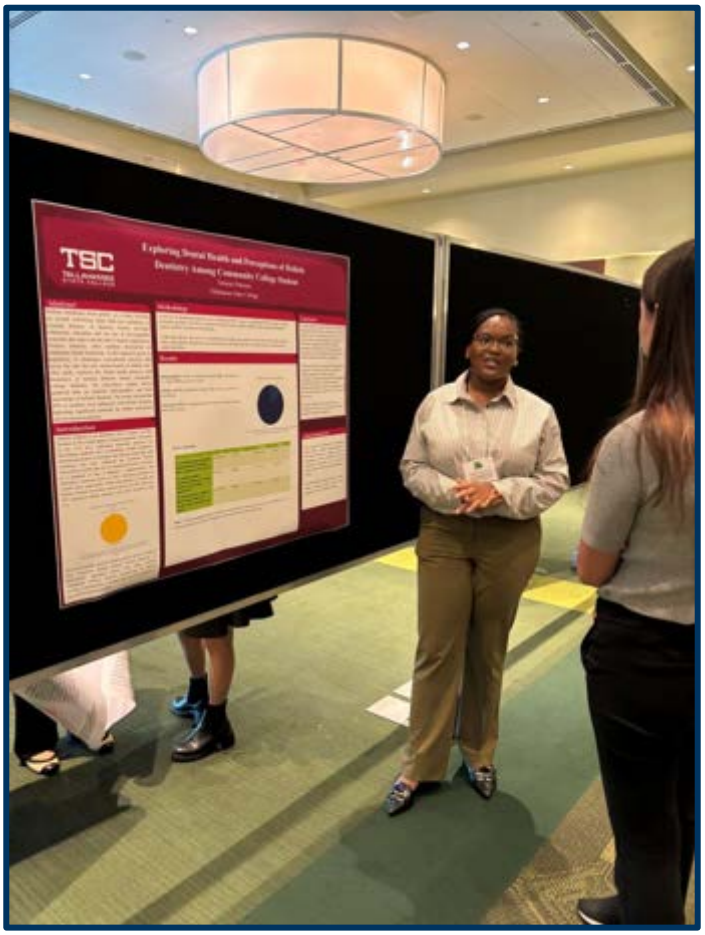
“Mathematical Modeling of Exoplanet Transit Light Curves with Limb Darkening Effects”
John Quigley and Revan Khan
Faculty Mentor: Dr. Joseph McNeil

Poster Session 2
12:00 – 1:00

“Bacteriophages and Their Role in Treating Antibiotic Resistance”
Bree Rodriguez
Faculty Mentor: Dr. Hannah Clayton

“Oyster Domes and the Impacts on Water Quality in Oyster Bay, Florida”
Shannon Sandow
Faculty Mentor: Dr. Beth Huettel

“The Kinematic and Differential Equations of Projectile Motion”
Landon Tillman
Faculty Mentor: Dr. Joseph McNeil



3-Minute Thesis Video Screenings
1:00 – 2:00

DH 221 and via Zoom @ 952 1658 8947
Moderator: Dr. Renee Gordon

Humanities

"Gun Control: The Debate If We Should Make the Laws Stricter or Not"
Felipe Castillo
Faculty Mentor: Dr. Forster Agama

"The Importance of Understanding Spirituality in the United States"
Leoni Mitchell
Faculty Mentor: Dr. Forster Agama

Science, Technology, Engineering and Mathematics

"Technology and Its Integration with the Human Brain"
Maria Garcia and Shaun Jessemay
Faculty Mentor: Dr. Renee Gordon

"Are Self-Driving Cars for the Better or for the Worse?"
Abel Samson
Faculty Mentor: Dr. Renee Gordon

"Optimizing Recycling Infrastructure: A Data-Driven Approach to Reducing Litter in Tallahassee"
Musa Tumsah and Revan Khan
Faculty Mentor: Johnny Petit

3-Minute Thesis Video Screenings
1:00 – 2:00

Social Sciences

“The Overlooked Side of ADHD: Emotional Regulation Matters”
Francine Stacey Aragon
Faculty Mentor: Dr. Gina O'Neal Moffitt

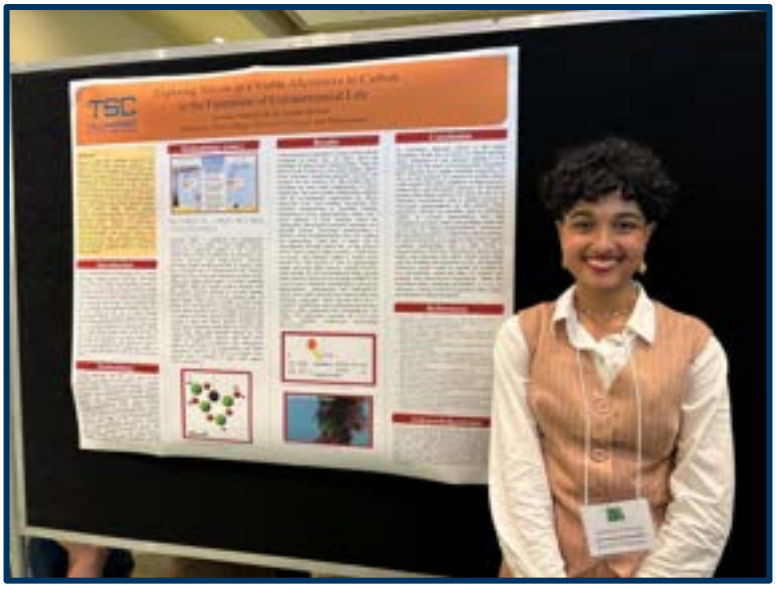
“Sleep Apnea: The Role of Epigenetic and Environmental Factors”
Morgan Craig
Faculty Mentor: Dr. Gina O'Neal Moffitt

“How Does a Lack of Phonological Awareness Impact Phonics Development?”
Cheleshia Johnson
Faculty Mentor: Natalie Montgomery

“Therapeutic Approaches to Treating Chronic Traumatic Encephalopathy and Related Traumatic Brain Injuries”
Musa Tumsah
Faculty Mentor: Dr. Gina O'Neal Moffitt

“Roe v. Wade Should be Overturned”
Katelyn Wexler
Faculty Mentor: Dr. Renee Gordon

“Music’s Effect on the Affective State of Mind”
Aiyetoro Wright
Faculty Mentor: Kermit Harrison



Visual Arts *Artist Talks*
1:00 – 2:00

TSC Fine Arts Gallery
Fine and Performing Arts Center (FPAC)
Moderator: Dr. Amber Cresgy

“The Moon That Was Blinded”
Karla Backey
Faculty Mentor: Dr. Renee Gordon

“The Lament”
Emma Beckman
Faculty Mentor: Julie Baroody

“Garden of Eden”
Jasmine Brown
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Man-made”
Dina Cisneros
Faculty Mentor: Dr. Renee Gordon

“The Soothing Effect of Humming on Auditory Hallucinations”
Jack Coetzee
Faculty Mentor: Dr. Renee Gordon

“The Legend of Shadows”
Sean Ford
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Holy Spirit”
Michelle Fulbright
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Anonymous Hotel”
Audrey Harlacher
Faculty Mentor: Ljiljana Obradovic-Edmiston

“You Are”
Fiona Iley
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Celestial Cluster”
Sara Johnsen
Faculty Mentor: Julie Baroody

“Exploration Through Self Portrait”
Olivia LeFils-Roberts
Faculty Mentor: Ljiljana Obradovic-Edmiston

Visual Arts *Artist Talks*
1:00 – 2:00

“To Brush Your Teeth”
Jorden Marik
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Self-Portrait”
Karen Morris
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Doe”
Sofie Mullins
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Monochromatic Studies of Reverie”
Citlali Patino
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Turmoil”
Lydia Pickron
Faculty Mentor: Ljiljana Obradovic-Edmiston

“The Static of Relentless Expectations”
Lydia Shaw
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Ordained Ignorance”
Isabella Stiles
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Grandeur over Utility”
Cole Thomas
Faculty Mentor: Ljiljana Obradovic-Edmiston

“The Need to Espy Is Upon Us”
Sophia Willett
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Screen Print on Bristol Paper”
Isaiah Williams
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Internal Void: A Study of Cotard’s Syndrome”
Arden Winters
Faculty Mentor: Dr. Gina O'Neal Moffitt

Performing Arts
2:00 – 3:30

Turner Auditorium
Fine and Performing Arts Center (FPAC)
Moderator: Dr. Donya Samara

“Dancing Through Mental Health”
Ella Chapman and Madeline Gregory
Faculty Mentor: Cynth Carines Malbas

“Homeward Bound-Soprano”
April Cole
Faculty Mentor: Dr. Donya Samara

“Visualizing Obsessive-Compulsive Disorder: A Film Project on Understanding and Managing OCD”
Eugene Cooper III
Faculty Mentor: Christina Augustine

“Ruined”
Natalie Gordon
Faculty Mentor: Arden Kelly

“Program Oral Interpretation on The Story of Closeted Sexuality”
Olivia Shull
Faculty Mentor: John Schultz

“Blue Galaxy”
Presley Tarver and Elizabeth Saunders
Faculty Mentor: Michelle Peruche

Opportunities for Transfer Students
2:00 – 3:00

Florida State University
Office of National Fellowships /
Center for Undergraduate Research and Academic Engagement
Moderator: Joe Hurd
DH 221

Join representatives of Florida State University's Office of National Fellowships and FSU's Center for Undergraduate Research and Academic Engagement for this special presentation designed to connect incoming FSU transfer students with opportunities to continue their research experience immediately upon transfer. Attendees will learn about opportunities to obtain funding and academic credit for research experiences pursued while at FSU. And attendees will learn more about the dynamic community of undergraduate researchers that transfer students can join immediately upon transfer. Don't miss this opportunity to learn about all that FSU has to offer transfer students interested in furthering their research journey!

Awards Ceremony and Reception
4:30 – 6:00

Join us for the joyous celebration of TSC students' scholarly and creative achievements from the 2024 – 2025 academic year at the closing awards ceremony for the Sixth Annual TSC Undergraduate Research Symposium. The ceremony will take place from 4:30 – 6:00 PM in WD 105. At this time, we will acknowledge all of our student presenters, with each receiving a certificate and an award medallion, and we will announce the recipients of this year's awards for *Best Presentation* in various disciplines and presentation formats. A reception with heavy hors d'oeuvres will immediately follow the ceremony. All members of the TSC community, and members of the community at large, are welcome and encouraged to attend. We hope to see you there!

UNDERGRADUATE
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Concurrent Session 1 – Oral Presentations
Abstracts

Why Artificial Intelligence Isn't a Necessary Good for Humanity.

Nicollette Arthur
Faculty Mentor: Dr. Forster Agama

I, Robot, starring Will Smith, introduced millions to the potential perils of artificial intelligence (AI). This paper examines the increasing prevalence of AI in daily life, from academic assignments to personalized recommendations, arguing that its utility in one area doesn't justify unchecked expansion. Through an analysis of current AI implementation trends and their societal impact, this study finds a correlation between increasing AI automation and potential job displacement. While acknowledging AI's benefits, the research reveals unacceptable risks associated with its pervasive adoption, including mass unemployment, severe privacy violations, and the erosion of essential human connection. These findings suggest that while AI offers certain advantages, its current trajectory poses significant societal challenges, requiring careful consideration and regulation.

Giraffe Population Decline and Its Ecological and Cultural Impacts

Arianna Baucum
Faculty Mentor: Dr. Forster Agama

This paper examines the dramatic decline in giraffe populations and the ensuing concerns for both the African environment and communities living alongside these iconic animals. Giraffes play a crucial role in maintaining ecosystem balance, influencing both plant and animal life. This study analyzes population data and ecological research to assess the multifaceted impact of giraffes. Findings reveal that giraffes are vital to ecosystem health throughout their life cycle, contributing to the vitality of diverse flora and fauna. Furthermore, giraffes have significantly shaped the cultural landscape of communities, particularly in Kenya and Tanzania. The potential extinction of giraffes poses severe ecological and cultural consequences, highlighting the urgent need for conservation efforts.

Teaching a Better Future

Chase Gray
Faculty Mentor: Dr. Forster Agama

This essay examines the persistent funding challenges facing public schools and their impact on student success. Millions rely on these institutions, yet they often lack resources for quality instruction and support. Through analysis of funding models, achievement data, and case studies, this research investigates the correlation between funding and student outcomes. Findings indicate a strong link between adequate funding and improved graduation rates, reduced achievement gaps, and increased access to advanced coursework. The essay argues that increased funding is essential to upgrade facilities, attract qualified teachers through competitive salaries, enhance student support services, and expand access to technology. It explores long-term societal benefits, including a stronger workforce, reduced inequality, and a stronger economy.

Concurrent Session 1 – Oral Presentations
Abstracts

The Dangerous Fires of California

Kyle McCausland
Faculty Mentor: Dr. Forster Agama

This paper examines the impact of the ongoing wildfires in California on individuals and communities. Through an analysis of news reports, government data on fire damage, and personal accounts from affected residents, the study explores the multifaceted consequences of these fires, including the destruction of homes and businesses, the exacerbation of the housing crisis, and the potential increase in homelessness. Findings reveal the economic losses suffered by business owners and the emotional toll on those who have lost their homes. The research also highlights the already precarious housing market in California, emphasizing how widespread property loss will further strain resources and contribute to the growing homeless population. Additionally, the essay addresses the issue of arson, analyzing its contribution to the crisis and the challenges it poses for firefighting efforts. The essay concludes by discussing the long-term implications of these fires and the need for both immediate relief and preventative measures.

The Impact of Noise Pollution on Marine Life: Assessing Miami, FL, As an Urban Coastal Tourist Hub

Azure Smallwood
Faculty Mentor: Johnny Petit

Noise pollution has emerged as a significant environmental concern, disrupting our daily lives, and has been linked to health issues, especially in densely populated regions. However, its effect on marine ecosystems is not as well recognized. This study examines the sources, effects, and potential solutions to ocean noise pollution, utilizing Miami, Florida as a prominent coastal tourist destination. Miami's tourism industry and industrial activities contribute to elevated noise levels that negatively impact marine life. Such consequences include behavioral disruptions, physiological stress and environmental issues leading to the destabilization of ecosystems. A case study on the annual Ultra Music Festival highlights the stress responses observed in marine species due to increased noise levels. Marine species rely on sound for communication, navigation, and survival, making them vulnerable to noise disturbances. This research aims to analyze the connection of tourism and high traffic locations on anthropogenic noise as a threat to marine biodiversity.

Discussing the Need for Competitive Sports with Physical Disabilities in Tallahassee, Florida

Caedmon Sprague
Faculty Mentor: Dr. Ceron Bryant

This essay advocates for the establishment of competitive sports for individuals with physical disabilities in Tallahassee. Drawing on Kim Wickman's research, it highlights how sports can enhance life qualities and foster inclusion among disabled individuals. If the disability community wants competitive sports in Tallahassee, they need to give the town the awareness that they want to play competitive sports, raise awareness that there are sports for them, and start a program for competitive sports. People can grow life skills through sports and that will be a huge benefit for the physically disabled community. It would not only affect the disabled community but Tallahassee. People will see that Tallahassee has things for everyone, and they don't leave anyone out. Tallahassee will earn money because people will come to participate and watch the events. If Tallahassee creates sports for people that have physical disabilities, it will impact the disabled community and the town.

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How a Computing Core Affects a Robot

Zachary Ward
Faculty Mentor: Dr. Joseph McNeil

The abstract for my research project includes comparing the differences between the computers used to run a basic robot: Arduino v. Raspberry Pi. The difference between the computing components will determine how inputs and outputs differ, how movements will be different, as well as how the computers will interpret and avoid obstacles in its way. I, as a student, have light experience with robotics and coding, so this research project will also analyze the difficulty for learning how to use and program each computer, as well. By the end of this project, my research should determine how efficiency changes in many factors for the robot, and conclude which computer is more beginner-friendly.

A Review on How the Compensatory Response, Drugs, Environment, and Tolerance Interact with Each Other

Emanuel Wright
Faculty Mentor: Dr. Renee Gordon

This review examines the relationship between the conditioned compensatory response (CCR), ethanol, alcohol, and tolerance, focusing on the relationship of the drugs' stimuli and the CCR. The CCR is a physiological reaction where the body compensates for the effects of drugs by maintaining homeostasis through somatic responses. These responses are triggered by drug cues, which can be linked to drug intake via sensory factors. This mechanism contributes to drug tolerance, as the body anticipates the drug's effects based on learned associations. We investigate two studies, one on honeybees (Apis mellifera) and another on human alcohol consumption. The studies revealed the conditioned compensatory response to the stimuli of alcohol and ethanol can be a direct mechanism in giving tolerance to the effects of the drugs, where the body adapts in that setting. Overall, the review highlights the crucial role of the CCR in drug tolerance and its implications for pain management.

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Abstracts

Should The Use of AI In Criminal Justice be Abolished?

Emily Bennett
Faculty Mentor: Dr. Forster Agama

This paper examines the problematic role of AI in criminal justice systems, focusing on issues of bias, impacts on human judgment, and lack of transparency. Extensive research and analysis of current literature reveal implications of AI use across various facets of the justice system, including over-reliance on AI-driven decisions, the shaping of human perceptions, and the potential for unjust outcomes. Findings suggest that overtrust in AI systems can skew human judgment, potentially leading to unfair or discriminatory outcomes. These findings raise concerns about AI's influence and underscore the crucial need to ensure transparency and fairness within the justice system.

Music and Its Effect on Emotions

Natalie Bowen
Faculty Mentor: Dr. Renee Gordon

Music has always been an outlet for my emotions, and it left me pondering the question why. I wanted to know why jamming out to hard rock after a stressful day was so relieving, or why sobbing to a heart-wrenching song was so cathartic. After delving through various credible books, I found that music has a profound ability to arouse emotions that stems directly from neurotransmitters like dopamine. Understanding how exactly music is linked to emotions can have numerous benefits. It can be a healthy coping mechanism to turn to, a stress reliever, mood enhancer, and an amazing way to connect with people on an emotional level.

America: The World's Biggest Gun Range

Caitlyn Brady
Faculty Mentor: Dr. Forster Agama

With more mass shootings than days in the year, America’s gun violence crisis is undeniable. Despite a national narrative emphasizing law and order and the well-being of its citizens, effective gun safety regulations are conspicuously absent. This essay dissects America’s complex gun control landscape, focusing specifically on Florida and its legislative responses. Examining issues such as lax background checks, the availability of military-grade assault weapons, and controversial “stand your ground” laws, this paper explores potential avenues for gun control that respect Second Amendment rights. Findings suggest that comprehensive, constitutional gun control measures are indeed achievable.

Poster Session 1
Abstracts

Challenging Stigma: High School Perceptions of Community and State Colleges

Destinee Britto
Faculty Mentor: Johnny Petit

Community and state colleges are often perceived as lesser alternatives to four-year universities, leading many high school students to overlook the valuable opportunities they provide. This study investigates how high school students view community and state colleges and whether their perceptions change when given more information about the benefits of these institutions. Surveys and interviews will be conducted with high school students to assess their initial opinions and measure shifts in perception after exposure to success stories, financial advantages, and academic opportunities available at these colleges. The goal is to challenge negative stereotypes and highlight the accessibility and quality education these institutions offer. Anticipated results include a greater appreciation for community and state colleges once students understand their value. This research aims to promote a more informed perspective on higher education choices and encourage students to consider all viable pathways to academic and career success.

The Ethical and Societal Impact of Banning Books

Zoey Cook
Faculty Mentor: Dr. Forster Agama

This paper examines the ethical and societal concerns surrounding banning books in school, focusing on biases, the desire for power, and the spread of misinformation. Through a comprehensive literature review of scholarly articles, this research analyzes the ethical implications of which types of books should be banned and how these are chosen. The findings suggest that biases, the desire for power, and the spread of misinformation pose significant ethical and societal challenges to implementing book banning in schools.

Recreating Art with AI: Human Art vs. Machine Learning

Damaiah Fuller
Faculty Mentor: Dr. Renee Gordon

In this study, I will research if Artificial Intelligence (AI) can properly recreate art and keep the original artwork as intended. To do this, I will draw an image and run it through an AI generation tool to notice if there are changes. The study will include three different images, each drawn by a human for a different amount of time, to explore if AI will recreate a simple drawing versus a detailed one. The study will examine if AI can improve the artwork by adding details, or if it distorts the artwork overall. The conclusion will determine whether AI truly improves art, or if it just takes away from the creative process. This research will provide answers to the question everyone wants to know. If AI is successful with improving artwork while keeping the original art, will AI be a valuable tool for human artists, or will it replace them altogether?

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The Role of Tallahassee, Florida, in the Civil Rights Movement

Samantha Hall
Faculty Mentors: Dr. Lu Vickers and Dr. Daniel Beugnet

In this research project, I will explore the events of the Civil Rights Movement that happened in Tallahassee, Florida, the capital of Florida and home to Florida A&M University, an HBCU that played an important role in the Civil Rights Movement. I will conduct this project by first carrying out a literature review exploring actions taken by Civil Rights Movement activists in the Tallahassee area. Then, I will carry out qualitative interviews with local participants in the Civil Rights Movement. My goal is to identify gaps in our knowledge about the contributions of Tallahassee activists to the broader Civil Rights Movement nationally.

Leveraging Monetary Policy to Optimize Passive Investing

Claire Hart
Faculty Mentor: Johnny Petit

The value of savings deteriorates with the rise of inflation, affecting all Americans, which can be combated by leveraging the inverse relationship between federal interest rates and inflation. For this project, a computer program was designed, allowing users to invest into an index fund, the S&P 500 or the NASDAQ, where the investment is held until federal interest rates are hiked, forecasting a period of deflation. The investment is then transferred to a user-elected treasury security holding for two to three years to avoid the loss. Upon maturity, the money is reinvested into the index fund to take advantage of market inflation. The program uses data over the past 20 years to compute the daily value of the investment and compares the total return to what it would have been if the initial investment was held only in the index fund or only in the treasury security.

Leveling the Playing Field: The Urgent Need for Public School Funding Reform

Kiersten Hopkins
Faculty Mentor: Dr. Forster Agama

This paper examines the contentious issue of educational funding disparities, specifically the discrepancy between funding allocated to charter schools versus public schools. The paper argues that these funding inequities not only impact the quality of education students receive but also affect their perceived value and future opportunities. Through an analysis of scholarly articles and relevant data on school funding and student outcomes, the paper demonstrates the detrimental effects of unequal funding on public school students. Ultimately, this paper asserts that increased government funding for public schools is essential to ensure equitable educational opportunities for all students.

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Breaking the Silence: Addressing Mental Health Barriers for Black Men

O'Tisha Jones
Faculty Mentor: Dr. Renee Gordon

Due to the convergence of social, gender, and racial variables, Black men in the US suffer particular and complex mental health challenges. The stigma associated with mental health in society, especially in Black communities, frequently deters people from seeking help, which results in underdiagnosis and undertreatment of mental health issues. Many facts contribute to Black men not getting the help they need. According to recent studies, some of the factors that may play a part in the underdiagnosis and undertreatment of mental health issues include systemic racism, discrimination, microaggression, emotional expressiveness, and vulnerability, which may be a result of cultural expectations of masculinity and resilience. This presentation will focus on how institutional injustices and cultural influences have shaped the experiences of Black men's mental health. It will also explore how to improve the mental health of Black men.

Helping Others: Is It Natural or Something Far More Sinister?

Andrew Lindsey
Faculty Mentor: Dr. Renee Gordon

"Helping Others: Is It Natural or Something Far More Sinister?" explores the motivations behind human altruism, asking the question of whether human acts of kindness are purely innate or driven by more complex, self-serving factors. Annually, over 1 billion people take time out of their lives to participate in volunteer endeavors. At first glance, this is quite the uplifting statement, but have you ever thought to ask why we help others? Where does the desire to do good stem from? Through the method of using hundreds of questionnaires, we set out to discover what motivates people to help others, and how societal and cultural standards can have an influence on these motivations. Ultimately, this project seeks to grasp a greater understanding of the true nature of a desire to help others, weighing the mysterious and complex balance between genuine compassion and more self-interested motives.

Ethics of AI in Animation: Ownership, Jobs, and the Future of Storytelling!

Charlene Marshall and Mia Willis
Faculty Mentor: Noble Sissle, III

The rise of AI in animation is creating excitement and worry in the entertainment world. This paper looks at three concerns: who owns animations when AI helps create them, what happens to animators' jobs when computers can do their work, and how AI might change the way we tell stories through animation. Many animators are concerned about losing their jobs to AI Tools, while studios are trying to figure out if they can claim full ownership of AI-assisted work. There's also debate about whether AI animation will lead to more creative freedom or make all animations start looking the same. By examining current AI animation tools and talking to industry professionals, this research explores ways to use AI that do not put animators out of work or compromise creative expression. The goal is to find a balanced approach that lets us use new technology while protecting human artists and their work.

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Why Family Separation at the Border Is A Matter of Importance

Reynaldo Portugal
Faculty Mentor: Dr. Forster Agama

This paper examines the ethical implications of family separation at the U.S. border, arguing for stricter policies to prevent this practice. The analysis explores the profound human rights concerns raised by separating families, including the potential harm to children's well-being and the need for a more humane and effective immigration system. Through an examination of human rights law, psychological research on the effects of trauma on children, and analysis of current border policies, the study investigates the detrimental consequences of family separation. Findings highlight the long-term psychological damage inflicted on children and the potential violation of international human rights standards. The paper argues that a fundamental shift in perspective is necessary, urging Americans to recognize the motivations of migrants seeking a better life. It concludes by proposing specific policy recommendations aimed at protecting families and ensuring a more just and compassionate approach to immigration.

From Historical Legacies to Long Lasting Peace: Reforms to Combat Inequality in Latin America

Dana Rojas
Faculty Mentor: Larry Crombie

Issues such as inequality and violence have taken hold of Latin America. Today, the region is experiencing the legacy of imperialism and colonialism, a reality that has left a long-lasting mark. These historical factors have contributed to problems that have hindered both the economic and social development of Latin America. The key lies in fostering a solution, a source of hope for the population. The answer is not in violence but in peace. Given the social challenges surrounding Latin America, lasting peace must be implemented through a precise methodology. This article outlines the characteristics of this peaceful approach, a bottom-up approach. The true salvation from violence begins by empowering ordinary citizens and making them the protagonists in shaping their own peace process.

Investigating the Benthic Accretion Rates of Artificial Oyster Reefs in the Apalachicola Bay

Lydia Shaw

This study investigates the potential of artificial reef structures, specifically reef balls, to enhance oyster growth and support population recovery in Apalachicola Bay, Florida, a region historically dependent on oysters for ecological and economic benefits. In response to the continued challenges faced by oyster populations, reef balls were deployed in East Bay and West Bay, and their volumes were monitored over two years using Agisoft modeling. Concurrently, salinity data from Apalachicola National Estuarine Research Reserve stations were analyzed to identify environmental factors influencing growth rates. Results demonstrated significant increases in reef ball volume over time, with East Bay outperforming West Bay by 14.18% in accretion rates and supporting greater numbers of market-sized oysters. No correlation was found between salinity and growth rates, indicating the need for further studies on other environmental factors. These findings highlight the potential of reef balls as effective tools for oyster restoration in targeted areas of Apalachicola Bay.

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Abstracts

The Impact of Extracurricular Activities on Student Performance

Jason Song
Faculty Mentor: Dr. Hannah Clayton

Extracurricular activities are often linked to increased student engagement, but does greater involvement lead to higher academic performance? My research aims to explore this connection by analyzing whether students who excel academically also dedicate more time to extracurricular activities. To gather data, I will create a Google Forms survey and randomly select 50 students from campus to participate. The survey will include questions assessing their involvement in extracurriculars alongside their academic performance. By analyzing the collected data, I hope to identify correlations between student success and participation levels, as well as other potential influencing factors.

Reviving the Affordable Care Act: A Case for Restoring Accessible Healthcare in the United States

Mallory Speights
Faculty Mentor: Dr. Forster Agama

This paper explores the contrasting approaches of the Affordable Care Act (ACA) and market-based healthcare plans, arguing that the ACA offers a more beneficial framework for the United States. Through extensive research, including scholarly articles and real-world examples, the analysis demonstrates the advantages of the ACA. A critical issue facing the nation is the lack of affordable healthcare and health insurance. This paper contends that exploring either a single-payer system or reinstating and strengthening the ACA are viable paths forward. The ACA aimed to reduce costs for prescriptions and medical services, and research indicates its positive impacts, such as Medicaid expansion and the elimination of annual and lifetime limits on essential health benefits. Too many patients, despite their hard work and multiple jobs, struggle to afford necessary medications, even with insurance coverage.

The Implications of Underage Drinking Among American Youth

Sophia Vieitez
Faculty Mentor: Dr. Forster Agama

This paper explores the significant implications of underage drinking. Focusing on three key areas – impaired brain development, legal consequences, and the potential for future alcohol addiction – the analysis examines the multifaceted risks associated with underage alcohol consumption. Because underage drinking remains a pervasive and consequential issue, it demands continued attention. By highlighting these specific risks, this paper aims to inform and raise awareness about the dangers of underage alcohol use, emphasizing the importance of understanding the full scope of its potential consequences.

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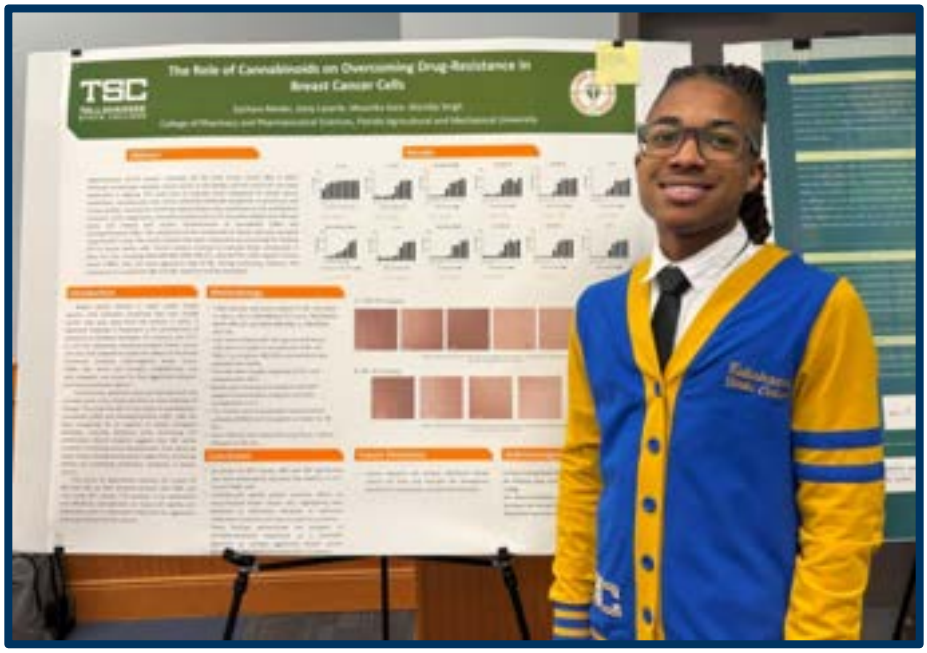
Abstracts

Voting Rights in Court and Its Effect on the Laws of Our Country
Alexander Walker
Faculty Mentor: Jarrett Phipps

Throughout much of American history, the right to vote has not been equally accessible to all citizens. Various groups, particularly marginalized communities, have faced significant obstacles in their fight to secure this right. This project explores several pivotal court cases that have played a critical role in the expansion of voting rights, focusing on the ways in which legal rulings addressed racial and gender-based disenfranchisement and economic barriers to voting. These cases reinforce the democratic ideal that all citizens should have an equal opportunity to participate in the electoral process. As we move forward as a society, it is essential that the lessons of past struggles are remembered, and that the fight for equal access to the right to vote remains a central focus of both legal efforts and public policy.



Concurrent Session 2 – Oral Presentations
Abstracts

Memes and the Modern Age: How the Internet's Funniest Images Dominate the Media

Ahsen Beceriklier
Faculty Mentor: Dr. Amber Cresgy

This presentation explores how and why memes have become the most effective way of spreading information, utilizing primary and secondary research to affirm the impact of memes on our society, politics, and marketing. Successful memes are able to implement the three qualities of effective media: spreadability, accessibility, and comprehensibility. While critics may argue that memes are not as influential as other forms of media, or they generally lack meaning or importance, studies conducted during the peak of the COVID-19 pandemic have shown that memes encouraged active communication and social coping. The heightened popularity of social media platforms has emphasized the significance of memes as a new form of exchanging ideas. It is important to be aware of the way we form connections and how seemingly simple images have the power to influence the way we think and behave, whether that be for the better or for the worse.

The Role of Calculus in Automated Trading

Jakhira Berry and Barido Johnbazia
Faculty Mentors: Vijay Subramanian and Dr. Joseph McNeil

Calculus plays a fundamental role in the development and optimization of market trading bots, which rely on mathematical models to analyze price movements and execute trades. This study explores how key calculus concepts, such as derivatives and integrals, are applied to financial algorithms for trend prediction, risk assessment, and trade execution. By utilizing rate of change calculations, trading bots can identify momentum shifts and optimize entry and exit points. Additionally, integral calculus aids in calculating cumulative returns and evaluating market fluctuations over time. Through a review of algorithmic trading strategies and case studies, this research highlights the importance of calculus in enhancing the efficiency and accuracy of automated trading systems. The findings suggest that a deeper understanding of calculus can improve algorithmic trading performance, reducing risks and maximizing profits in dynamic financial markets.

The Psychology of Penmanship: Can Cursive Writing Boost Mindfulness and Reduce Stress?

Jan Curran Castro
Faculty Mentor: Kia Sanders

The purpose of this study is to investigate how different writing formats affect the author’s mindfulness, stress levels, and mood. In this study, participants were divided into three groups, each assigned a different writing format: cursive, print, or type-print. Throughout the week, participants were asked to journal for 15 minutes daily in their group’s respective format. After this, they were asked to complete a survey to measure their stress levels, mood, and mindfulness. The results of this study may contribute to a deeper understanding of whether a specific writing format may help with a participant’s ability to be in the present moment and their ability to manage stress. The results of this study could provide some insights into how different writing formats could be used as a tool in a therapeutic setting.

Concurrent Session 2 – Oral Presentations
Abstracts

Why Do Civilizations Collapse and Is Our Civilization in Danger?
Halden Euridge
Faculty Mentor: Jenny McHenry

This project's objective was to uncover what a civilization is and determine how they collapse if they even collapse at all. It is an important undertaking because if we figure out what makes a civilization collapse, we can avoid the problems that lead to collapse. Research for this project involved analyzing existing and past civilizations to establish a definition of what a civilization is, and to find common events that were present in the history of those civilizations to understand what harmed them. The project focuses on the Aztec civilization because the nature of its collapse was unique for two reasons. One, it was a genuine collapse where all aspects of Aztec civilization were mostly lost, and two, it was recorded by contemporary accounts, which is rare for any civilization's collapse. This project is important to historical research and to help our current world avoid a civilization collapse.

The Effect of Physical Exercise on Academic Performance in Florida State University Students
Emily Foggy
Faculty Mentor: Dr. Hannah Clayton

Can hitting the gym help you hit the books? This study examines the relationship between physical exercise and academic performance, an important connection for identifying strategies to support student success. Given the growing academic pressures faced by students, this research explores whether exercise serves as an effective and accessible tool for enhancing academic achievement. The study includes Florida State University students who completed an online survey detailing their exercise habits and reported grades. The findings will offer insight into the potential role of physical activity in academic achievement.

A Comprehensive Summary Of the History and Likely Solutions To Dark Matter
Steven French
Faculty Mentor: Larry Crombie

According to the US Department of Energy, dark matter accounts for approximately 85% of the universe’s matter. Dark matter was discovered in 1933 to be a theoretical cause for abnormal levels of gravitation in many areas of the universe. With Isaac Newton’s discovery that gravity is proportional to mass, the conclusion is that 85% of all gravitational force in the universe originates from an invisible and unknown source. Dark matter and its origins sparked an almost century long saga of theories, spanning from a reworking of Newton’s principles to an all encompassing theory of everything. The enigma of dark matter is a looming hand, casting a great shadow across the scientific community; its fingers dip into subjects such as history, quantum mechanics, and fundamental physics. Not only is dark matter a thrilling Holmesian mystery, but it’s many theories and potential explanations highlight the nature of science, and humanity as a whole.

Therapeutic Impact of Human-Animal Bond on Mental Health

Katrina Gjendem
Faculty Mentor: Susannah Dorrance

This is a meta-analysis that aims to further expand information regarding the relationship between – and consequently the effects thereof – humans and animals. The overall purpose of this report is to uncover the biological and psychological impacts of humans connecting with animals, and vice versa. Much of the project consists of meta-analysis, which entailed an in-depth review of several articles and scientific journals pertaining to both animal therapy and the human-animal bond. Additionally, a one-day shadow with Tallahassee Memorial Hospital's (TMH) animal therapy team provided supplemental insight into the effects on specific populations, such as those living with intellectual disabilities at Tallahassee Developmental Center. Following further observations, an informal survey was conducted to collect data regarding the residents' experiences. While the results of the survey have yet to be confirmed, the findings of the meta-analysis provide insight into the already known positive effects of animal therapy.

Why We Can't Have Nuke Things: An Examination of Media's Role in Causing Fear and Distrust about Nuclear Energy

Kamden Hatten
Faculty Mentor: Dr. Renee Gordon

Humanity unlocked a new level of power with the splitting of the atom, and one of our greatest achievements has been funneling that power into power plants to light our cities cleaner and for longer than ever before. However, with this has come a mass fear of nuclear energy by the public caused by large scale tragedies and continuously bolstered by film, television and other media sources who wittingly and unwittingly exaggerate the dangers of nuclear power for entertainment. To understand this, I will examine examples of media which deal with radioactivity and nuclear technology and compare their contents to what related industry professionals and scientists have discovered as well as the current contingencies for nuclear tragedies. The goal of this presentation is to dispel any falsehoods created by the examined media, encourage deeper critical media analysis, and promote a more complete education of nuclear energy's benefits and its dangers.

A Deadly Friend: "The Cask of Amontillado" and the Deadly Happenings of Friendship

Davisha Hardy
Faculty Mentor: Dr. Donya Samara

This analysis of Edgar Allan Poe's short story "The Cask of Amontillado" explores how the spectacle of friendship can be a breeding ground for malice and ultimately turn deadly. "The Cask of Amontillado" is a literary work with an avenging narrator, Montresor, who deceitfully murders his companion, Fortunato, after he feels he has been insulted one too many times. Through the pair's relationship, Montresor was not only able to quietly seek revenge but also successfully exact his heinous plans. Individuals find themselves afraid of things that go bump in the night but fail to realize that there is a huge chance that that thing is a person they know. This presentation will discuss Montresor and Fortunato's friendship and its correlation between homicides committed by strangers and nonstrangers.

Concurrent Session 2 – Oral Presentations
Abstracts

TikTok on Trial: Balancing National Security and Digital Freedom

Kierceten Leigh
Faculty Mentor: Dr. Forster Agama

In January 2025, the U.S. government proposed a ban on TikTok, citing national security and user privacy concerns related to its Chinese parent company, ByteDance, and this sparked significant debate. While these concerns warrant attention, the proposed ban also raised issues regarding free speech, digital rights, and the economic impact on small businesses and content creators. Through an analysis of policy documents, legal arguments, and economic data, this study explores the complex considerations surrounding the TikTok debate. Findings suggest that while national security risks cannot be dismissed, an outright ban sets a problematic precedent for government censorship. This paper argues that alternative solutions, such as enhanced data regulation and increased oversight, offer a more balanced approach, mitigating potential risks while preserving digital freedoms and economic opportunities.

"The Heartbeat Bill": Florida's Deceptive Six-Week Abortion Ban

Cadence Lyons
Faculty Mentor: Dr. Edward Duggan

This study examines the medical, legal, and ethical implications of Florida's six-week abortion ban, enacted through Senate Bill 300, following the Dobbs v. Jackson Women's Health Organization (2022) decision. The research investigates how the law creates barriers to reproductive healthcare, disproportionately affects marginalized communities, and fails to provide adequate support services, raising concerns about women's health and autonomy. Using policy analysis, case studies, and a review of legal and medical literature, this study evaluates the law's impact on access to care, psychological effects, and the effectiveness of state-run pregnancy support and adoption programs. It also critiques claims about fetal personhood and late-term abortion rates. Ultimately, Florida's six-week abortion ban imposes unnecessary restrictions that endanger women's health, limit reproductive autonomy, and fail to provide comprehensive support for those affected.

Finding Common Ground: Effective Gun Control Measures

Michael Nass
Faculty Mentor: Dr. Forster Agama

This paper investigates the complex issue of gun control, examining the Second Amendment, the right to self-defense, and the prevalence of illegal gun use. Through an analysis of diverse sources, including articles, statistics, legal documents, and government reports, the research explores arguments on both sides of the debate. Findings suggest that traditional gun control measures, such as outright bans and restrictions on legal gun ownership, have limited effectiveness. Instead, the research indicates that alternative strategies, including enhanced background checks and waiting periods for gun purchases, stricter laws and harsher penalties for illegal gun possession and trafficking, and potentially increased taxes on firearms, may offer more promising avenues for reducing gun violence. This paper argues for a nuanced approach to gun control that balances individual rights with public safety.

Concurrent Session 2 – Oral Presentations
Abstracts

A College Perspective: Exploring Views on Holistic Dentistry

Tatianni Pinkston
Faculty Mentor: Dr. Hannah Clayton

In dentistry, holistic providers offer proper education in addition to biocompatible materials that harmonize with the body's natural composition. Holistic dentistry introduces patients to healthier alternatives opposed to traditional dental treatments. As dentistry continues to grow and evolve, the principles of holistic care have become more popular, catching the attention of many consumers and arguably becoming the next generation of dentistry. This project aims to explore the dental health practices and knowledge of holistic dentistry in a population of community college students. The study will analyze how students prioritize oral health, their views on traditional vs. holistic dental approaches, and factors influencing their perceptions. This observational study was performed through a survey given to students throughout campus; the survey included questions pertaining to students' major, race, and gender all the while documenting the amount of knowledge students possess concerning holistic dentistry and the role holistic care plays in the wellness of patients globally. Proper education of oral care and disease prevention is not only a nationwide necessity, it is a worldwide necessity, and holistic dentistry challenges the beliefs of traditional dentistry in the attempt to improve healthcare for the betterment of humanity.

Analytical Derivation of Summation Formulas: Discrete and Continuous Perspectives

Ashley Power
Faculty Mentor: Dr. Robert Billet

This research project will focus on the construction of summation formulas for four functions: constant, linear, quadratic and sinusoidal. Formulas will be derived through arithmetic techniques such as identifying patterns, substitution and analyzing a function's structure discreetly. The development of summation formulas serves as a critical foundation for understanding the connection between finite sums and continuous integration. This research project will reveal the intricacies of summing specific functions and their relevance in evaluating integrals without the Fundamental Theorem of Calculus.

Duplicate vs. Original Art

Tanner Robinson
Faculty Mentor: Lindsey Smitherman-Brown

Question: What if someone took the original art piece of the "Mona Lisa," by Leonardo De Vinci, and only added a mustache, like French artist, Marcel Duchamp, completed and published in 1919? Is that considered original art? In my presentation, I will be differentiating between the ideas of original and art reproduction, as well as understanding what is considered original art in society. Should duplicated/reproduced art be published and noticed for using an original piece and adding something simple, like a mustache?

Poster Session 2
Abstracts

Radiation and DNA: The Invisible Threat to Genetic Integrity

Amber Aguirre
Faculty Mentor: Dr. Joseph McNeil

Radiation presents a severe threat to our genetic integrity by conducting damage at the DNA level, disrupting the fundamental processes of gene expression and protein synthesis. Ionizing radiation, such as gamma rays, X-rays, alpha and beta particles, can cause a range of genetic disruptions, including single-strand breaks (SSBs), double-strand breaks (DSBs), and base modifications. These disruptions interfere with transcription and translation, leading to mutations, faulty protein synthesis, and cellular malfunction. If left uncured or repaired incorrectly, such damage can trigger genetic disorders such as cancer and apoptotic cell death. While cells possess DNA repair mechanisms, excessive or prolonged radiation exposure overwhelms these systems, increasing the risk of irreversible genetic mutations. The comprehension of molecular consequences of radiation exposure is crucial for assessing its risks in medical treatments, environmental safety, and occupational exposure. This meta-analysis highlights the need for ongoing research into protective measures and advanced DNA repair mechanisms.

Reviving Mars' Geo-dynamo By Increasing the Gravitational Energy of Orbiting Bodies

Justin Bolt
Faculty Mentor: Dr. Renee Gordon

The planet Mars has a core made of a liquid metal alloy that is currently unable to produce a magnetic field. Though it is comprised mostly of iron and nickel, there is not enough energy in the system to cause current to flow into a dynamo. The dynamo effect allows the liquid metal to create a magnetic field as it charges throughout the core. The formation of turbulent convection currents could kickstart the dynamo process causing the magnetic field to form once more. Once Mars has a magnetic field, it will hold onto an atmosphere allowing the terraforming process to begin. The fluid velocity required for convection to occur within Mars' core is 2.4x10-4 m/s. To produce this, a man-made object weighing 2.02x1014 kg must orbit Mars at a constant distance of 15000 km.

Finding What a Material Is Made of from Resistivity

Clayton Campbell
Faculty Mentor: Dr. Joseph McNeil

For this study, we determine the material structure of a metallic meteorite from the Campo del Cielo by measuring the internal electrical resistance through it. These measurements are important due to the historical significance of the source meteorite and its applications to space exploration. Resistance measurements are made via two methods. The first, by using the linear temperature coefficient of resistance with a measured voltage and controlled current through the meteorite. The second, by manufacturing the meteorite into a known shape (either cylindrical or cuboid) and directly measuring the resistance from Pouillet's law with a measured voltage and controlled current through the meteorite. From these resistance measurements, we calculate the resistivity and determine the ratio of iron to nickel in the metallic alloy and compare this to the expected value from the Campo del Cielo source meteorite.

Poster Session 2
Abstracts

Optimizing Neural Deep Learning Models for Tic-Tac-Toe Strategy Development

Moises Chacon and Tise Thomas
Faculty Mentor: Dr. Renee Gordon

Deep learning models have demonstrated remarkable advancements in strategic decision-making and game-playing AI. This research explores the effectiveness of various learning modules in training an AI to master Tic-Tac-Toe. By implementing multiple neural deep learning techniques, we analyze the AI's ability to achieve optimal performance with minimal training iterations. The study evaluates different learning paradigms, including reinforcement learning and supervised learning, to determine which approach enables the AI to consistently reach a perfect draw or win in the fewest trials. Our findings indicate that increased supervision in the AI learning process significantly enhances its accuracy and reduces the number of trials needed to reach optimal performance. This research provides insights into AI training optimization and contributes to the broader field of machine learning and game theory applications.

Verifying Static Friction Formula on a Steel Surface Using An Incline Plane

Sally Clavell
Faculty Mentor: Dr. Jorge Monreal

The goal of our project was to see if the values remain the same or by 2x-3x the standard deviation compared to the documented static friction values. We hypothesize that the values will remain in the 2x-3x through three times the standard deviation unless there is human error. We will use five different materials velcroe-ed to a wooden block and simulate different angles, using a incline plan tool that has a steel surface, to determine static friction and the natural force. We will collect the data and record trends using the static force equation. The purpose of this experiment is to verify and continue to explore different materials and their static friction.

Sleep Apnea: The Role of Epigenetic and Environmental Factors

Morgan Craig
Faculty Mentor: Dr. Gina O'Neal Moffitt

Obstructive sleep apnea occurs when airways collapse on themselves while someone is sleeping. This disorder causes inconsistent breathing during sleep by the blockage of airways from limp muscles. Obstructive Sleep Apnea (OBS) not only prevents and delays airflow, but it stops the brain from being able to receive oxygen. Upon awakening, this disorder can result in irritability, feelings of restlessness, forgetfulness, and an increase of susceptibility of medical risks and conditions. I conducted a literature review, examining two separate studies to further identify the potential and definite risks of OBS, and how epigenetic and environmental factors play a role in triggering this sleep disorder.

Poster Session 2
Abstracts

Exploring Silicon as a Viable Alternative to Carbon in the Formation of Extraterrestrial Life

Jasmine Francois
Faculty Mentor: Dr. Joseph McNeil

Silicon, the eighth most abundant element in the universe, shares many chemical properties with carbon, the primary building block of organic life. While life on Earth is based on carbon-based organic compounds, this study explores the potential of silicon as a substitute in the formation of life. Silicon is primarily produced during the oxygen-burning phase of Type Ia supernovae, whereas carbon is synthesized in stars through the CNO cycle and the triple-alpha process. Both elements possess four unpaired valence electrons, enabling similar chemical bonding structures. Given these parallels, it is conceivable that silicon-based organic molecules could undergo a biosynthesis process analogous to carbon-based chemosynthesis, which involves hydrogen, carbon, oxygen, and nitrogen. This research examines why silicon may be the most promising alternative to carbon among these essential elements, particularly under the extreme conditions likely to be found on certain exoplanets.

Optimizing Cement Production with Integrated CO_2 Capture and Methanol Synthesis

Kevin Frederick
Faculty Mentor: Dr. Renee Gordon

The cement industry is a major contributor to global carbon emissions and energy consumption, demanding strategies that reduce environmental impact without hindering operations. This study proposes an optimization framework for a cement production facility integrated with carbon capture and utilization to convert CO_2 into methanol. Using 24 hours of real operational data, the model optimally adjusts key parameters—CO_2 capture rate, hydrogen utilization, reactor conditions, and fuel consumption—over 24 intervals. Guided by thermodynamic and kinetic principles, a weighted (0–100) efficiency metric tracks trade-offs among emissions reduction, fuel efficiency, and output. Preliminary analyses suggest improved CO_2 capture, reduced fossil fuel dependency, and maintenance of production targets while generating methanol by-products. By aligning environmental and economic objectives, this approach offers a replicable blueprint for cost-effective, low-emission processes in the cement sector and other high-temperature industrial applications.

A Spectroscopic and Molecular Analysis of Drug Partitioning, Ionization, and Absorption in the Gastrointestinal Environment

Grayson Gardner
Faculty Mentor: Dwight Lillie

Oral drugs, prescription and over the counter (OTC), are absorbed through the gastrointestinal tract (GI), primarily the small intestine. In this experiment, we are investigating the absorption level of 14 over the counter medications, including antacids and pain relievers within the human body using simulations. Absorption is driven by several factors, such as the drug's ability to partition into the cell membranes lining the GI, drug pKa (ionization), and the pH of GI fluids. The octanol-water partition coefficient, logP, is an experimental and computation model for assessing the distribution of a drug between the aqueous and lipid membranes found in the GI. UV-visible spectroscopy will model the amount of drug partitioning into the lipid phase. To tie all of this up, the molecular structure of these medications will be assessed to make assumptions on how their molecular properties influence absorption and function.

Poster Session 2
Abstracts

Genetics and Health Disparities: The Prevalence of Sickle Cell Anemia in African Americans

Astoria Hand
Faculty Mentor: Dr. Renee Gordon

Sickle cell anemia, a hereditary blood disorder prevalent in African American populations, is characterized by abnormal hemoglobin molecules that cause red blood cells to become stiff and sickle-shaped. This study aims to explore the specific genetic variants and environmental factors that contribute to the severity and manifestation of sickle cell anemia in African Americans, with a focus on identifying novel treatment approaches and improving overall patient outcomes. Utilizing a combination of genetic analyses, patient surveys, and clinical data, this research seeks to elucidate the nuances of sickle cell anemia in this population, shedding light on the disease's unique challenges and potential avenues for personalized care interventions. Ultimately, this study aims to enhance our understanding of sickle cell anemia in African American individuals, paving the way for targeted therapies and improved management strategies for this vulnerable population.

A Call for Action: Strengthening Climate Control Regulations in the US

Lexie Harrell
Faculty Mentor: Dr. Forster Agama

This paper will examine the urgent need for stronger climate control regulations in the United States. Given the current environmental crisis, including greenhouse gas emissions, rising temperatures, and the consequences of inaction, there is a clear inadequacy of existing regulations. Current measures are insufficient to protect the planet and vulnerable communities, which becomes evident through a review of scientific research and policy documents, highlighting the necessity of implementing more robust regulations to effectively reduce emissions and prevent further environmental degradation.

The Effectiveness of Genetic Testing in the Three Different Types of Leukemia

Timeshia Harris
Faculty Mentor: Susannah Dorrance

Leukemia encompasses a diverse group of hematologic cancers marked by uncontrolled leukocyte proliferation. Key types include acute lymphocytic leukemia (ALL), acute myeloid leukemia (AML), and chronic lymphocytic leukemia (CLL). Genetic testing has advanced understanding, diagnosis, and treatment by identifying critical mutations and chromosomal abnormalities. High-throughput technologies, such as next-generation sequencing (NGS) and fluorescence in situ hybridization (FISH), have enhanced disease prognosis and treatment response. Studies highlight the clinical impact of genomic profiling. This meta-analysis evaluates genetic testing in ALL, AML, and CLL to identify diagnostic and prognostic trends. A systematic review of PubMed, Web of Science, and Google Scholar was conducted, using terms related to genetic testing in leukemia. Studies from the past decade utilizing methods like whole-exome sequencing were included. Data on genetic markers, methodologies, and clinical relevance were extracted, and meta-analytic techniques were assessed for their prevalence and prognostic value.

Poster Session 2
Abstracts

Cost and Benefits of Miniaturization

Nickolas Harvey
Faculty Mentor: Jasun Burdick

The miniaturization of devices is a phenomenon we have seen over time amongst today's commercial and consumer electronics. As technology advances, components become smaller, more efficient, and increasingly integrated, enabling the development of compact and powerful devices. This trend has led to numerous benefits, including reduced material costs, lower power consumption, and improved portability. This project explores the cost-benefit analysis of miniaturization, weighing the economic, technological, and practical implications. To support this research, a mini gardening monitoring system is being developed to evaluate how miniaturized components impact efficiency, performance, and affordability in an IoT-based application. By analyzing industry trends, material advancements, and production methodologies, this study aims to determine whether the benefits of miniaturization consistently outweigh its challenges in various applications.

The Increased Accessibility and Sophistication of Artificial Intelligence Language Models: Implications for Cybersecurity and Ethical Oversight

Aurora Haunsperger Mendoza
Faculty Mentor: Jim Quinn

The rapid growth, sophistication, and expanded scope of Artificial Intelligence Language Models, such as Generative Pre-Trained Transformers (GPT), has contributed to a rise in cybercrime enabled through public availability of Artificial Intelligence models. There has been an observable number of AI-driven attacks, including an increase in phishing schemes, automatic social engineering, and misinformation campaigns. These language learning models have produced more sophisticated and unprecedentedly complex content, currently exceeding the capabilities of contemporary cybersecurity strategies. These traditional cybersecurity mechanisms are becoming increasingly ineffective at discerning human-executed attacks from those generated by Artificial Intelligence. This study evaluates the insights gathered through structured surveys and interviews, by surveying professionals on the ethical oversights and security challenges that unrestricted AI development poses, highlighting dilemmas with the regulatory oversight frameworks necessary for cybersecurity resilience. The goal of the study is to explore concerns surrounding rapid AI integration and the consequences it holds for cybersecurity.

Pulse and Melody: Understanding the Interplay Between Music and Cardiovascular Rhythm

Kailey Hoffman
Faculty Mentor: Santiago Molina

Does your heart rate ever increase while listening to your favorite songs? This project will examine how tempos of music can affect the heart rate to potentially help patients in a medical emergency. The resting heart rate will be measured while the patient is in silence and listening to 4 varying tempos of music. The individual's heart rate will be recorded using an Apple Watch to track how the heart rate fluctuates while listening to the clip of music for 1.5 minutes. My experiment is still being tested, but I hypothesize that the faster the BPM of the music, the higher the heart rate will be compared to the resting rate. If my hypothesis is correct, this could be used to slow a patient's heart rate before an important surgery.

Poster Session 2
Abstracts

Cybersecurity & Me: Mounting a Defense for Privacy in the Digital Age

Rachel Hurley
Faculty Mentor: Dr. Renee Gordon

In the age of information, it is increasingly in the interests of outside groups and corporations to monetize our data, taking the control out of our hands. Everyone has a right to privacy, but those rights are being corroded over time. The purpose of this research is to highlight areas where the average individual is targeted online, and how they may work to keep their personal data more private. This project synthesizes different data and collects accounts from Cybersecurity professionals to discover common vulnerabilities and threats that infringe upon the protection of our personal information. The anticipated results are to inform, educate about privacy laws and measures, and leave viewers armed with the knowledge to start securing their data.

What Makes Heavy Metals Neurotoxic?

Tiliyah Keith
Faculty Mentor: Dwight Lillie

Neurotoxicity is a generic term for damage to the nervous system, which includes the brain, spinal cord, and nerves, which is caused by long exposure to harmful substances or environmental factors. These substances or environmental factors can lead to mental and physical health problems by disrupting the normal function of nerve cells. Most heavy metals are believed to be neurotoxic due to the well-documented exposure effects of lead, cadmium, chromium, mercury, and arsenic, to name a few. This project will be a literature review of what makes certain heavy metals neurotoxic in contrast to those that are needed for basic biological functions. The study will attempt to identify those properties of metals that contribute directly to such neurotoxicity.

Computer Hardware - Vital to Society

Timothy McCall
Faculty Mentor: Dr. Renee Gordon

The purpose of this study is to show the usefulness of computer hardware in society. One would say that scientific research has developed in data-driven advancements, specifically in computer hardware. Computer hardware plays an amazing role in assessing complex simulations and data analysis. This study will also explore how computers have changed over time, alongside examining GPU's (Graphics Processing Units), TPU's (Tensor Processing Units), and FPGA's (Field-Programming Gate Arrays). Examples of GPU use include video games and scientific computing. An example of TPU would be AI and machine learning. An example of FPGA would be Tesla cars that have an autonomous driving system, which allows for vehicle decision making. TPU is used for training computations, while FPGA is used for specific tasks. In conclusion, computer hardware plays a huge role in society, and breaking down the components of computer hardware is important to understanding the significance of computer hardware.

Poster Session 2
Abstracts

The Role of Cannabinoids on Overcoming Drug-Resistance in Breast Cancer Cells

Zachary Meeks, Jassy Lazarte, Mounika Aare, and Mandip Singh
Faculty Mentor: Dr. Renee Gordon

Approximately 42,170 women nationally will die from breast cancer (BC) in 2025. Although increasingly treatable, breast cancer is still deadly, and the search for non-toxic treatments is still ongoing. This study aims to evaluate novel candidates for breast cancer treatments. Cannabinoids have shown potential antitumor properties in preclinical and clinical studies, successfully inhibiting several factors that contribute to the proliferation of cancer. In this experiment, letrozole-resistant cells (LTLT-Ca) were seeded onto 96-well plates and treated with various concentrations of cannabidiol (CBD) and cannabichromene (CBC) and analyzed to determine the cytotoxicity of the compounds to cancer cells by MTT assay. The results showed that both compounds are promising candidates for treating LTLT-Ca breast cancer cells, and the researchers intend to continue evaluating these compounds in other cell lines, specifically triple-negative breast cancer (TNBC) cells, which are the more aggressive type of BC, and see similar results.

Conductivity Meets Flexibility: Understanding Nitinol's Resistivity and Potential Practical Applications

Owen Mercure
Faculty Mentor: Dr. Joseph McNeil

Nitinol, a nickel-titanium alloy, exhibits unique properties, such as shape memory effect and superelasticity, making it a promising material for various engineering and biomedical applications. Understanding its electrical resistivity is crucial for optimizing its performance in sensors, actuators, and medical devices. This study investigates the resistivity of nitinol wire under varying conditions, including temperature and mechanical stress. Results indicate that nitinol's resistivity is highly dependent on phase transformation between martensite and austenite states, with a noticeable increase in resistivity during the transition. Furthermore, applied stress influences electron scattering, further affecting resistivity. These findings contribute to the broader understanding of nitinol’s electrical behavior and its implications for practical applications.

Decoding the Root Causes of Obesity Among American Youth

Alonso Miranda-Tirado
Faculty Mentor: Dr. Forster Agama

This paper explores the link between sleep deprivation and obesity, drawing on a range of scholarly journals, articles, and case studies. While some research has examined contributing factors such as diet and lifestyle, this review finds substantial support for a connection between inadequate sleep and increased obesity risk. The evidence suggests that insufficient sleep may affect hormonal regulation (including leptin and ghrelin), impacting appetite, metabolism, and food choices. This review examines these potential mechanisms and their implications for weight management.

Surgical Site Infection

Jephte Moise
Faculty Mentor: Daniella Azor Petit

The operating room is one of the world's most sterile environments, with strict protocols in place to minimize the risk of infection during surgery. To reduce contamination, protocols such as sterilized equipment, strict dress codes, and restricted access are implemented. Furthermore, relative humidity is kept between 20% and 60% to prevent bacterial growth. Despite these precautions, surgical site infections (SSIs) can occur, and some infections lead to serious complications, including death. The goal of this study is to determine which surgical sites are most susceptible to infection and to look into the relationship between SSIs and mortality rates. We will use secondary data from the Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN) to look into infection rates, surgical procedures, and infection outcomes in multiple hospitals and counties. Statistical models will be used to investigate the link between surgical site infections, procedures, and mortality rates.

Effect of Rosmarinic Acid on Cancer-Promoting Bacteria

Joi Monsanto
Faculty Mentor: Dr. Jillian L. Pope

Colorectal cancer (CRC) is the 3rd most common cancer. CRC occurs in the large intestine and can arise from inflammation and dysbiosis. Natural products can be utilized to treat inflammation and dysbiosis, thus decreasing risks for CRC development. Rosmarinic acid (RA) is isolated from rosemary plants and has demonstrated anti-cancer properties and possesses antibacterial activity. Our lab is investigating the potential of RA to reduce intestinal damage induced by CRC-promoting bacteria, such as E. coli-NC101, which produces a genotoxin that promotes DNA damage in intestinal epithelial cells (IECs). NC101 was cultured with a series of 2-fold dilutions of RA ranging from 10 mg/mL to 0.01 mg/mL, and OD600 was measured to determine the minimum inhibitory concentration (MIC). We observed no change in growth of E. coli-NC101, suggesting NC101 may have additional mechanisms that protect it against RA. Further experiments will determine effect of RA on NC101-induced DNA damage.

Examining The Connection Between The Gut Microbiome and the Development Of Alzheimer's Disease

Annabeth Norris
Faculty Mentor: Carl Saltzberg

Alzheimer's Disease is a progressive neurodegenerative disease that leads to a loss in cognition and memory as the disease progresses, with the disorder accounting for 80% of dementia cases worldwide. The pathophysiological cause of Alzheimer’s has been debated throughout the years, though recent research has suggested a link between the composition of gut bacteria and healthy brain function. These studies cite gut microbiota imbalances as potentially increasing the risks of the development of the disorder due to the direct connection from the gut to the brain, which is referred to as the gut-brain axis. Both genetic and environmental factors have been identified as causing microbiome changes and disruptions. This study aims to examine these factors to determine whether early interventions can be effective in the prevention of the disease.

Poster Session 2
Abstracts

Driving into Tomorrow: Projecting the Prevalence of Autonomous Vehicles

Joshua Osborne
Faculty Mentor: Vijay Subramanian

Autonomous motor vehicles powered by artificial intelligence (AI) will soon become the standard for regular transportation. This study investigates the rate at which AI has been utilized for the nation's top 7 motor vehicle companies and how it could predict the outcome for the future of autonomous vehicle usage. Since personal road transportation is critical to most Americans' lives, it's essential they understand which type of vehicle will soon dominate roadways. For this study, the quarterly reports for the sales of the top 7 motor companies were collected over the past 10 years and plotted on a graph. Then calculus was used to determine the rate at which autonomous and semi-autonomous vehicles were being sold at, in two-year increments. The anticipated results are that the companies with the greatest rate of change at the two-year checkpoints can indicate their prolonged use in the future.

Similarities Between Canine and Equine Prion Gene

Maggie Tterlikkis
Faculty Mentor: Harlon Hawthorne

Prions are proteins found in mammals, responsible for fatal prion disorders when misfolded. Dogs and horses appear to be immune to these diseases. Understanding why these animals are resistant may help us discover potential treatments. The goal of my investigation is to determine similarities between the prion's gene (PrP) expression of dogs and horses that seem to be absent in prion susceptible mammals, such as mice. To compare the genetic expression between these three species, multiple resources were required: related scientific journals, BLAST programs, and other animal genome databases. Multiple aspects of the prion gene were compared: location, residues, length, and function. Both dogs and horses have decreased β-sheets, and similar key protective residues that seem to aid in structural-protection. Given that the misfolded version has many β-sheets, this might imply that less β-sheets paired with more protective residues can help decrease susceptibility.

The 1s and 0s of Exoskeletons

Elijah Pantophlet
Faculty Mentor: Dr. Renee Gordon

The development of lower-limb exoskeletons has advanced significantly, aiming to reduce metabolic cost and improve mobility. Since the early 2000s, research has focused on exoskeletons that enhance walking and running efficiency, assist in load carriage, incline walking, and stair climbing. A breakthrough occurred in 2013 when a tethered active ankle exoskeleton reduced metabolic cost by 6% (Malcolm et al., 2013). Key advancements include autonomous exoskeletons, AI-driven controllers, and soft, textile-based exosuits, improving comfort and efficiency (Zhang et al., 2017; Panizzolo et al., 2016). Exoskeletons can reduce metabolic cost by up to 19.8% in walking and 8% in running, benefiting athletes, military personnel, and individuals with mobility impairments (Sawicki et al., 2020). This review examines passive, active, and hybrid exoskeletons, their real-world applications, and the future trajectory toward AI-enhanced, lightweight assistive devices.

Poster Session 2
Abstracts

Addressing the impacts of Climate Change: Rising Sea Levels, Extreme weather, and the Path Forward

Bryson Pate
Faculty Mentor: Dr. Forster Agama

This paper explores the current and future impacts of climate change, focusing on the consequences of rising sea levels, extreme weather events, and their broader implications for both the environment and human society. While some continue to question the reality of climate change, scientific evidence confirms its growing effects. This paper argues that action is necessary from both governments and communities to minimize climate change through policy reforms, education, and sustainable practices. It will examine how human activities, such as pollution and environmental damage, have impacted these challenges, and how collective efforts can help reduce or reverse the damage. The role of media in shaping public perception and understanding of climate change will also be discussed.

Building a Stronger Healthcare System Through Affordability, Accessibility and Technology

Cayden Pate
Faculty Mentor: Dr. Forster Agama

This paper explains the importance of improving our current healthcare system by using three key ideas: technology, accessibility and affordability. It emphasizes that we need to expand affordable healthcare options, especially for lower-income individuals who can’t afford it. Ideas such as telemedicine and wearable devices can be very promising solutions for improving our healthcare services, but ensuring their accessibility and affordability is still a challenge. By effectively addressing these three factors, we can create a stronger, more efficient healthcare system that will benefits millions of people along the way.

Assessing Tallahassee State College Students' Perceptions of Healthy BMI Using Silhouette Analysis

Noah Perdue
Faculty Mentor: Brett Gourley

The purpose of this study was to explore Tallahassee State College (TSC) students' perceptions on correctly identifying a healthy Body Mass Index (BMI), for both males and females, using silhouette analysis. BMI is a widely used metric for assessing weight status and overall health. The ability to accurately identify a healthy BMI is essential for self-reflection and informed decision making regarding personal health. As obesity rates continue to rise in the United States, equipping individuals with this knowledge empowers them to make healthier lifestyle choices independently. To determine TSC students' perceptions on a healthy BMI, a study was conducted asking students to correctly identify a range of healthy body size for both male and female silhouettes. Results indicate that while some students correctly identified healthy BMI ranges, many demonstrated misconceptions, either overestimating or underestimating appropriate weight classifications. Due to these misconceptions further investigations are required to learn more about BMI.

Poster Session 2
Abstracts

A College Perspective: Exploring Views on Holistic Dentistry

Tatianni Pinkston
Faculty Mentor: Dr. Hannah Clayton

In dentistry, holistic providers offer proper education in addition to biocompatible materials that harmonize with the body's natural composition. Holistic dentistry introduces patients to healthier alternatives opposed to traditional dental treatments. As dentistry continues to grow and evolve, the principles of holistic care have become more popular, catching the attention of many consumers, arguably becoming the next generation of dentistry. This project aims to explore the dental health practices and knowledge of holistic dentistry in a population of community college students. The study will analyze how students prioritize oral health, their views on traditional vs. holistic dental approaches, and factors influencing their perceptions. This observational study was performed through a survey given to students throughout campus, the survey included questions pertaining to students' major, race, and gender all the while documenting the amount of knowledge students possess concerning holistic dentistry and the role holistic care plays in the wellness of patients globally. Proper education of oral care and disease prevention is not only a nationwide necessity, it is a worldwide necessity. Holistic dentistry challenges the beliefs of traditional dentistry in the attempt to improve healthcare for the betterment of humanity.

Human Physiological Response to Frequencies Produced by Animals

Gabrielle Powell
Faculty Mentor: Dr. Joseph McNeil

The purpose of this study is to analyze the physiological response of the human body to frequencies produced by animals. This study investigates whether high or low frequencies create a stronger stress response. This is important in understanding fight or flight responses from the perspective of predator and prey relationships. The subjects will be sixteen randomly selected Tallahassee State College students. Baseline vitals will be taken for heart rate and blood pressure for each subject. Subjects will then listen to five frequencies for one minute each with vitals taken immediately following each frequency. Each frequency will be the same as the noise produced by five different animals: American Alligator, Blue Whale, Lion, Wolf, Red Tailed Hawk. This data will be analyzed and can be used to both increase and decrease stress depending on the desired response, such as meditation or thrill seeking.

Mathematical Modeling of Exoplanet Transit Light Curves with Limb Darkening Effects

John Quigley and Revan Khan
Faculty Mentor: Dr. Joseph McNeil

The transit light curve method is a technique used by astronomers in the detection and characterization of exoplanets orbiting distant stars. The method works by measuring the periodic dips in the amount of light detected from the star due to an exoplanet blocking some of the light from reaching the observer. Based on the depth of the transit and the frequency of similar dips in the amount of light measured, we can roughly determine the radius of the planet and its orbital period. In this work, we mathematically model these transit light curves in python using both non-linear and quadratic limb darkening to produce model light curves. We then compare the models created with the different types of limb darkening to the light curves produced by data collected from real stars to determine which is most accurate.

Poster Session 2
Abstracts

Bacteriophages and Their Role in Treating Antibiotic Resistance

Bree Rodriguez and Loiss Fuentes
Faculty Mentor: Dr. Hannah Clayton

Modern medicine has made significant strides in treating infectious diseases, yet the rise of antimicrobial resistance threatens these advancements. As bacteria rapidly evolves, traditional antibiotics become less effective, creating an urgent need for alternative treatments. Antibiotic resistance is being recognized as a global health threat, leaving researchers to look for new solutions outside of traditional medicine. Bacteriophages, unlike traditional antibiotics, specifically infect harmful bacteria, leaving the healthy bacteria alone and offering a promising approach to combating antibacterial resistance threats. Phage therapy has the potential to revolutionize modern medicine by providing a precise, adaptive treatment for antibiotic resistance infections, allowing healthcare to evolve alongside microbial threats. This review analyzes recent scientific research in order to gauge the effectiveness of phage therapy. Data suggests that phage therapy is a reasonable measure of treatment regarding the combating of antibiotic resistance illnesses. However, more research on bacteriophages and their long-term effects is needed.

Oyster Domes and the Impacts on Water Quality in Oyster Bay, Florida

Shannon Sandow
Faculty Mentor: Dr. Beth Huettel

Due to human activity, natural and commercial oyster populations along the Gulf Coast have drastically decreased in the last decade. With support from federal agencies and local investors, oyster restoration and aquaculture projects have emerged to reinstate the vital keystone species. Furthermore, recent studies have revealed that the presence of oysters can act as a natural buffer zone and filter for nutrient run-off pollution. This project examines the water quality impacts of a local oyster dome restoration project in Oyster Bay, Florida, in relation to levels of phosphates and nitrates in the water column. Water samples from three locations in the bay were collected and are being analyzed for shifts in nutrient concentrations over the span of a year, encapsulating wet and dry seasons. Results are expected to indicate a decrease in nitrate and phosphate levels in waters with oyster domes during the wet season compared to the dry season.

The Kinematic and Differential Equations of Projectile Motion

Landon Tillman and Claire Hart
Faculty Mentor: Dr. Joseph McNeil

The parabolic equations of motion for a projectile is a fundamental concept in classical mechanics that applies to the dynamics of satellites, missiles, and rocket launches. This project analyzes the accuracy of simple parabolic equations with respect to air resistance (drag) against an experimental projectile. When considering drag, the first set of differential equations modeled the force of drag with direct proportionality to velocity (linear drag) and were solved analytically. The next set of differential equations evaluated the force of drag with direct squared proportionality to velocity (quadratic drag) and were solved both analytically and numerically. For analysis, the mean of each dataset was set as the value predicted by each equation, and the experimental distances were distributed about this mean. The average of the z-scores for each dataset were compared in which the lowest average z-score showed which set of equations best predicted the observed motion of the projectile.

3-Minute Thesis Video Screenings
Abstracts

The Overlooked Side of ADHD: Emotional Regulation Matters

Francine Stacey Aragon
Faculty Mentor: Dr. Gina O'Neal Moffitt

People often view ADHD as a condition of inattention and hyperactivity, but managing emotions is one of its biggest challenges. Individuals with ADHD experience emotions more intensely, making minor setbacks overwhelming and relationships difficult. These difficulties stem from differences in brain function, particularly in areas that regulate emotional responses. Research shows that improving emotional awareness and regulation can enhance social skills and overall quality of life for people with ADHD. However, many traditional treatments focus primarily on attention and impulse control, often overlooking emotional challenges. This literature review examines emotional dysregulation in ADHD and explores strategies to help individuals gain better emotional control. One promising intervention is Training in Tranquil Abiding (TTA), a meditation-based program that has shown potential for improving emotional regulation, attention, and planning abilities in adults with ADHD. By integrating emotional regulation strategies into ADHD treatment, individuals can better manage their emotions and improve their daily lives.

Gun Control: The Debate If We Should Make the Laws Stricter or Not

Felipe Castillo
Faculty Mentor: Dr. Forster Agama

This paper explores the ongoing debate surrounding gun control in the United States, examining its implications for public safety and societal well-being. Arguing that an effective balance between these concerns and individual rights necessitates comprehensive reform, this analysis addresses critical loopholes and promotes responsible gun ownership. Diverse perspectives on gun laws are considered, including their impact on crime rates and personal freedoms. Furthermore, the roles of mental health and law enforcement in preventing gun violence are examined. The objective is to foster a balanced discussion on how gun control measures can be both effective and respectful of individual rights.

Sleep Apnea: The Role of Epigenetic and Environmental Factors

Morgan Craig
Faculty Mentor: Dr. Gina O'Neal Moffitt

Obstructive sleep apnea occurs when airways collapse on themselves while someone is sleeping. This disorder causes inconsistent breathing during sleep by the blockage of airways from limp muscles. Obstructive Sleep Apnea (OBS) not only prevents and delays airflow, but it stops the brain from being able to receive oxygen. Upon awakening, this disorder can result in irritability, feelings of restlessness, forgetfulness, and an increase of susceptibility of medical risks and conditions. I conducted a literature review, examining two separate studies to further identify the potential and definite risks of OBS, and how epigenetic and environmental factors play a role in triggering this sleep disorder.

3-Minute Thesis Video Screenings
Abstracts

Technology and Its Integration with the Human Brain

Maria Garcia and Shaune Jessemay
Faculty Mentor: Dr. Renee Gordon

The rapid integration of human brains with technology presents exciting possibilities and profound ethical challenges. This presentation explores brain-computer interfaces, neural prosthetics, and cognitive augmentation, examining their potential to enhance communication, medical treatment, and human-machine collaboration. Through a multidisciplinary lens—drawing from neuroscience, engineering, ethics, and sociology—we address key advancements, ethical dilemmas, and societal implications. Topics include neural signal decoding, privacy concerns, and equitable access to emerging technologies. By fostering interdisciplinary dialogue, this presentation highlights the transformative potential of brain-technology integration while advocating for responsible innovation guided by ethical principles and societal well-being. Join us as we navigate the frontier of human-machine symbiosis.

How Does a Lack of Phonological Awareness Impact Phonics Development?

Cheleshia Johnson
Faculty Mentor: Natalie Montgomery

Reading development consists of six essential components: Oral Language, Phonological Awareness, Phonics, Fluency, Vocabulary, and Comprehension. These components, while interrelated, are also distinct in their roles and must be taught systematically to develop skilled readers. Phonological Awareness is the second component in this sequence, and following the appropriate instructional progression is crucial. The purpose of this research is to explore a critical question commonly encountered in public education: How does a lack of phonological awareness impact phonics development? This study is grounded in credible, peer-reviewed sources and seeks to identify effective strategies to enhance phonological awareness, increase student engagement, and support reading acquisition. The anticipated findings suggest that insufficient phonological awareness negatively affects phonics development, underscoring the need for early and intentional instruction in this area.

The Importance of Understanding Spirituality in the United States

Leoni Mitchell
Faculty Mentor: Dr. Forster Agama

This paper explores the past, present, and future potential of spirituality to help the United States make a small step towards embodying its name, ultimately contributing to global unity and a partnership with, rather than ownership of, the Earth. Recognizing the diversity of religions, ideologies, cultures, morals, and values, this paper acknowledges the multiple perspectives—spanning spirituality and science—on fundamental questions about life, the origins of the Earth and universe, and other worldly phenomena. This paper argues that while science has aided us in observing and explaining many natural phenomena, the world, far from being simplistic, is complex and nuanced. Through an examination of historical texts, analysis of contemporary spiritual movements, and interviews with spiritual leaders, this paper finds interconnections between religions, a focus on my own spiritual experiences, and interconnectedness of beings. Given the rapidly changing times, decisive action, informed by these findings, is needed now.

3-Minute Thesis Video Screenings
Abstracts

Are Self-Driving Cars for the Better or for the Worse?

Abel Samson
Faculty Mentor: Dr. Renee Gordon

Self-driving cars are made to revolutionize transportation, offering economic benefits and improved road safety. Companies like Uber are already introducing automated ride-sharing services, and by 2040, autonomous vehicles are expected to make up 25% of the global market. These vehicles rely on advanced software, sensors, and artificial intelligence to navigate and avoid collisions. However, widespread adoption faces regulatory challenges due to fragmented state laws, legal liability concerns, and data privacy issues. Despite these hurdles, autonomous vehicles could significantly reduce traffic fatalities, lower fuel consumption, and ease congestion. Early use is expected in ridesharing, delivery, and industrial sectors before mainstream consumer use. For self-driving technology to reach its full potential, policymakers must establish uniform regulations, and address liability concerns. With proper governance, the U.S. can lead the development of autonomous vehicle technology, but would self-driving cars be safer or is it going to cause more problems?

Impact of Gut Microbiome Imbalances on Autoimmune Diseases: Insights and Therapeutic Potential

Darmelis Santos Collado
Faculty Mentor: Erika Williams

The gut microbiome plays a crucial role in regulating the immune system, with its composition linked to autoimmune disease development. This research investigates how imbalances in the microbiome, or dysbiosis, influence conditions like rheumatoid arthritis, multiple sclerosis, and type 1 diabetes. By analyzing the relationship between gut bacteria and immune responses, the study explores how microbial changes may trigger autoimmune disorders through immune cell activation, chronic inflammation, and autoantibody production. The research also examines how factors like diet, antibiotics, infections, and environmental pollutants impact the microbiome, contributing to disease progression. The goal is to enhance understanding of how the gut microbiome affects autoimmune diseases, leading to potential therapeutic strategies. These may include microbiome-based treatments aimed at restoring a healthy microbial balance, reducing disease activity, and improving immune health.

Therapeutic Approaches to Treating Chronic Traumatic Encephalopathy and Related Traumatic Brain Injuries

Musa Tumsah
Faculty Mentor: Dr. Gina O'Neal Moffitt

Chronic Traumatic Encephalopathy (CTE) is a progressive neurodegenerative disorder caused by repetitive head trauma, commonly affecting athletes and military personnel. Diagnosis is only possible postmortem, as the responsible protein resides within brain tissue, which cannot be determined during life. This paper reviews therapeutic treatments for managing CTE and other traumatic brain injuries (TBI). One study explored person-centered active rehabilitation using a mixed-methods single-case design. Participants showed improvements in executive function and mood, but a small sample size and external factors, including the COVID-19 pandemic, limited reliability. Another study examined animal-assisted therapy's impact on cognitive and behavioral outcomes in TBI patients. Results showed significant improvements in the Rancho Los Amigos Scale and Levels of Command scores among intervention group participants. Both studies and a literature review emphasize the promise of personalized therapeutic approaches in brain injury management, highlighting the need for further research to expand these findings.

3-Minute Thesis Video Screenings
Abstracts

Optimizing Recycling Infrastructure: A Data-Driven Approach to Reducing Litter in Tallahassee

Musa Tumsah and Revan Khan
Faculty Mentor: Johnny Petit

Litter pollution is a growing concern in urban environments, negatively impacting both the ecosystem and public health. To address this issue, I conducted a street cleanup service project focused on the surroundings of Tallahassee State College and extended my research to similar initiatives led by organizations at Florida A&M University (FAMU) and Florida State University (FSU). By recording and analyzing data from multiple cleanup events, I found that a significant portion of the litter collected consisted of recyclable materials, particularly plastic waste. This suggests that inadequate access to recycling bins contributes to improper disposal. Based on these findings, I propose the strategic placement of additional recycling bins throughout the city to encourage responsible waste disposal and improve sustainability efforts. Implementing these changes can help reduce litter, promote environmental awareness, and create a cleaner, healthier community for all.

Roe v. Wade Should be Overturned

Katelyn Wexler
Faculty Mentor: Dr. Renee Gordon

This paper argues that Roe v. Wade should be reinstated, advocating for the federal legalization of abortion across the United States. The author critiques the Dobbs v. Jackson Women's Health Organization (2022) decision that overturned Roe, returning the regulation of abortion to individual states and creating a fragmented legal landscape. Emphasizing the importance of women's autonomy and health, the paper highlights the detrimental effects of abortion restrictions, particularly in underserved regions. It challenges the pro-life stance, which often aligns with religious and moral arguments, and stresses the need for consistent national standards to protect women's rights. The author asserts that abortion should not be subject to state control, but rather upheld as a fundamental right, ensuring equitable access and safeguarding public health. The paper concludes that reversing the Dobbs decision and re-legalizing abortion federally is essential for justice, equality, and individual freedoms in the United States.

Music's Effect on the Affective State of Mind

Aiyetoro Wright
Faculty Mentor: Kermit Harrison

This research paper examines the effects of music on humans' affective state. The affective state, in simple terms, is the experience of feelings or emotions. This paper discusses the history of psychologists exploring the idea of the affective state of mind. The paper also references multiple experiments that focus on how music affects our affective state of mind. The results of the experiments suggest that there is an effect of music on our affective state, but the potency of the effect on the affective state depends on factors like prior mood, genre, lyrics of the song, etc.

The Moon That Was Blinded
Karla Backey
Faculty Mentor: Dr. Renee Gordon

I will be combining my photos of the moon/ the night sky over the months. I will be showing how it has changed over the months. As in light pollution is causing these changes.

The Lament
Emma Beckman
Faculty Mentor: Julie Baroody

“The Lament” is a collection of works spanning multiple mediums which primarily explores the new self conceptions that arise out of surviving abuse. It serves as a reflection on the origin of traumas which may predispose a person to abuse, a mutating body image and an internal, emotional decay. Represented through placid, consumptive bodies and opportunistic maggots, “The Lament” is not seeking a way out of emotional turmoil but examines the most difficult parts of healing up close.

Garden of Eden
Jasmine Brown
Faculty Mentor: Ljiljana Obradovic-Edmiston

This piece explores the connection between mind and body, particularly regarding body image, which many women grapple with negatively throughout their lives. Women experience not only societal pressures on how their body is supposed to look, but also the objectification from many men, resulting in a sense of disconnection from their bodies. Inspired by the biblical moment when Adam and Eve ate the apple and became aware of their nakedness and shame, many women in society also experience similar feelings of vulnerability and a desire to conceal their bodies. I aimed to depict the vulnerable state many women experiences, beginning with a pose and expression that reflects this while using greenery to hide parts of her body. This piece allowed me to push my creative abilities to represent such a complex feeling that is almost universal among not only young women but even those well into their adulthood.

Man-made
Dina Cisneros and Jordyn Powers
Faculty Mentor: Dr. Renee Gordon

Artificial intelligence has risen to prominence in recent years. Now widely accessible with growing capabilities, it can be found everywhere. It has undeniable practical uses, and its prevalence has become equally popular in our everyday media and the arts. This piece is meant to represent the controversial impact of using AI in what were once sacred, humanistic spaces. Embodying a marvel of human creation or a dangerous pipeline into overconsumption of resources, it is up for interpretation. The robotic arm is able to be controlled to signify that AI is simply an extension of what we created it to be; it is under our control, and it does what we ask of it. The piece invites reflection on the conscious choices we are making when integrating AI into the background of our everyday lives, and the cost at which it comes.

Shattered Like Porcelain
Jack Coetzee
Faculty Mentor: Dr. Renee Gordon

My project is an illustration/pencil drawing that depicts the fact that humming can lessen the effects of auditory hallucinations among schizophrenic patients. This was the result of a test on subvocal activity and if it can influence a change in auditory hallucinations performed by Green & Kinsbourne (1990). For a more detailed description of the piece itself, it is a side profile of a person's head with the back shattered like porcelain and the auditory hallucinations entering the back of the head in the form of eyes, mouths, hands, and other monstrous/malicious looking features. To put it shortly, the scene behind the head is violent and emphasizes the length to which auditory hallucinations effect people. This greatly contrasts to the front of the face where the person is shown humming and releasing a gentle breeze from their lips, this demonstrating the soothing effect of the humming.

The Legend of Shadows
Sean Ford
Faculty Mentor: Ljiljana Obradovic-Edmiston

This is a self portrait using oil paint. I wanted to show the duality of the two subject, the doppelgänger being a cooler blue contrast with the main subject who is a warmer brown. While I mostly blended on the skin and in the background for the hair, I used a more impressionistic method. The contrast of the two beings is enhanced by the light in the middle. While it connects them together, its placement also divides the page down the middle, keeping them apart.

Visual Arts *Artist Talks*
Abstracts

Holy Spirit
Michelle Fulbright
Faculty Mentor: Ljiljana Obradovic-Edmiston

My painting is a representation of the Holy Spirit. He lives within the believer, but doesn't get depicted often. My work seeks to bring Him to life visually and show the viewers how it feels to have the risen king inform their decision-making and guide their steps. The man in the picture was painted with watercolor, colored pencils, and gauche. The Holy Spirit is made with watercolor, colored pencils, gauche, and acrylic paint, the last of which has been finger painted on.

Anonymous Hotel
Audrey Harlacher
Faculty Mentor: Ljiljana Obradovic-Edmiston

Anonymous Hotel will be a series of art pieces put together that tell the story of an odd hotel and the people who are inside. The collection will contain drawings, paintings, and three dimensional works such as masks and other costume pieces.

You Are
Fiona Iley
Faculty Mentor: Ljiljana Obradovic-Edmiston

In this drawing, I focused on creating an interesting composition that held the meaning I wanted to convey. Each part of this comes together in an abstract and also organic form that I'm so happy I learned this year. From flesh and bone, to flowers and wings, everything is connected into another. Combining human and inhuman factors makes a surreal feeling of joining, remembering what we are, and the connection we have to all living things. This is done with graphite pencils on paper, this medium brings forward darks and shadows that shows off the variations in texture and light.

Visual Arts *Artist Talks*
Abstracts

Celestial Cluster
Sara Johnsen
Faculty Mentor: Julie Baroody

This jewelry piece contains our main celestial bodies. It's separated in two sides, the inner solar system and the outer. With it all surrounding the sun. Including the addition of our moon and Pluto for the sake of inclusion. It's created using 11 bezel cups all soldered together, with sealed images of the celestial bodies covered in resin.

Exploration Through Self Portrait
Olivia LeFils-Roberts
Faculty Mentor: Ljiljana Obradovic-Edmiston

My painting is the self-portrait assignment from Painting 1. This class is where I learned to use oil paints for the first time. In addition to capturing a likeness of myself, I wanted to include something that would give more insight into who I am as an artist. The colorful background represents my imagination and wandering thoughts. The main portrait is based on a photo of myself, but the surroundings were painted intuitively. I really loved working on this piece as it combines working figuratively with using bright colors and abstract patterns and shapes.

To Brush Your Teeth
Jorden Marik
Faculty Mentor: Ljiljana Obradovic-Edmiston

Brushing your teeth is just a typical part of your day. But if you're like me, whether it's been one bad day or an entire year of hard times, you know something as simple as self-care can feel overwhelming. I sought to capture the feeling of vulnerability and struggle when facing yourself in the bathroom to brush your pearly-whites – and the hilarious irony in that something as mundane as brushing your teeth can feel like you've been sucked into a supernatural, grotesque, alien landscape of oil and decay.

Visual Arts *Artist Talks*
Abstracts

Self-Portrait
Karen Morris
Faculty Mentor: Ljiljana Obradovic-Edmiston

Through this charcoal drawing, I sought to capture a raw and intimate reflection of myself. The interplay of shadow and light reveals the duality within me—vulnerability and strength coexisting in a constant dialogue. My gaze, framed by intricate markings, speaks to themes of introspection and self-discovery. The dark background isolates the figure, creating a sense of focus and solitude that mirrors my internal world. Each textured stroke and detail is a deliberate attempt to convey depth, both in the image and in my own identity. This piece is more than a likeness; it is an exploration of who I am and the emotions that shape me.

Doe
Sofie Mullins
Faculty Mentor: Ljiljana Obradovic-Edmiston

When many people imagine a deer, they often think of a buck with antlers or a fawn with its camouflaging spotted coat. However, I want to express the understated charm of deer, even without their antlers or fawn spots. Although the characteristic of having neither of these traits can be found in male deer that are without their antlers, I want to focus on female deer, or does, as they are the less-represented deer population with this characteristic. The popular saying of a “deer in headlights” is also a typical association with deer, and due to this, many photographs and iconography of deer depict them solely in this moment of immobility. My intention is to capture the whitetail doe in close detail and in a more dynamic movement through stylized drawing that accentuates their grace, with a lively appearance that contrasts with the typical, static representations of deer.

Monochromatic Studies of Reverie
Citlali Patino
Faculty Mentor: Ljiljana Obradovic-Edmiston

The purpose of these pieces were to create works of art that were technical studies of skill but conveyed a sense of disconnect between reality and my sense of self. All works focus on a basic foundational skill in black and white. In addition, each image contains an element of reverie, as daydreaming is something I find myself doing quite often. It is an event that creates solitude for my mind and eases the tensions of the real world. For me, the disjointed experience is not one that is fantastical or grand, but rather a quiet escape from an environment that is forever changing.

Turmoil
Lydia Pickron
Faculty Mentor: Ljiljana Obradovic-Edmiston

Turmoil is a self-portrait in oil where I am akin to a phoenix bursting into flames and preparing to molt. In this piece, I attempted to show frustration with who I am. Clawing at my shirt as though I couldn't be rid of my past any faster and wings bursting from me like I am engulfed in flames. Many struggle with the feeling of being tied to their past and frustration with who they are not being who they want to be. I try to encapsulate that longing for a new beginning as a new person, free from who they once were. However, when the passion of the moment is over, will they reminisce about the past? Whichever the reason may be that the viewer would wish to molt like a phoenix, I want this piece to make them ponder if they could start anew, would they?

The Static of Relentless Expectations
Lydia Shaw
Faculty Mentor: Ljiljana Obradovic-Edmiston

This drawing illustrates the intense pressure students face from both internal and external forces. The hands pulling the hair represent societal, parental, and academic expectations, while the hands pressing into the face symbolize self-imposed pressure to meet these standards. The figure's tired eyes and tense features reflect the emotional toll of striving for perfection. The stippling technique emphasizes the gradual buildup of stress, mirroring how these pressures accumulate over time. This piece explores the duality of success and suffering—how students are praised for their achievements yet silently struggle beneath the weight of expectation. It serves as a powerful commentary on the unseen mental burden many carry, encouraging reflection on the cost of high standards and the importance of balance, self-compassion, and mental well-being. This piece reflects how I, along with many other students feel—like a broken record forced to keep spinning, producing only the static of relentless expectations.

Ordained Ignorance
Isabella Stiles
Faculty Mentor: Ljiljana Obradovic-Edmiston

Knowledge is one of the most powerful tools we, as human beings, can possess. As people, we all have the right to know and understand what's happening in the world around us. In this piece, I wanted to explore the theme of censorship. I did this through the concept of the subject's vision being restricted. I used ink on paper to create a stippled drawing that I felt encapsulated this theme. I combined a number of reference images together digitally, then printed the image out in black and white to better understand the full range of tones. I then used the grid system to sketch out my reference image onto the page. I slowly built up the shadows of the image by adding more layers of dots, condensing them in darker areas and leaving them spread out in lighter areas in order to show the white page beneath.

Visual Arts *Artist Talks*
Abstracts

Grandeur over Utility
Cole Thomas
Faculty Mentor: Ljiljana Obradovic-Edmiston

For thousands of years, humanity has felt driven to create magnificent cultural monuments and large scale structures that blow your mind when gazed upon. Present day humanity doesn't seem to hold that desire. There is often a greater focus on functionality over grandiosity. Many modern structures prioritize sustainability and utility, reflecting a shift in societal values. Although creating huge monuments won't serve as much of an economic purpose as blocks of apartment buildings, it is still equally important. I say let's devote some resources to beauty and give our descendants something to look at other than banks and offices. I'll be utilizing graphite pencils and 2-point perspective to invoke an infinitesimal feeling while looking at an impossibly large structure set in a sci-fi universe. The reason I chose to draw this piece is to maybe inspire a viewer or two to support the creation of masterpieces in the future.

The Need to Espy Is Upon Us
Sophia Willett
Faculty Mentor: Ljiljana Obradovic-Edmiston

With this piece, I intend to have the viewer take a small glimpse within my mind, all while ensuring the biggest canvas is front and center. The canvases will be covered in acrylics, which will let the oil paint truly accentuate details and open the piece for a potential lean towards chiaroscuro. For the frame, I aim to use already available cardboard to produce the distinctive frame, since I desire to incorporate three dimensional yet simple elements directly onto the frame. The intention of the four 8x8" canvases is to showcase my thoughts within a nondescript scenery, using subtlety to achieve my main goal. Nothing besides the main canvas will have too much detail, since it would distract the viewer from its' intended focus.

Screen Print on Bristol Paper
Isaiah Williams
Faculty Mentor: Ljiljana Obradovic-Edmiston

America is known as the melting pot, and since its conception has been seen as a champion of diversity and personal freedom. Natural born citizens and immigrants alike see the United States as the land of opportunity. As time passes it feels increasingly that the "American Dream" is less an achievable goal, and more a false promise, sold to the people to further the goals of the bad actors in positions of power hiding behind the guise of freedom and democracy. In this print, the silhouette of North America, filled with the colors of the American flag, represents the ideals and the history that we are taught make The United States great. The eye at the top is representative of the truth. It is shining a light that reveals an alternative image beneath the colors of the flag. The snake that is revealed represents all of people whose actions work in opposition to the promise of "life, liberty, and the pursuit of happiness" that is supposed to define the nation. At the end of the light is the Latin phrase "Veritas Vos Libera bit" or "the truth will set you free", a call to action to those who still believe and are willing to embody the ideals on which this nation was founded.

Internal Void: A Study of Cotard's Syndrome

Arden Winters
Faculty Mentor: Dr. Gina O'Neal Moffitt

This sculpture is an artistic interpretation of a research project which investigated Cotard's syndrome which is a neuropsychiatric condition. The research examined documented cases of this rare condition (only 200 documented worldwide) which was first described by Dr. Jules Cotard in 1882. The study identified that schizophrenia, depression, and psychotic disorders frequently accompany the nihilistic delusions characteristic of this syndrome. The research methods involved analyzing peer-reviewed articles and selected case studies to determine common psychiatric diagnoses and treatment approaches. Each case was examined for possible etiology, mental illness patterns, and treatment outcomes. The findings were translated into a clay sculpture using gray tones and deteriorating features to represent how patients experience feeling dead or nonexistent. The artwork, constructed with clay, wire, and wood, visualizes the perception of internal emptiness reported by patients. Treatments documented in the cases included ECT, medications, psychotherapy, and behavioral therapy, with most patients making a full recovery.

Performing Arts
Abstracts

Dancing Through Mental Health
Ella Chapman and Madeline Gregory
Faculty Mentor: Cynth Carines Malbas

This performance is about reducing the stigma surrounding mental health by showing how education and awareness can change negative attitudes. Inspired by the research Stop the Stigma: TED Talk Reduces Negative Attitudes About Mental Health Treatment, it shows how the stigma around mental health prevents people from seeking help they need. The study found that programs like TED Talks foster understanding and encourage acceptance of mental health care. This performance follows two young girls navigating their mental health challenges and their journey toward understanding, overcoming, and caring for themselves. It highlights how stigma prevents many from seeking help, emphasizing the role of education and TED Talks in changing perceptions and fostering acceptance. Through dance, this piece will help others find a way to cope with their mental health struggles. It shows that mental health is important and reminds us that we're all human, facing similar challenges as part of life.

Homeward Bound-Soprano
April Cole
Faculty Mentor: Dr. Donya Samara

"Homeward Bound," composed by Marta Keen Thompson, showcases a powerful feeling of finding oneself all while knowing loved ones will always be supportive and present. Being 750+ miles away from home myself, this song speaks to me deeply. The purpose of this research is to showcase the importance of music before, after, and during the United States Civil War and to showcase how this music became the building blocks of some of the most common genres loved today.

Visualizing Obsessive-Compulsive Disorder: A Film Project on Understanding and Managing OCD
Eugene Cooper III
Faculty Mentor: Christina Augustine

In my second semester of Nursing School at TSC, my classmates and I executed a fictional representation for a research project in the form of a film exploring Obsessive-Compulsive Disorder (OCD). Drawing on my production background, our team aimed to authentically enact the lived experiences of individuals coping with OCD through our research. My talented classmates portrayed patients while highlighting the intensity of the condition and showcasing effective coping strategies. This film was intended to spark awareness, foster empathy, and illuminate the emotional and psychological challenges faced by those with OCD. Through this film, we aim to enhance knowledge about OCD. We believe that providing a deeper understanding of the disorder and its impact on daily life will help ease the stigma surrounding it.

Ruined

Natalie Gordon
Faculty Mentor: Arden Kelly

In the heart of Africa, the earth itself seems to weep from the weight of its own history; there is a war not fought with guns or grenades, but with violence that leaves scars on the soul. As this war rages, the Democratic Republic of Congo has been acknowledged as "the rape capital of the world." Brutal militias have taken the initiative to ravage villages for control over the women of Congo. Lamentably, their voices have been drowned out by the roar of conflict and the silence of indifference. *Ruined,* a play by Lynn Nottage, gives a voice to the struggles of the women who have suffered the unjust tragedies of rape, mutilation, and death. In the shadow of this war, we must bear witness, remember, and fight for the women of the Democratic Republic of Congo because a fight for their humanity is a fight for all of ours.

Program Oral Interpretation on The Story of Closeted Sexuality

Olivia Shull
Faculty Mentor: John Schultz

A 2024 study conducted by the *Journal of Clinical and Consulting Psychology* reviews that LGBTQ adults ranging in ages 18 to 24 face severe anxiety, depression, isolation, and suicidal ideation when concealing their sexual orientation. This is something I and many queer people have dealt with, and with anti-queer legislation in our schools as well as in our government continuing to rise, it is more vital than ever that our voices be heard. Through the poetry, “Straight People” by Maya Greenhill, “The Closet” by Paige Justice, the personal story “Out of the Closet, Out of the Home” by Lila Perez, song lyrics by queer icon and Grammy winner Chappell Roan, and real sermons preached by Reverend Samuel Crowder, this program offers ab oral interpretation of powerful stories because no identity deserves to live their life confined inside the walls of a closet.

Blue Galaxy

Presley Tarver and Elizabeth Saunders
Faculty Mentor: Michelle Peruche

The inspiration behind this composition comes from a dream Tarver had, where she was the lone pilot of a spacecraft exploring the universe, facing obstacles and surviving the harsh, unknown territory. In writing this duet, she ventures deeper into the subconscious meaning of her dream, realizing this was her mind's way of processing life changes and persevering through them. By creating and performing this piece, Tarver and Saunders express the feelings of uncertainty, courage, and eventual triumph that come with experiencing life. Tarver incorporates a central motif throughout the piece that was heard in the dream, which symbolizes how although there are always new "galaxies," we will navigate through them. She composed this piece thinking of each section as a scene of her journey, creating a musical narrative. Tarver hopes that by experiencing the music, the audience can connect with the shared human experience of facing life's challenges and surviving.

Symposium Review Cadre

This year's Undergraduate Research Symposium would not have been possible without the support of a large cadre of volunteers who served variously as abstract reviewers, session moderators, and presentation adjudicators. We are eternally grateful to this cohort that serves, mostly in isolation, and with little formal recognition, carrying out these functions, which are essential to hosting a successful symposium. We are proud to recognize them here, and we thank them for their continued support of this important annual event.

UNDERGRADUATE RESEARCH SYMPOSIUM REVIEW CADRE 2024-2025

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Julie Baroody
Ross Brooks
Dr. Gregory Brown
Dr. Ceron Bryant
Chris Chamberlain
Dr. Hannah Clayton
Dr. Ivory Council
Dr. Amber Cresgy
Michelle Dam
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Dr. Lu Vickers
Erika Williams
Akila Wilson
Jeremy Wortham

Acknowledgements

The 2025 Undergraduate Research Symposium is the capstone event for Tallahassee State College's Undergraduate Research (UR) Program. Hosting an academic symposium is a significant undertaking, and it would not be possible without the contributions of numerous individuals, only some of whom can be acknowledged here.

We are particularly grateful for the support of TSC's phenomenal Communications and Marketing team, ably led by Amanda Clements, Director of Strategic Communications, and Amber O'Connell, Director of Marketing. Their teams provided publicity in multiple formats throughout the year that increased the visibility of the UR Program. Extra special thanks is due to Caitlin Bradbury, the College's webmaster, for implementing numerous changes to our website over the past year. It's safe to say that most of us would not have found our way here without the efforts of our Communications and Marketing team.

Special thanks are also owed to TSC's Conferences and Events team, led by Marckus Harden. As the annual symposium has grown, so have our needs for event space, and the Conferences and Events team has accommodated us for six years running. In addition, they have provided us with facilities for meetings and events throughout the academic year. We are eternally grateful for their ongoing support of the UR Program.

Numerous administrative tasks were taken care of by staff in the Office of Academic Affairs. Very special thanks are due to Brielle Crooms, Academic Coordinator in the Office of Academic Affairs, who has assisted the UR Program with purchasing supplies, preparing certificates, distributing awards to symposium award winners, and countless other administrative tasks that are impossible to name here. Brielle, we can never thank you enough for all you do.

Thanks are also due to the leadership and staff of the TSC Fine and Performing Arts Center. Barbara Cohenour, Curator of the TSC Fine Arts Gallery, and to Ken Pierson, Staff Assistant in the Division of Communications and Humanities, arranged for visual arts presenters to have their work professionally displayed in the TSC Fine Arts Gallery. Eva Nielsen, Director of Theatre TSC, graciously allowed our performing arts presenters the use of Turner Auditorium, a world class performance venue, for this year's symposium. The use of facilities in the Fine and Performing Arts Center made the fine arts sessions of this year's symposium particularly special, and we cannot thank our fine arts team enough for their support.

Acknowledgements

This symposium and all other activities of the UR Program are coordinated by TSC's Undergraduate Research Council, an interdisciplinary and inter-hierarchy group of faculty, staff, and administrators, who volunteer their time and efforts toward making each year's symposium, and all other activities of the UR Program, a success. A tremendous debt of gratitude is owed to them.

UNDERGRADUATE RESEARCH COUNCIL MEMBERS 2024-2025

Dr. Daniel Beugnet, Chair; Professor, Division of Communications and Humanities
Shekitta Allen, Learning Commons Specialist, The Learning Commons
Lynn Andresen, Professor, Division of Healthcare Professions
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John Schultz, Professor, Division of Communications and Humanities
Dr. Ken Tellis, Associate Dean, Division of Healthcare Professions
Erika Williams, Professor, Division of Science and Mathematics
Akila Wilson, Assistant Professor, Division of Communications and Humanities

Above all, we thank our College’s leadership for their continued support of the UR Program and the annual Undergraduate Research Symposium. TSC’s President, Dr. Jim Murdaugh, has supported this initiative from the beginning, taking time out of his busy schedule to attend every symposium since our first year. And TSC’s Provost and Vice President for Academic Affairs, Dr. Calandra Stringer, has been among our most ardent supporters, mobilizing resources and designating UR as an institutional priority. Dr. Stringer, we can never thank you enough for helping us build one of the largest community college undergraduate research programs in the country. And thanks to you, we are just getting started!