TSC

TALLAHASSEE
STATE COLLEGE

UNDERGRADUATE RESEARCH SYMPOSIUM 2026

Wednesday, April 1

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. We are so grateful to all of the TSC Foundation's generous donors for their support of this worthy cause.

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Welcome

It is with great pleasure that I welcome you to the 2026 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

Welcome to the 2026 TSC Undergraduate Research Symposium. This year marks TSC's seventh annual Undergraduate Research Symposium, and it has fast become one of our institution's most anticipated annual events. 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 2025-2026 academic year.

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.

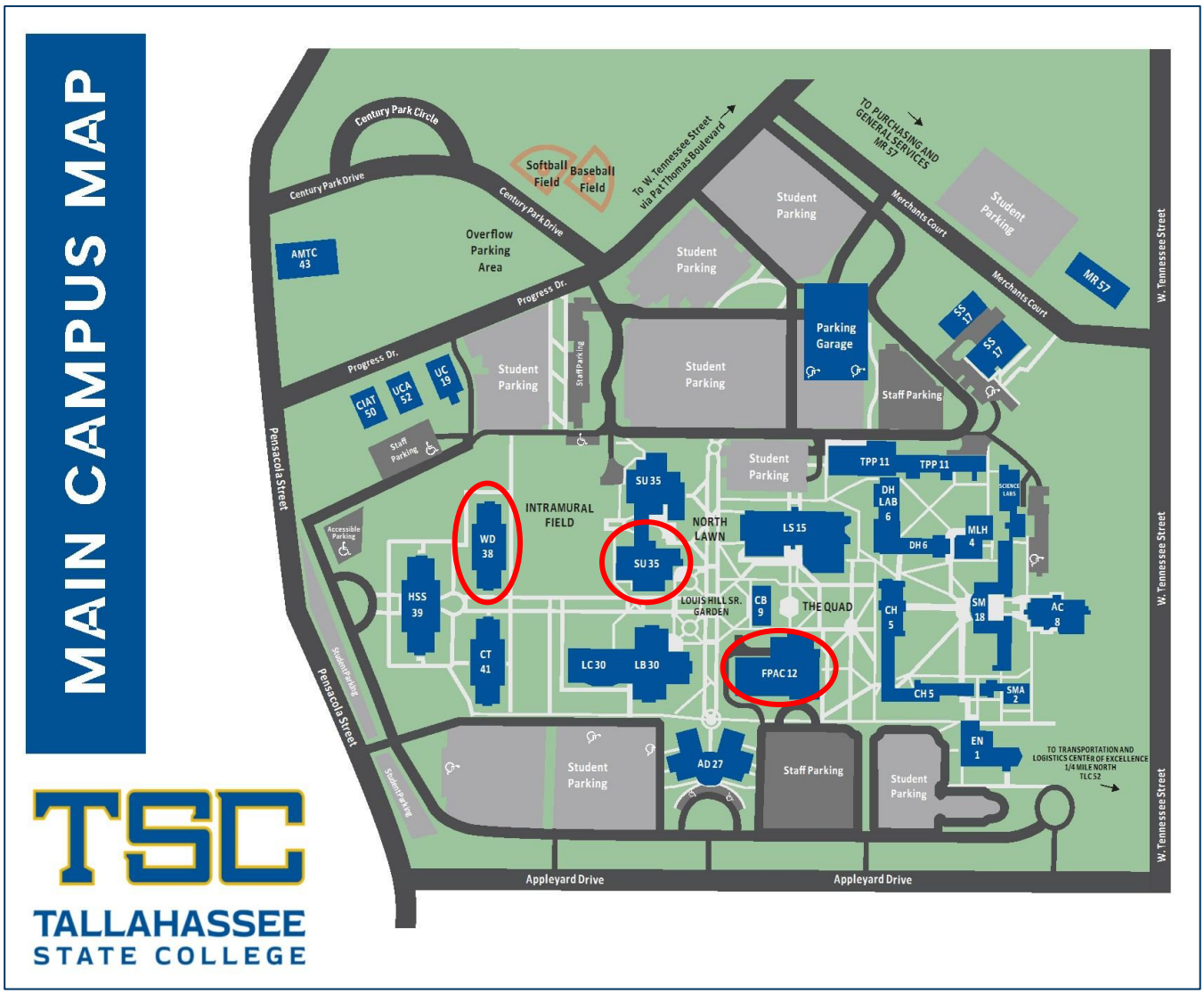
With well over 100 presenters in this year's symposium, presentations will take place in locations throughout TSC's main campus: the Center for Workforce Development (WD), the Student Union, and the Fine and Performing Arts Center (FPAC). Opening remarks will be delivered in WD 105. Oral presentations and 3-minute thesis video screenings will take place throughout the day in both WD and FPAC, while poster presentation sessions will be hosted in the Student Union Ballroom. Later in the day, visual arts presentations will take place in the TSC Fine Arts Gallery in FPAC. 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 2026 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 well over 100 presenters participating in this year's symposium, presentations will take place in locations across TSC's campus, including the Workforce Development Center (WD), the Student Union, and the Fine and Performing Arts Center (FPAC). Symposium venues are circled in red in the campus map that appears below.



Schedule at a Glance

Time	Event and Location
9:00-9:15	**Welcome and Opening Remarks** WD 105
9:30-10:45	**Oral Presentations** WD 114 and WD 128
10:00-11:00	**Poster Presentation Session 1** Student Union Ballroom
11:00-12:00	**3-Minute Thesis Video Screenings** FPAC 104 and via Zoom @ 937 5643 5498
12:00-1:00	**Poster Presentation Session 2** Student Union Ballroom
1:00-2:00	**Visual Arts *Artist Talks*** TSC Fine Arts Gallery
4:30-6:00	**Awards Ceremony and Reception** WD 105

Oral Presentations
9:30 – 10:45

STEM
WD 114
Moderator: Dr. Cherie Hodge

“Behind Faces and Lenses: Psychological Differences Between Crowd Shyness and Camera Shyness”
Patric Byrd
Faculty Mentor: Arden Kelly

“Music Therapy in the Healthcare Industry”
Jackson Hopkins
Faculty Mentor: John Schultz

“Varying Extremity of Sexual Dimorphism between Hunting and Orb-weaving Spiders”
Thomas Watson
Faculty Mentor: Susannah Dorrance

Arts, Humanities, and Social Sciences
WD 128
Moderator: Michelle Peruche

“What Makes a Person a Person? Personhood Under Strain: Dissociative Identity Disorder and the Question of Plurality”
Alexander Coffey
Faculty Mentor: Kermit Harrison

“The First Red Scare”
Halden Euridge
Faculty Mentor: Stephen Powers

“The Grip of Fascism: An Analysis of Modern American Society”
Owen Forrester
Faculty Mentor: Dr. Forster Agama

“Rewriting the Constitution”
Jalil Smith
Faculty Mentor: Christina Carter

Poster Session 1
10:00 – 11:00

Health Sciences, Social Sciences, and Humanities
Student Union Ballroom
Moderator: Dr. Joseph McNeil

"Video Games, Violence, and Cognition: Separating Cultural Myth from Scientific Evidence"
Persephone Astel
Faculty Mentor: Jenny McHenry

"Preventing RNA Virus Transmission Through Proper Hand Hygiene"
Ravonna Brown
Faculty Mentor: Dr. Renee Gordon

"Global Inequality: Economic and Social Dimensions"
Isaiah Carroll
Faculty Mentor: Dr. Forster Agama

"The Effects of Adrenaline on Glucose Metabolism and Lactate Production During Short-Term Muscular Activity in Humans: A Systematic Review"
Vanessa De Freitas
Faculty Mentor: Krishna Patel

"The Design and Use of Medical Devices And How, When Unchecked, Can Lead to Disaster"
Charlotte Garnier
Faculty Mentor: Dr. Renee Gordon

"A Look Into The Dangers of AI Therapy"
Kaitlyn Honn
Faculty Mentor: Dr. Forster Agama

"Seminole War and Its Untold Impact on Seminole Culture and Social Dynamics in Florida"
Mikayli Ingram
Faculty Mentor: Kevin Gidusko

"The Law of Vibration in Quantum Resonance Oncology: A Multi-Scale Model for Predicting and Targeting Malignant Cell Failure Modes"
Jayson Kim
Faculty Mentor: Dr. Renee Gordon

"Barriers to Dermatologic Surgery in North Florida: A Rural–Urban Access Analysis"
Kathryn Kofler
Faculty Mentor: Jeremy Wortham

"Diabetes in Youth: Trends, Contributing Factors, and Health Implications"
Charlene Marshall
Faculty Mentor: Dr. Renee Gordon

Poster Session 1
10:00 – 11:00

“Misinformation on Health and the Role the Government Plays in It”
Ajay Prabhakaran
Faculty Mentor: Dr. Forster Agama

“Struggles Of Having Major Depressive Disorder in Women”
Makayla Prewitt
Faculty Mentor: Erika Williams

“’Alice für Deutschland’: Artificial Intelligence and Foreign Influences in the German Far-Right”
Shannon Sandow
Faculty Mentor: Dr. Edward Duggan

“The Precision Gap in Glioblastoma: A Case Study Highlighting Chromosomal Instability and Its Potential Implications for Individualized Treatment”
Maria Valenzuela
Faculty Mentor: Dr. Katherine Easterling

3-Minute Thesis Video Screenings
11:00 – 12:00

FPAC 104 and via Zoom @ 937 5643 5498
Moderator: Dr. Renee Gordon

"Artificial Intelligence in the Media and the Value of Humanity behind it"
Kameron Brundage
Faculty Mentor: Dr. Renee Gordon

"Analyzing the Impact of Job, Budget, and Office Cuts on the Environmental Protection Agency"
Joey Coetzee
Faculty Mentor: Nicolette Costantino

"How to Numb a Country: The Study on Government Polarization That Leads to Desensitization"
Angelina Cordero
Faculty Mentor: Dr. Lu Vickers

"Evaluating Whether Modern Artificial Intelligence Demonstrates True Intelligence"
Idi Yasin Duniya
Faculty Mentor: Dr. Renee Gordon

"Examining the Impact of English Proficiency on Classroom Participation and Academic Confidence in Early-Year International STEM Students"
Fari Eunice Garcia
Faculty Mentor: Dr. Renee Gordon

"The Science of GLP-1: Managing Obesity and Preventing Type 2 Diabetes"
Justin Huber
Faculty Mentor: Dr. Forster Agama

"Glymphatic System Dysfunction in Alzheimer's Disease"
Jahvani Joshi
Faculty Mentor: Dr. Gina O'Neal-Moffitt

"Lights, Camera, Strategy: Integrating Business Administration into the Evolution of Filmmaking"
Devonte' Lamb
Faculty Mentor: Johnny Petit

Poster Session 2
12:00 – 1:00

Natural Sciences, Physical Sciences, and Mathematics
Student Union Ballroom
Moderator: Dr. Joseph McNeil

"Pathophysiological Consequences of Ascorbic Acid Deficiency in the Guinea Pig Model (Cavia porcellus): A Meta-Analysis"
Amber Aguirre
Faculty Mentor: Dr. Dwight Lillie

"Thermal Constraints and Their Influence on Modern Microprocessor Architecture"
Bishal Ale
Faculty Mentor: Grant Macdonnell

"Looking Into The Benefits of Magnetic Roadway Transportation Systems"
Jakel Baker
Faculty Mentor: Dr. Renee Gordon

"The Effects of Medical Marijuana on Post Traumatic Stress Disorder for Veterans"
Omar Canales
Faculty Mentor: Dr. Donya Samara

"Integrating Art into Chemistry Lessons: Effects on Student Engagement and Comprehension"
Antares Ciotti
Faculty Mentor: Krishna Patel

"How Electronic Waste is Affecting the Environment and What We Can Do About It"
Sally Clavell
Faculty Mentor: Dr. Renee Gordon

"Oxidation vs Reduction Firing: Effects on Transition Metal Colorants in Ceramic Glazes"
Arista Corral
Faculty Mentor: Krishna Patel

"Transportation Engineering and Human Safety"
Nasir Desiree
Faculty Mentor: Dr. Joseph McNeil

"The Role of Photosynthesis in Oxygenic Photolysis and the Sustainability of the Global Biosphere"
Nyles Duncan
Faculty Mentor: Dr. Renee Gordon

"Depravity Bubbles: The Architecture and Escalation of Memetic Violence"
John Estrada
Faculty Mentor: Jim Quinn

Poster Session 2
12:00 – 1:00

“Recycling for Environmental Protection”
Gitana Galvez
Faculty Mentor: Larry Crombie

“Nutrition and Epigenetic Regulation in Honeybee Caste Determination with Relevance to Mammals”
Svetlana Gekimyants
Faculty Mentor: Carl Saltzberg

“Synthesized Biodiesel's Environmental Qualities and Performance Compared to Regular Diesel and the Combination”
Sairana Gorijavolu
Faculty Mentor: Travis Bates

“Design and Construction of an Adjustable DC Power Supply”
Anthony Grant
Faculty Mentor: Dr. Joseph McNeil

“Digital Acceleration in K-12 Education: Innovative benefits and Digital Literacy”
Aurora Haunsperger
Faculty Mentor: Jim Quinn

“Evaluating the Effectiveness of a Simple Regenerator in a Low-Cost Stirling Engine”
Colby Hayden
Faculty Mentor: Dr. Joseph McNeil

“If Jupiter was a Star”
Sara Johnsen
Faculty Mentor: Dr. Joseph McNeil

“Restoring Apoptosis in Cancer Cells: Therapeutic Roles of Telomerase Inhibition, Oncolytic Viruses, and Gene Targeting”
Jesus Licea
Faculty Mentor: Susannah Dorrance

“Therapeutic Implications of Antimicrobial Peptides As a Treatment Against Multidrug-Resistant Infections”
Annabeth Norris
Faculty Mentor: Dr. Hector Quinones Pena

“From Surface to Rendezvous: Orbital Mechanics Analysis of Mission One of the Mars Sample Return Multi-Mission Campaign”
Carson Norris
Faculty Mentor: Dr. Joseph McNeil

Poster Session 2
12:00 – 1:00

“Mini Pong Game”
Ky Pham
Faculty Mentor: Dr. Joseph McNeil

“The Future Promise of Fusion Power: Harnessing the Power of the Stars”
Taylor Rutherford
Faculty Mentor: Dr. Renee Gordon

“Urban Stormwater Runoff as a Source of Microplastics in Florida Waterways”
Haleigh Smith
Faculty Mentor: Travis Bates

“Modeling the Dark Matter Halo with Rotational Dynamics”
Sunny Thomas and Moises Chacon
Faculty Mentor: Dr. Joseph McNeil

“Newer Technology, Same Email Scams”
Zachary Trice
Faculty Mentor: Dr. Renee Gordon

“Exploring Potential Risk of Development of Alzheimer's Disease From Chronic Stress-Induced Memory Loss”
Aaron Wallace
Faculty Mentor: Dr. Renee Gordon

“Mass Dependence of the Static Friction Force Determined from the Circular Motion of a Remote-Controlled Vehicle”
Bryce Widner
Faculty Mentor: Dr. Joseph McNeil

“How Fast Does Iron Rust?”
Jamarr Williams
Faculty Mentor: Dr. Dwight Lillie

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

TSC Fine Arts Gallery
Fine and Performing Arts Center (FPAC)
Moderator: Ken Pierson

“The Story Goes”
Mary Allen
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Embers of Fuji & Chromatic Fumo”
Omar Canales
Faculty Mentor: Krishna Patel

“The Anatomy of Spring”
Morgan Craig
Faculty Mentor: Lindsey Smitherman-Brown

“In a Little Doll House”
Amelia Crawford
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Chomp Chomp Goes the Gator”
Aria Falconer
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Vanitas”
Kimberlee Freeman
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Warped Mirror”
Heman Getachew
Faculty Mentor: Ljiljana Obradovic-Edmiston

“The Reality of the Reflection: Personal Study on Body Dysmorphia and Self Worth”
Vivian Leeds
Faculty Mentor: Julie Baroody

“Mutation: A Sculptural Commentary on the Abnormal”
Jason Pham
Faculty Mentor: Joshua Flores

“The Blues: Exploring Absurdity and Jazz Through Denim”
Jason Pham
Faculty Mentor: Joshua Flores

“Unbound: A Sculptural Study of Self-Acceptance and Awakening”
Jason Pham
Faculty Mentor: Joshua Flores

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

“Human Enough: Dehumanization Through Animalistic Epithets”
Esther R.P.
Faculty Mentor: Ljiljana Obradovic-Edmiston

“War From Above, Below, and Within”
Pearl Thompson
Faculty Mentor: Ljiljana Obradovic-Edmiston

“Puppet Limbs: a Study of Alien Hand Syndrome”
Arden Winters
Faculty Mentor: Dr. Gina O'Neal-Moffitt

Awards Ceremony and Reception
4:30 – 6:00

Join us for the joyous celebration of TSC students' scholarly and creative achievements from the 2025-2026 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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Oral Presentations
Abstracts

Behind Faces and Lenses: Psychological Differences Between Crowd Shyness and Camera Shyness

Patric Byrd
Faculty Mentor: Arden Kelly

This project investigated why individuals may feel comfortable in group settings yet anxious when being recorded. Understanding this difference is important in a media-driven society where cameras are common in social, academic, and professional life. The project used a qualitative approach combining personal observation, informal interviews with two college peers, and analysis of psychological research on social anxiety, attentional control, and video exposure therapy. Findings suggest that camera shyness is shaped by perceived permanence, imagined audiences, and reduced feedback, while crowd shyness relates to immediate social evaluation. Research indicates that both forms of anxiety can be managed through attentional control and gradual exposure, showing that these responses are situational rather than fixed traits.

What Makes a Person a Person? Personhood Under Strain: Dissociative Identity Disorder and the Question of Plurality

Alexander Coffey
Faculty Mentor: Kermit Harrison

The question, “What makes a person a person?” is one that philosophy, psychology, neuroscience, and anthropology answer in different ways, yet each discipline returns to shared criteria such as agency, continuity, self-structure, social participation, and subjective perspective. Traditional Western assumptions often equate one body with one person, but Dissociative Identity Disorder (DID) complicates this model through recognized identity plurality. This project uses a qualitative, interdisciplinary methodology by combining conceptual analysis and literature synthesis to evaluate whether personhood is better understood as a configuration of psychological, neural, and sociocultural patterns, rather than a property of the biological organism alone. Using DID as an empirical test case, I apply cross-disciplinary criteria to distinct identity states to assess which features plausibly support personhood and which prevailing models break down. This suggests personhood may be plural and graded in DID, indicating the need for a revised framework that accounts for multiplicity without reducing personhood to pathology.

The First Red Scare

Halden Euridge
Faculty Mentor: Stephen Powers

The First Red Scare was a socially and politically uncertain time when the U.S. Government worked with Capital interests to retain power. These institutions fought physically and psychologically against liberal reform efforts to distribute wealth and self-determination more equally. The result of this struggle during the early 20th century was Government and Capital retaining most of their power, and they created an effective strategy to stop reform which has been used even today. This strategy employed physical means through the National Guard, federal and state law enforcement, and government legislation. Other psychological tactics like demonizing immigrants, nationalistic rhetoric, media sophistry, and racism were exploited by government and capital to stifle public appeal of liberal reform. Today, these tactics are used in almost exactly the same way as they were used 102 years ago. By understanding how reform was stopped historically, those issues can be avoided today.

Oral Presentations
Abstracts

The Grip of Fascism: An Analysis of Modern American Society
Owen Forrester
Faculty Mentor: Dr. Forster Agama

Does modern American discourse mirror the rise of mid-century fascism? This study evaluates the defining characteristics of fascist regimes—their allure, their historical trajectory, and their eventual collapse—to assess the current state of U.S. politics. Through a rigorous analysis of historical data and diverse primary sources, I demonstrate a significant correlation between classic fascist frameworks and contemporary administrative trends. The findings suggest that the rise of fascism is not a looming possibility, but an active reality. This presentation outlines the essential checks and balances required to mitigate this risk and protect the future of the republic.

Music Therapy in the Healthcare Industry
Jackson Hopkins
Faculty Mentor: John Schultz

Over 3 months research was done in order to bring to light music therapies usefulness and application in the healthcare industry. Although breakthrough research has been done to utilize music therapy more often for both physical and neurological conditions, little is being done in outreach and education about its effectiveness and how it is used. My speech will intend to bring these issues to light, as well as detailing music therapies specific uses and how they help with recovery and pain reduction both physically and psychologically.

Rewriting the Constitution
Jalil Smith
Faculty Mentor: Cristina Carter

This project examines how the United States Constitution can be modernized to address today's political and social challenges. It evaluates the strengths of the Preamble, the limits of the current three-branch structure, and issues such as lifetime judicial appointments and a divided legislature. The project also reviews the Reconstruction Amendments and proposes combining them into a single, clear guarantee of equality. Using comparisons to other democracies and examples of government overreach, it outlines reforms that would create a more unified, transparent, and accountable government.

Varying Extremity of Sexual Dimorphism between Hunting and Orb-weaving Spiders

Thomas Watson
Faculty Mentor: Susannah Dorrance

Animals exhibit traits that differ between sex inside their own species, excluding reproductive organs. This is known as sexual dimorphism. Members of the Order Araneae exhibit varying degrees of sexual dimorphism. While male orb-weaving spiders rely on a female's web, male hunting spiders do not rely on a mate for food. Thus, the dimorphism in orb weaving spiders is more extreme than hunting spiders. This study will identify how extreme the difference is in sexual dimorphism between hunting spiders and orb weaving spiders. Data will be compiled from Iowa State University's Department of Plant Pathology, Entomology, and Microbiology. Size factors, including length, will be compared to determine the degree of difference between two types of Arachnida. Based on the ecological roles these spiders use in their environment, I expect sexual dimorphism to vary, with a greater difference being seen in the orb weaving spiders.

Poster Session 1
Abstracts

Video Games, Violence, and Cognition: Separating Cultural Myth from Scientific Evidence
Persephone Astel
Faculty Mentor: Jenny McHenry

This analysis explores the nuanced concept of how video games impact youth and adults through emotion, brain patterns, and behavior. While video games are often blamed for promoting violence and overconsumption, scientific research reveals a multifaceted reality. Drawing on longitudinal cognitive studies, research syntheses, and rhetorical analysis of documentary media, this study evaluates claims linking gaming to violence. Findings show that while violent games may temporarily increase frustration, there is no definitive causal relationship between video game consumption and violent crime. Additionally, research proves measurable benefits in spatial reasoning, processing speed, and working memory. Beyond measurable cognition, immersive storytelling games build critical and free-thinking, encouraging individuals to question deeper 'whys' and 'what-ifs' about life and society. Public discourse oftentimes reflects cultural anxiety rather than a comprehensive research-based approach.

Preventing RNA Virus Transmission Through Proper Hand Hygiene
Ravonna Brown
Faculty Mentor: Dr. Renee Gordon

Hand hygiene remains one of the most effective and accessible ways to prevent the spread of RNA viruses such as influenza, norovirus, rotavirus, and coronaviruses. Because these viruses mutate quickly and can survive on hands and surfaces, they spread easily through everyday interactions, making proper handwashing an essential public-health practice. This presentation explains the science behind how soap, water, and alcohol-based sanitizers break down viral structures and reduce their ability to infect. It also connects these mechanisms to evidence showing that consistent hand hygiene can lower transmission rates in schools, communities, and public spaces. Along with the scientific basis, the discussion highlights barriers to good hygiene habits and the importance of improving awareness in high-risk environments. By combining scientific understanding with practical application, this work emphasizes why simple habits like handwashing remain a powerful, low-cost strategy for reducing the spread of current and emerging RNA viruses.

Global Inequality: Economic and Social Dimensions
Isaiah Carroll
Faculty Mentor: Dr. Forster Agama

This study examines global inequality in both economic and social dimensions in contemporary society. The project discusses the role of inequality in wealth distribution, inaccessibility to education and healthcare, and opportunity gaps on the quality of life of different people. The issue is social stability, economic growth, and the long-term development all around the globe. This research is based on analysis of academic articles, reports, and reliable news sources addressing economic disparities and insufficient access to basic needs. These sources are compared to determine trends of disadvantage in terms of geographic location and social economic status. These findings indicate that inequality leads to poverty in the long term, low social movement, and political instability. Overall, this paper demonstrates the relationship between global inequality and widespread social issues and emphasizes the need to reduce these disparities to promote equity and sustainable development.

Poster Session 1
Abstracts

The Effects of Adrenaline on Glucose Metabolism and Lactate Production During Short-Term Muscular Activity in Humans: A Systematic Review

Vanessa De Freitas
Faculty Mentor: Krishna Patel

Adrenaline plays a critical role in the acute metabolic response to short-term muscular activity by mobilizing energy substrates to support performance. This project evaluates how adrenaline influences glucose metabolism and lactate production during brief exercise in humans. A preliminary search in PubMed, Scopus, and Web of Science identified experimental studies examining epinephrine infusion or naturally elevated catecholamine levels during controlled exercise. Participants included healthy, trained, and untrained individuals performing short-term cycling or sprint exercise, with measurements of plasma glucose, lactate, and muscle glycogen. Preliminary findings indicate that acute elevations in adrenaline are associated with increased hepatic glucose output, enhanced glucose uptake in muscles, accelerated glycogenolysis, and elevated lactate production. The magnitude of these effects depends on exercise intensity, participant training status, and route of adrenaline administration. Understanding these effects provides insight into exercise physiology, sports performance, and clinical scenarios, and can inform strategies to improve athletic performance and energy regulation.

The Design and Use of Medical Devices And How, When Unchecked, Can Lead to Disaster

Charlotte Garnier
Faculty Mentor: Dr. Renee Gordon

Medical devices are one of the hallmarks of the scientific world, and do wonders for those who need them, but they can just as easily be detrimental to the health of the wearer.
This research will explore how certain medical devices, mainly external, can be dangerous or fatal if designed poorly or applied incorrectly, with side effects ranging from sort-term pain to long term damage to the body. Medical devices are a crucial part of our modern medical system and should be built safely and efficiently. We must make significant changes to safeguard those who use them.

A Look Into The Dangers of AI Therapy

Kaitlyn Honn
Faculty Mentor: Dr. Forster Agama

This paper will explore the impact artificial intelligence therapy has on mental health and the dangers that come with it. As the world is more online than ever and youth are seeking mental health support more frequently, AI has become a very accessible tool with free 24/7 availability. Easy access often means less monitoring. Without professional oversight, the free AI-generated advice has proven harmful. Through extensive research and analysis of court cases, lawsuits, national newspapers, and academic articles by mental health professionals, this paper will explore the risks and dangers of this fast-growing technology. The research highlights that the dangers of parasocial relationships, harmful suggestions from the AI, and a lack of effective safeguards are harming our most vulnerable. While acknowledging the potential benefits of this AI, the research will ultimately raise major concerns about the current safety of this technology and its future.

Poster Session 1
Abstracts

Seminole War and Its Untold Impact on Seminole Culture and Social Dynamics in Florida

Mikayli Ingram
Kevin Gidusko

This study's focus will be on examining the Seminole Wars and other contributing events on the Seminole Tribe of Florida over time regarding internal social and cultural dynamics and traditions, whilst also observing external relations with groups in regards to other minorities and the State and Federal government. Using mixed methodology research practices including library research, interviews with descendants of the Wars and those involved with its research, and in person field excursions to physical sites that were large parts of the Seminole War in order to best collect data to analyze and further discuss steps to take in the present to best navigate current day social and cultural dynamics relating to the Seminole Tribe of Florida and its internal groups as well as the dynamics it has with other descendant groups and Federal, State, and local governments in the modern times.

The Law of Vibration in Quantum Resonance Oncology: A Multi-Scale Model for Predicting and Targeting Malignant Cell Failure Modes

Jayson Kim
Faculty Mentor: Dr. Renee Gordon

This study investigates how the physical laws of vibrational systems—frequency, amplitude, damping, and resonance—can be applied to develop a theoretical biomedical framework for selectively destabilizing malignant cells. Differences in mechanical stiffness, mass distribution, and the damping coefficient shift the natural frequency of malignant cells, creating resonance bands where oscillatory strain energy accumulates. Using classical vibration physics coupled with quantum-computing simulations that solve the time-dependent Schrödinger equation, this work proposes that malignant cells exhibit quantized vibrational eigenmodes that can be selectively excited without affecting healthy tissue. Although theoretical, the model outlines the scientific milestones required for future implementation of resonance-based, non-invasive cancer treatments.

Barriers to Dermatologic Surgery in North Florida: A Rural–Urban Access Analysis

Kathryn Kofler
Faculty Mentor: Jeremy Wortham

Rural communities in North Florida face disparities in access to dermatologic surgical care, often due to long travel distances, limited specialty availability, and socioeconomic challenges. Access to timely and appropriate surgical care is connected to broader access to dermatology care overall. This cross-sectional study evaluated access to dermatologic surgical care among both patients receiving dermatologic care and the broader adult community in surrounding counties. Two anonymous surveys were administered: one to adults actively receiving dermatologic care and a counterpart survey to members of the public. Both parallel questionaries captured non-identifiable information including home ZIP code, transportation method, appointment timing, anticipated or prior procedures, and perceived barriers to obtaining dermatology care. By integrating patient and community reported data with county level socioeconomic indicators, this study provides a novel, practice-based perspective on how geographic, economic, and institutional barriers delay timely procedures and shape access to dermatologic care and surgery in rural communities.

Poster Session 1
Abstracts

Diabetes in Youth: Trends, Contributing Factors, and Health Implications

Charlene Marshall
Faculty Mentor: Dr. Renee Gordon

Diabetes affects individuals of all ages, yet recent trends reveal a significant increase in both Type 1 (T1DM) and Type 2 (T2DM) diabetes among children and adolescents. This rise presents a growing public health concern with long-term implications for community health. While T1DM is primarily driven by genetic predisposition and autoimmune factors, T2DM is linked to lifestyle contributors such as sedentary behavior, poor dietary habits, and limited access to nutritious food. Increased screen time and reduced physical activity heighten the risk of T2DM in youth. Early diagnosis, education, and preventive interventions are critical to reducing future complications such as cardiovascular disease, kidney failure, and vision loss. By examining the causes and consequences of both types, this research highlights the importance of early awareness and targeted lifestyle modification, essential steps toward effective prevention strategies and healthier outcomes for future generations.

Misinformation on Health and the Role the Government Plays in It

Ajay Prabhakaran
Faculty Mentor: Dr. Forster Agama

This essay examines the intersection of public policy and the proliferation of health misinformation, specifically focusing on the tenure of U.S. Secretary of Health and Human Services, Robert F. Kennedy Jr. Despite the gravity of the role, the appointment of a figure lacking traditional public health credentials has fundamentally altered the federal government's relationship with scientific truth. By analyzing the Secretary's controversial stances on vaccinations, nutritional science, and mental health, this discussion will contrast political rhetoric against a vast body of peer-reviewed data. Ultimately, the essay proposes a path forward centered on robust health literacy and the necessity of holding public officials accountable to empirical standards.

Struggles Of Having Major Depressive Disorder in Women

Makayla Prewitt
Faculty Mentor: Erika Williams

Major Depressive Disorder, also known as Clinical Depression, is a common mental diagnosis that occurs twice as often in women as it does in men, making it a serious public health issue. I will explore the biological, psychological, and socio-cultural factors that increase women's vulnerability with this disorder. I conducted a review of databases, concentrating on studies that were published in the last 15 years to identify patterns of prevalence and risk. Within the biological changes that occur during the menstrual cycle, pregnancy, postpartum, and menopause periods have a huge impact on mood regulation upon their brain. The increased vulnerability to stress, caregiving, and interpersonal violence also increases the risk of having depressive episodes. Women are more likely to experience the symptoms such as feelings of sadness, guilt, sleep disturbances, and changes in appetite which will last 3 months to 1 year.

Poster Session 1
Abstracts

”Alice für Deutschland“: Artificial Intelligence and Foreign Influences in the German Far-Right

Shannon Sandow
Faculty Mentor: Dr. Edward Duggan

Europe is currently seeing an ideological shift toward right-wing extremism. In 2025, this became evident when the German Alternative für Deutschland (AfD) Party secured nearly one-fourth of votes in their federal election. This study investigates the leading factors behind the sudden increase in support for the AfD. Research was conducted through the examination of international and German literature, historical developments, expert analyses, and AfD online propaganda. Findings suggest that the technological advancement of artificial intelligence (AI) and foreign influences played substantial roles in the party's growth. The AfD intensified anti-immigration rhetoric appealed to voters with AI-generated content, and pushed the narrative of an inadequate—and undemocratic—government. Ultimately, despite numerous social, economic, and cultural variables, the unprecedented means of foreign influence and AI usage have contributed to Germany’s recent surge in the far-right.

The Precision Gap in Glioblastoma: A Case Study Highlighting Chromosomal Instability and Its Potential Implications for Individualized Treatment

Maria Valenzuela
Faculty Mentor: Dr. Katherine Easterling

Glioblastoma (GBM) is a Grade IV astrocytoma and is the most common malignant brain tumor in adults. Glioblastoma tumors have been shown to exhibit changes in gene expression and chromosomal instability, including segmental deletions and duplications that can vary broadly from patient to patient. Given these individual differences, and the severity of GBM, the development of individualized treatment plans are necessary but can be quite challenging. This study aims to compare a visual representation of chromosomal deletion and duplication hotspots with an individual case study to highlight this challenge. Using a SNP microarray analysis from a real-life patient and gene expression data from public database, it is possible to visually connect the disease landscape across chromosomes. The goal of this study is to highlight the need for individualized consideration in therapeutic practices for GBM treatment alongside metanalyses that identify generalized patterns of disease progression.

3-Minute Thesis Video Screenings
Abstracts

Artificial Intelligence in the Media and the Value of Humanity behind it.
Kameron Bundage
Faculty Mentor: Dr. Renee Gordon

Artificial Intelligence (AI) was originally viewed as a science-fiction creation, a distant concept reserved for the far-off future; however, in recent years, it has not only received colossal amounts of funding but has also become more integrated into modern life. Several inquiries have been raised about the benefits of AI, or whether some services would be more productive if they were incorporated. My research question is: How does AI impact our society? In this video, I analyze the financial, environmental, and societal repercussions of AI, specifically in the media.

Analyzing the Impact of Job, Budget, and Office Cuts on the Environmental Protection Agency
Joey Coetzee
Faculty Mentor: Nicolette Costantino

My argument explores the potential consequences of proposed federal job, budget, and office cuts intended to increase efficiency and eliminate wasteful spending within the Environmental Protection Agency (EPA). Given the critical role the EPA plays in protecting public health, regulating pollution, and supporting environmental programs, this research evaluates the impact of these changes on the EPA's mission. Using scholarly sources, government publications, and contemporary news analysis, I examined expert testimony, historical environmental crises prior to the EPA's establishment, and current economic arguments. Peer review and structured revision further strengthened my analysis. The findings suggest that significant cuts would weaken the EPA's ability to uphold its mission, resulting in increased long-term economic costs, and returning the nation to pre-regulation levels of pollution. Protecting the EPA through alternative organizational improvements is therefore essential to maintaining both environmental and economic stability.

How to Numb a Country: The Study on Government Polarization That Leads to Desensitization
Angelina Cordero
Faculty Mentor: Dr. Lu Vickers

As of 2026, political polarization has evolved from being just a social disagreement into a government tool. This research examines the psychological effect of government-led action on citizens and the structure of how they separate and desensitize the public. This study shifts the focus from social media being the problem, to state actions, as of most recently, that normalize crisis and conflict. Using a mix of data from 2025, this research tests the idea that constant political conflict polarizes citizens and raises our "outrage threshold." This means that essentially we become so used to the chaos that we stop reacting to it. The results show that this leads to an exhaustion, where voters become so desensitized that they overlook corrupted actions and polarization amongst themselves. This suggests that the public does not lack caring, but it's a natural response to a government that stays in a state of constant conflict.

3-Minute Thesis Video Screenings
Abstracts

Evaluating Whether Modern Artificial Intelligence Demonstrates True Intelligence
Idi Yasin Duniya
Faculty Mentor: Dr. Renee Gordon

This project investigated whether modern Artificial Intelligence systems truly demonstrate intelligence or function as advanced machine learning software. As AI becomes increasingly integrated into education, business, and daily life, clarifying what these systems actually do is important for public understanding and future development. To explore this question, I analyzed definitions from major technology organizations such as Google Cloud and examined case studies from DeepMind, specifically AlphaGo and AlphaZero. I compared how these systems learn to how humans acquire knowledge with limited information. I also reviewed how Large Language Models are trained using large datasets of human-created content. The findings suggest that current AI systems rely primarily on pattern recognition and statistical prediction rather than independent reasoning or understanding. I conclude that today's Artificial Intelligence (AI) is best described as highly advanced Machine Learning software, not true human-like intelligence.

Examining the Impact of English Proficiency on Classroom Participation and Academic Confidence in Early-Year International STEM Students
Fari Eunice Garcia
Faculty Mentor: Dr. Renee Gordon

This study examines how English proficiency influences classroom participation and academic confidence among first- and second-year international STEAM students in U.S. universities. Early academic years often present significant linguistic and cultural adjustment challenges, particularly in rigorous and discussion-based STEAM courses. Using a qualitative approach, this project combines a review of existing research with semi-structured interviews of early-year international STEAM undergraduates. The study explores how English proficiency shapes students' willingness to participate in classroom discussions, communicate ideas effectively, and perceive their academic competence. Particular attention is given to how language barriers may influence confidence, engagement, and overall classroom experience in competitive academic environments. By identifying patterns in student experiences, this research aims to contribute insight into the relationship between language proficiency and academic self-perception while highlighting the importance of supportive and inclusive learning environments.

The Science of GLP-1: Managing Obesity and Preventing Type 2 Diabetes
Justin Huber
Faculty Mentor: Dr. Forster Agama

This paper investigates the science behind Glucagon-like Peptides (GLP)-1 and their application in lowering rising obesity rates and reducing A1C levels associated with Type 2 Diabetes. Currently, 68% of US adults are considered overweight and 35% are obese, a trend driven partly by the high accessibility and affordability of appetite-stimulating, high-calorie foods. As Type 2 Diabetes remains among the most prevalent diseases globally, GLP and GLP-1 agonists were developed to combat this epidemic. GLP-1 is an incretin hormone offering extensive physiological benefits, including neuroprotection, improved cognitive function, cardio-protection, decreased hypertension, and suppressed acid secretion. Additionally, it aids in increased lipolysis and decreased inflammation. This paper analyzes the core purpose of GLP-1s, their efficacy in preventing Type 2 Diabetes, and the potential side effects associated with their clinical use.

3-Minute Thesis Video Screenings
Abstracts

Glymphatic System Dysfunction in Alzheimer's Disease
Jahnavi Joshi
Faculty Mentor: Dr. Gina O'Neal-Moffitt

Alzheimer's disease is a neurodegenerative disorder that entails progressive memory loss and cognitive decline, but its cause remains an active area of research. This presentation explores the glymphatic system, a brain waste clearance pathway that is most active during sleep, and its potential role in Alzheimer's. This review examines how impaired cerebrospinal fluid flow and disruption of aquaporin-4 channels reduce clearance of neurotoxic proteins like amyloid-beta and tau. MRI based quantitative data, shows that glymphatic dysfunction is associated with amyloid accumulation, brain atrophy, and cognitive decline, even in early or preclinical stages. Collectively, the evidence suggests that sleep-dependent glymphatic failure might contribute to protein buildup and disease progression, making it an early biomarker and future therapeutic target in Alzheimer's disease.

Lights, Camera, Strategy: Integrating Business Administration into the Evolution of Filmmaking
DeVonte' Lamb
Faculty Mentor: Johnny Petit

Filmmaking has evolved from a purely artistic endeavor into a complex, global enterprise that requires strategic business leadership as much as creative vision. This research explores the integration of business administration principles—such as marketing, financial management, operations, and entrepreneurship—within the film industry's historical and contemporary development. By examining the transformation of filmmaking from early studio systems to modern streaming platforms, the study highlights how business strategy influences production, distribution, and audience engagement. The research argues that sustainable success in today's film industry depends on the fusion of artistic innovation and business acumen. Through case-based analysis and industry trends, this project demonstrates that filmmakers who understand market dynamics, branding, and financial planning are better positioned to thrive in an increasingly competitive and digital landscape. Ultimately, this study positions filmmaking not only as an art form, but as a strategic enterprise shaped by evolving economic forces.

Pathophysiological Consequences of Ascorbic Acid Deficiency in the Guinea Pig Model (Cavia porcellus): A Meta-Analysis
Amber Aguirre
Faculty Mentor: Dr. Dwight Lillie

This project investigated vitamin C dependence and deficiency outcomes in guinea pigs through a meta-analysis of existing biological and nutritional research. Guinea pigs, like humans, lack a functional GULO gene and are unable to synthesize vitamin C endogenously, making them an important model for studying dietary ascorbic acid requirements and deficiency-related health effects. Rather than conducting a laboratory experiment, this study reviewed published research articles, veterinary nutrition studies, and experimental reports focused on vitamin C intake, deficiency symptoms, and physiological responses in guinea pig populations. Data were compared across studies based on intake levels, duration of deficiency, and observed biological effects, including impaired collagen synthesis, weakened immune response, and clinical signs of scurvy. The findings consistently showed that insufficient vitamin C intake leads to rapid physiological decline, emphasizing the necessity of continuous dietary supplementation and reinforcing the guinea pig's significance as a model organism in nutritional and biomedical research.

Poster Session 2
Abstracts

Thermal Constraints and Their Influence on Modern Microprocessor Architecture

Bishal Ale
Faculty Mentor: Grant Macdonnell

Over the past two decades, processor clock speeds have remained relatively constant, even though transistor counts have increased. This raises an important question: if transistors keep shrinking, why aren't chips getting significantly faster? This project explores how heat generation has become a major limiting factor in advanced semiconductor design and why that matters for future computing systems. As chips become more dense, managing thermal energy is critical to maintaining performance and reliability. To investigate this issue, I reviewed engineering research articles and industry technical reports. Trends in clock frequency, power consumption, and processor core counts were analyzed to understand how rising power density has influenced architectural decisions. The analysis suggests that thermal constraints have played a central role in the shift toward multi-core and heterogeneous processor designs, with modern development increasingly prioritizing energy efficiency and thermal management.

Looking Into The Benefits of Magnetic Roadway Transportation Systems

Jakel Baker
Faculty Mentor: Dr. Renee Gordon

This project examines whether magnetic roadway transportation systems could serve as a viable alternative to conventional road infrastructure. The research question guiding this study is: Can magnetic roadway systems improve transportation efficiency and reduce long-term maintenance demands compared to traditional roadways? This topic is significant because existing transportation networks experience deterioration, congestion, and increasing energy demands, creating the need for innovative and sustainable solutions. The study conducts a comparative analysis of established magnetic transportation technologies through a structured review of engineering reports, transportation research, and economic cost assessments. Case studies, including the Shanghai Maglev, are evaluated based on speed, energy efficiency, maintenance requirements, and infrastructure costs relative to traditional roadway systems. The analysis indicates that magnetic systems may offer increased travel speeds and reduced friction-related wear, though high initial construction costs present substantial implementation challenges.

The Effects of Medical Marijuana on Post Traumatic Stress Disorder for Veterans

Omar Canales
Faculty Mentor: Dr. Donya Samara

This research project will explore the effects of Medical Marijuana on PTSD as opposed to mental health medication that cause severe side effects. Post Traumatic Stress Disorder or PTSD is a mental health condition triggered by experiencing or witnessing terrifying, life-threatening, or traumatic events like combat, abuse, or disasters. The main line defense for PTSD is Mental Health medication and pain medication like opioids. One remarkably favorable alternative is Medical Marijuana, which has been reported to alleviate many symptoms of PTSD with minimal side effects, yet it is looked upon with disdain as it is classified as schedule 1 controlled substance by the federal government. Much research has already been done, and it is extremely promising for individuals who suffer from PTSD. I will compare many peer reviewed research papers and share these findings. Evidence-based insights will help overcome the stigma surrounding Medical Marijuana.

Poster Session 2
Abstracts

How Electronic Waste is Affecting the Environment and What We Can Do About It

Sally Clavell
Faculty Mentor: Dr. Renee Gordon

As technological innovation continues to grow, electronic waste has become a major environmental concern. Many outdated devices, including smartphones, computers, and other electronics, are frequently discarded instead of being recycled or repurposed, contributing to pollution and the contamination of natural resources. This research project examines how old technology can be recycled, refurbished, and redesigned in more sustainable ways. This research project involves reviewing scholarly research and existing environmentally friendly engineering solutions to identify effective methods for reducing e-waste and promoting sustainable practices. This project will analyze strategies for improving outreach and public awareness to make sustainable technology initiatives more accessible and appealing. Findings show that technology can be recycled, upcycled, refurbished, and repurposed instead of being discarded. Additionally, educating the public on where to access these resources and how to properly dispose of electronics can significantly reduce ewaste and support more environmentally sustainable technology use.

Integrating Art into Chemistry Lessons: Effects on Student Engagement and Comprehension

Antares Ciotti
Faculty Mentor: Krishna Patel

Traditional chemistry instruction often relies on symbolic representations and lecture-based delivery, which can make core ideas difficult for students to visualize. This project examines whether incorporating demonstration-based visuals into introductory chemistry can improve student engagement and conceptual understanding. Grounded in multimodal learning research, the intervention integrates demonstrations such as spectral tubes for electronic structure, flame tests for emission phenomena, redox reaction visuals, and chemical kinetics experiments illustrating rate changes. These demos accompany modules on bonding, molecular geometry, reaction mechanisms, and energy transformations. Using a mixed-methods design, the study includes pre/post conceptual assessments, engagement surveys, classroom observations, and short reflective interviews. Preliminary findings show that students exposed to the demo-centered lessons exhibit greater willingness to engage with challenging topics and improved ability to visualize chemical processes. In the first implementation, two course sections demonstrated an average increase of 19.14% from pre- to post-exam scores compared with traditionally taught sections. Qualitative feedback indicates that the visual demonstrations promote slower, more deliberate processing and help students link symbolic representations to observable phenomena.

The Causes and Effects of Global Warming on the Earth's Environment

Jerome Cleggett III
Faculty Mentor: Dr. Forster Agama

This project examines global warming and explains why it is an important issue affecting the planet today. Utilizing a qualitative review of environmental data and climate change reports, the purpose is to understand what causes global warming and how it impacts the environment, weather patterns, and living organisms. Learning about this topic is important because global warming continues to affect people's daily lives, natural ecosystems, and the future stability of Earth. By analyzing global climate trends, this study finds that rising temperatures contribute to stronger storms, longer droughts, melting glaciers, and rising sea levels. The results show that human activities, especially burning fossil fuels and deforestation, are major contributors to global warming. Overall, it concludes that reducing emissions, protecting forests, and increasing awareness are necessary steps to slow down climate change and protect the planet for future generations.

Poster Session 2
Abstracts

Oxidation vs Reduction Firing: Effects on Transition Metal Colorants in Ceramic Glazes

Arista Corral
Faculty Mentor: Krishna Patel

The age-old practice of ceramics is a gorgeous expression of art dating back roughly 2000 B.C. in Asia and Africa. This analysis will examine the oxidation and reduction kiln atmospheres alteration of the coloration produced by the transition metal oxides in ceramic glazes. Beginning firing techniques found in China and Egypt were unintentionally performed with reduction firing, where oxygen is restricted in the surroundings to influence the colorants in the glazes. However, this process is less predictable. In oxidation firing, oxygen is present and allows more control over how the heat reacts with the metals present in the glaze. Key patterns in literature and case studies between the commonly used transition metals in both oxidation and reduction atmospheres will be observed to gain an appreciation for glazing. Gaining knowledge on how transition metals react in different firing atmospheres can allow the mature ceramicist to glaze with more intention and precision.

Transportation Engineering and Human Safety

Nasir Desiree
Faculty Mentor: Dr. Joseph McNeil

Transportation engineering can make travel a-lot safer and easier for people through new technology like self-driving cars, crash-safety designs, and smart traffic systems. These technological advancements can help reduce accidents, improve traffic flow, and make transportation more accessible for people who cannot drive easily. Features such as automatic braking systems, stronger car designs, and better traffic lights have helped lower injuries and improve road safety. However, there are also downsides to these improvements. Self-driving cars can have technical problems, and some people worry about safety, hacking, or machines making decisions instead of humans. Automation may also affect jobs that involve driving. In addition, advanced transportation systems can be expensive, which may make it harder for some communities to benefit from them. This research looks at both the positive and negative effects of transportation engineering and explains why it is important to balance new technology with human safety and fairness.

The Role of Photosynthesis in Oxygenic Photolysis and the Sustainability of the Global Biosphere

Nyles Duncan
Faculty Mentor: Dr. Renee Gordon

Through photosynthesis, plants act as the primary biological link between the organic and inorganic worlds. This intricate process starts in the chloroplasts, where photolysis is the process by which chlorophyll uses solar energy to split inorganic water molecules H2O. In this stage, oxygen gas O2 is produced as a byproduct, and electrons are released to generate energy. In order to create glucose, the basic organic stuff for life, plants simultaneously take in inorganic carbon dioxide CO2. The oxygen generated is essential for two reasons: it helps maintain the ozone layer, O3, which protects the planet from deadly UV radiation, and it enables aerobic respiration in almost all living things. In the absence of this ongoing inorganic element conversion, the atmosphere would become poisonous to complex life, and the global food chain would disintegrate. Studying environmental health and sustainable ecosystem management requires an understanding of this mechanism.

Poster Session 2
Abstracts

Depravity Bubbles: The Architecture and Escalation of Memetic Violence
John Estrada
Faculty Mentor: Jim Quinn

Through a synthetic review of academic literature, case studies, and recorded events, this work seeks to differentiate between echo chambers and identify subgroups within online communities, providing a new framework to detect and counter online violence more effectively, regardless of ideological motivation. Groups like "764" and the "True-Crime-Community" (TCC) exemplify this trend, where decentralized online replication of symbols, narratives, and behaviors amplify harm. These acts are internationally recognized by law enforcement and think tanks as key elements in the spread of weaponized hate and extremist propaganda. Memetic violence refers to real-world violence inspired by online memes, narratives, and subcultures, often driven by a desire for notoriety. Such dynamics have fueled an increase in related crimes, including school shootings and extortion. Law enforcement faces significant challenges in tracking, identifying, and preventing these crimes due to the rapid platform migration and adaptability of sects.

Recycling for Environmental Protection
Gitana Galvez
Faculty Mentor: Larry Crombie

Recycling is a vital management strategy involving the collection and process of transforming used materials into new products, helping reduce contamination in oceans and pilled landfills. This research analyzes data related to the process, issues, and the significant role recycling serves for environmental protection and resource conservation. Using qualitative and quantitative data, research shows how disposing thousands of items and materials immensely affects the environment and how others around the world implement daily recycling habits in homes or communities to combat pollution. Through academic articles, research implies that yes, the recycling process does provide beyond significant benefits in lowering gas emissions, conserving energy, reducing excess demand for common materials such as plastic or metals, and minimizing waste. This presentation explores and affirms why it is so important to take part in one simple action: recycling to foster a cleaner and more sustainable environment for future generations.

Nutrition and Epigenetic Regulation in Honeybee Caste Determination with Relevance to Mammals
Svetlana Gekimyants
Faculty Mentor: Carl Saltzberg

Honeybee female larvae share an identical genetic code at hatching; however, some larvae develop into long-lived queen bees with fully developed ovaries and increased body mass, while others develop into sterile worker bees. These phenotypic differences are the result of external environmental influences, particularly nutrition. Royal jelly contains bioactive molecules that are linked to activation of histone acetylation and suppression of DNA methylation, resulting in gene expression patterns characteristic of queen bees. This literature review aims to explain the influence of nutritional components on epigenetic regulation at the molecular level using the example of caste determination in Apis mellifera. Furthermore, this review evaluates the similarities, limitations, and translational relevance of honeybee caste determination as a model for potential comparison to epigenetic regulation in mammalian systems.

Poster Session 2
Abstracts

Synthesized Biodiesel's Environmental Qualities and Performance Compared to Regular Diesel and the Combination

Sairana Gorijavolu
Faculty Mentor: Travis Bates

Biodiesel is the next step away from fossil fuels. The synthesis of biodiesel can be done in a process called transesterification making it a viable alternative to regular diesel. The purpose of this study is to find differences in biodiesel and diesel through flash point cetane numbers, expand on products and byproducts of biodiesel production, environmental benefits, and viability in synthesis of biodiesel. The study is a review on biodiesel qualities and environmental impacts, and an experiment in the synthesis of biodiesel using olive oil, methanol, and sodium hydroxide. Biodiesel has similar cetane numbers to diesel being around ~50 and flash point of biodiesel being higher (100°C-170°C) compared to diesel (60°C–80°C). Showing similar performance to diesel while being safer to transport. The combination of biodiesel and regular diesel (20/80) being the best with (~52 Cetane number and ~82°C flash point) creating more sustainable product.

Design and Construction of an Adjustable DC Power Supply

Anthony Grant
Faculty Mentor: Dr. Joseph McNeil

This project aims to design and implement a beginner-level adjustable DC power supply using linear voltage regulators. The circuit accepts an unregulated DC voltage input and provides a stable and adjustable output voltage for small electronic devices. The project begins with the use of a fixed 7805 voltage regulator to illustrate basic voltage regulation principles, and then proceeds with an LM317 adjustable voltage regulator to vary the output voltage by means of resistors. The project delves into basic electrical engineering principles such as voltage regulation, resistor circuits, load effects, and simple power dissipation. The circuit is tested for voltage stability using a multimeter. This project helps develop basic skills in circuit construction, component verification, and understanding power system functionality for electronic devices.

Digital Acceleration in K-12 Education: Innovative benefits and Digital Literacy

Aurora Haunsperger
Faculty Mentor: Jim Quinn

The rapid globalization of educational technology has transformed K-12 learning environments, creating benefits, and unintended challenges. The digital age has brought instantaneous access to information, raising student performance standards, and instructional expectations. Many schools embraced technology such as Chromebooks, iPads, and artificial intelligence without a unified regulatory framework in place. A digital divide has emerged between those who possess tacit operational knowledge and those who lack functional and critical technological literacy. This study examines the integration of modern technology without a complete understanding of reactive vs. proactive implementation and their effects on students' functional and critical technological literacy.

Poster Session 2
Abstracts

Evaluating the Effectiveness of a Simple Regenerator in a Low-Cost Stirling Engine

Colby Hayden
Faculty Mentor: Dr. Joseph McNeil

This project examines whether adding a simple regenerator improves the performance of a small, low-cost Stirling engine. A modular gamma-type engine was built from accessible materials, including a glass syringe power cylinder, graphite piston, metal tubing, and a CD flywheel. The design featured an interchangeable tube section that allowed the engine to operate with or without a regenerator. The regenerator consisted of a metal tube packed with fine steel wool to increase internal surface area and temporarily store heat during the cycle. Performance metrics—rotational speed, startup time, and ability to maintain steady operation under identical heating conditions—were measured for both configurations. By keeping the engine's geometry and materials constant, the experiment isolated the regenerator's effect on efficiency. The study aims to determine whether the added complexity of regeneration provides meaningful performance gains in small educational engines and to clarify practical efficiency tradeoffs in simplified thermodynamic systems.

If Jupiter was a Star

Sara Johnsen
Faculty Mentor: Dr. Joseph McNeil

For this experiment, it was simulated if Jupiter, with the same size and placement as it is now, became a star similar to the current size of TRAPPIST-1, a shrunken, very old brown dwarf. If our nebula had enough energy to create two stars, our sun would be part of a binary star system. Given the nature of this simulation and its fast-paced nature, the timestamp format that was used for this experiment is year, month, and day format, using a free online program called "Gravity Simulator". The measured timestamps are when a planet or dwarf planet made extreme changes, such as passing Jupiter's orbit or slingshotting out of the galaxy. What can be concluded from this simulation is that the only planets or celestial bodies safe from this change are Mercury and Pluto, meaning that they remained relatively where they started without massive changes to their orbits or placement.

Restoring Apoptosis in Cancer Cells: Therapeutic Roles of Telomerase Inhibition, Oncolytic Viruses, and Gene Targeting

Jesus Licea
Faculty Mentor: Susannah Dorrance

This literature-based review explores how inducing apoptosis in cancer cells may contribute to effective cancer treatment, with particular focus on telomerase inhibition, oncolytic viral therapy, and emerging gene-targeting strategies. Telomerase activity allows many cancer cells to maintain unlimited division and evade programmed cell death, and research shows that disrupting telomerase function can promote DNA damage signaling and apoptosis over time. However, telomerase inhibition alone is often insufficient for complete tumor elimination. Current literature highlights oncolytic viruses as a clinically promising approach capable of directly lysing tumor cells while also stimulating anti-tumor immune responses. In contrast, gene-targeting and editing strategies represent a rapidly developing field with potential to correct underlying genetic drivers of cancer, though significant delivery and safety challenges remain. Overall, the evidence suggests that the most effective future cancer therapies will likely involve combination approaches that restore apoptosis, enhance immune activity, and target tumor survival mechanisms simultaneously.

Poster Session 2
Abstracts

Therapeutic Implications of Antimicrobial Peptides As a Treatment Against Multidrug-Resistant Infections

Annabeth Norris
Faculty Mentor: Dr. Hector Quinones Pena

Antimicrobial resistance is a growing public health crisis, causing an estimated 2.8 million antibiotic-resistant infections and more than 35,000 deaths annually in the United States. Multidrug-resistant pathogens, particularly those grouped under the acronym ESKAPE (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, and Enterobacter spp.), are especially concerning in healthcare settings due to their ability to evade existing therapies, including last-line agents such as carbapenems and colistin. Antimicrobial peptides (AMPs), produced by prokaryotic and eukaryotic organisms as part of the innate immune response, have emerged as promising alternatives to conventional antibiotics. Both natural and synthetic AMPs demonstrate broad-spectrum activity through mechanisms such as membrane disruption, immunomodulation, and inhibition of intracellular functions, reducing the likelihood of resistance development. This review summarizes current literature on AMPs, evaluates ongoing clinical trials targeting MDR pathogens, and examines their structural properties and mechanisms of action to assess their potential as novel antimicrobial agents.

From Surface to Rendezvous: Orbital Mechanics Analysis of Mission One of the Mars Sample Return Multi-Mission Campaign

Carson Norris
Faculty Mentor: Dr. Joseph McNeil

Since its 2021 landing in Jezero Crater, an ancient riverbed, the Perseverance Mars Rover has been dutifully carrying out one of its core scientific objectives – searching for ancient biosignatures. To that end, Perseverance has collected and cached thirty samples. The Mars Sample Return (MSR) campaign requires a sequence of coordinated orbital maneuvers to successfully transport back to Earth selected samples from the Martian surface, via the Mars Ascent Vehicle (MAV) to the Earth Return Orbiter (ERO). This project looks to investigate the dynamics of mission one of the return campaign – the Mars Ascent Vehicle's (MAV) ascent from surface to a low Mars orbit by quantitively modelling the ascent delta-v budget to achieve a stable orbit. The resultant model explored the trade-offs in orbital energy and timing constraints that assisted in the selection of an energetically favorable parking-orbit altitude for the next mission of this campaign.

Embodied Artificial Intelligence Architecture

Elijah Pantophlet
Faculty Mentor: Johnny Petit

This research investigates the what if potential of merging advanced artificial intelligence with physical machinery to create intelligent systems that can think, perceive, and act within the real world. By combining large-scale AI reasoning with edge computing, computer vision, sensor integration, and precision actuator control, the project seeks to redefine the boundary between digital intelligence and mechanical execution. The proposed framework explores a modular architecture that connects high-level generative cognition or code with real-time embedded hardware, enabling adaptive autonomous interaction within dynamic environments. Rather than limiting AI to conversational or analytical roles, this work envisions intelligent systems that extend cognition into motion, where machines are not only automated, but aware, responsive, and collaborative. Ultimately, this research aims to pioneer a new embodiment of embodied intelligence, advancing the evolution of AI from passive computation to active participation in the physical world.

Poster Session 2
Abstracts

Mini Pong Game
Ky Pham
Faculty Mentor: Dr. Joseph McNeil

To learn more about building responsive embedded systems, we developed a Pong game using cost-effective electronic components and C++. These components include an OLED display and a rotary encoder integrated into an ESP32 by Espressif. The ESP32 acts as a tiny brain that handles all of the logic and physics of the game. Integrating it with the OLED display provides the user with a small interface to display the game. In addition, the rotary encoder acts as a controller. It does this by rotating in either the clockwise or counterclockwise direction, and it is equipped with a push-button that can be activated by pressing it straight down. This project demonstrates that even affordable electronic components are capable of producing a relatively smooth and responsive game.

The Future Promise of Fusion Power: Harnessing the Power of the Stars
Taylor Rutherford
Faculty Mentor: Dr. Renee Gordon

Nuclear fusion offers the potential to deliver abundant, carbon-free, clean energy by replicating the reactions that power the stars. This study examines fusion from an engineering systems design perspective, focusing on how plasma confinement, structural materials, thermal management, and power conversion must function as an integrated reactor system to achieve sustained net-positive energy output. This study analyzes magnetic confinement devices such as tokamaks, emphasizing reactor architecture, plasma stability, neutron shielding, and tritium recycling. Recent progress includes the completion of major superconducting magnet systems for the ITER tokamak, a critical milestone towards reactor-scale plasma confinement. Rather than treating fusion as a physics breakthrough, this work frames it as a multidisciplinary infrastructure challenge requiring coordinated design, manufacturability, and maintainability. By examining and prioritizing terrestrial deployment as the foundation, this research outlines the potential of complete modular fusion systems capable of supporting power grids and high-density energy demands for diverse applications.

Urban Stormwater Runoff as a Source of Microplastics in Florida Waterways
Haleigh Smith
Faculty Mentor: Travis Bates

This study investigates whether urban stormwater runoff in Florida contains microplastics. Stormwater runoff transports pollutants from roads, parking lots, and other surfaces into nearby waterways. Microplastics form as larger plastics break down and materials like tire particles and synthetic debris wear over time, allowing them to enter aquatic environments where they could affect organisms and water quality. This project examines existing data to determine whether urban stormwater in Florida contains detectable microplastics. Studies and monitoring reports on stormwater microplastics were reviewed and compiled. Reported particle presence, sources, and transport pathways were compared across urban environments. This data was evaluated to determine whether stormwater runoff functions as a pathway moving microplastics from land surfaces into aquatic habitats. Research indicates stormwater does transport microplastics into freshwater systems. The compiled findings suggest inland urban areas contribute to contamination in Florida waterways. This information can help support improved monitoring practices and pollution management strategies.

Poster Session 2
Abstracts

Modeling the Dark Matter Halo with Rotational Dynamics
Sunny Thomas and Moises Chacon
Faculty Mentor: Dr. Joseph McNeil

Dark matter remains one of the most significant unresolved questions in modern astrophysics, accounting for most of the universe's mass while eluding direct electromagnetic detection. It is commonly described as forming a diffuse, spherical halo around galaxies, yet this model may oversimplify its true structure. This project investigates the theoretical possibility that dark matter instead forms a rotationally stabilized ring beyond a galaxy's visible boundary. In this framework, dark matter may also exert a weak repulsive influence on baryonic matter, contributing to structural separation. Drawing on analogies to rotating fluid systems, the study explores whether similar dynamical principles could apply at galactic scales. Using computational simulations in Python, dark matter will be modeled as particles governed by gravity, angular momentum, and a tunable interaction term. By varying density and velocity dispersion, the model will test whether a stable ring-like configuration can emerge and persist over time.

Newer Technology, Same Email Scams
Zachary Trice
Faculty Mentor: Dr. Renee Gordon

Email remains one of the most used communication tools, yet it continues to be a primary method for scams, phishing attempts, and malicious content. Modern email apps rely on filtering systems including Artificial Intelligence classifiers, sender reputation scoring, authentication protocols such as Sender Policy Framework or DomainKeys Identified Mail and content based analysis to identify and block harmful messages before they reach users. Despite these protections, scammers consistently develop strategies to bypass filters, such as domain spoofing, dynamic content generation, and the use of compromised accounts. I will investigate how email spam protection systems operate, what types of signals they rely on, and why certain attacks still succeed. By analyzing documented filtering methods and examining real world examples of evasion techniques, this study aims to highlight the strengths and limitations of defenses. Understanding these gaps can help inform future improvements in email security and increase user awareness of emerging threats.

Exploring Potential Risk of Development of Alzheimer's Disease From Chronic Stress-Induced Memory Loss
Aaron Wallace
Faculty Mentor: Dr. Renee Gordon

Early progression of Alzheimer's disease primarily damages areas of the hippocampus, which can be displayed in the memory impairment of the patients. Understanding the overall consensus that stress can physiologically damage a person's memory then it's plausible to suggest possible association between the pathways. Displaying stress as another possible risk for Alzheimer's development would allow for more analysis of the mechanistic link between stress-induced hippocampus vulnerability and early-onset Alzheimer's pathology. This study will perform a short term memory test, analyzed using validated psychological scales, to participants with a survey for assessment of potential stress related symptoms and concurrent memory loss. This is done to show an association between stress and memory loss, and used as predictor of possible chronic stress. A literature review will be conducted to further study the effects of chronic stress on the hippocampus and the risks it presents to developing neurogenic problems, such as Alzheimer's disease.

Poster Session 2
Abstracts

Mass Dependence of the Static Friction Force Determined from the Circular Motion of a Remote-Controlled Vehicle

Bryce Widner, Lillian Watters, and Lorelai Patronis
Faculty Mentor: Dr. Joseph McNeil

For this project, we will model the mass dependence of the static friction force for a Remote-Controlled (RC) vehicle along a curved track. The static friction force will be determined from the centripetal acceleration acting on the vehicle. We will find the physical quantities using an overhead camera to capture the path. We will utilize A.I.—confirmed by hand calculations— to determine the tangential velocity. Multiple tests will be conducted while adjusting the vehicle's mass. Data will then be analyzed to determine the dependence of mass on tangential velocity and the resulting static friction force.

How Fast Does Iron Rust?

Jamarr Williams
Faculty Mentor: Dr. Dwight Lillie

The rusting reaction of iron is one of distinctive study. It is important because iron metal, when corroded, exhibits comparatively less electrical conductivity and structural integrity while its rate of corrosion is dependent on environmental factors such as the presence of oxygen, temperature, and salt concentration. In particular, this paper focuses on the effect that salt concentration has on the rate of corrosion of iron over time through the loss of mass. The reaction was observed through iron nails immersed in water of varying concentrations, each based on a level of salinity seen in different types of water. The nails had their rust scrapped off and were then measured using a scale. Through the experiment, it was found that the increase in salt concentration correlated with an increase in the rate of reaction for the water.

Visual Arts *Artist Talks*
Abstracts

The Story Goes
Mary Allen
Faculty Mentor: Ljiljana Obradovic-Edmiston

This project was sparked by the works from the artist Betsabeé Romero, especially her in person exhibits. She thought of used tires as a disregarded medium and chose them as her center focus. I was particularly inspired by her thoughts of language and how she personally experiences the erasure of her language's history and context, seeing it to slowly fall apart. With my work, I wanted to explore the idea of what keeps this part of cultures alive and how to personify it. A being that's responsible for the language's evolution, little deaths, and reinstalments. The concept that I liked the most was a desert dwelling lizard! A lizard's shed tail supported of something be lost but the original body staying intact. I laid down the base colors, the shadows, and then the highlights with acrylic paint pens. The most time consuming part was just rendering out the gold textures.

Embers of Fuji & Chromatic Fumo
Omar Canales
Faculty Mentor: Krishna Patel

This project is inspired by Japanese Culture and Traditions" Yakisugi" or Shou Sugi Ban, a preservation technique that involves the process of Thermal decomposition known as Pyrolysis partnered simultaneously with quenching sluices to maintain the form of the wooden material. The 2 pieces use the pyrolysis technique, "Embers of Fuji" concentrate in the original Yakisugi technique while "Chromatic Fumo" involves the added process of carefully scraping away the embers and emphasizing the naturalness of the wood grain. The project then is saturated in colored stain for a colorful finish and finished off with a satin coat that makes the colors look more vibrant. The project is made to help the individual see the process of pyrolysis to an extent without the actual use of fire at the time of presenting. By uniting chemical principles with artistic vision, this project offers a cohesive experience that satisfies both visual and intellectual curiosity.

The Anatomy of Spring
Morgan Craig
Faculty Mentor: Lindsey Smitherman-Brown

This project presents a large-scale painting of a sunflower divided into four distinct quadrants, each juxtaposing my original artistic style with historically significant movements. The sunflower remains stylistically consistent across the canvas, serving as a unifying subject and personal signature. In the first quadrant, the background draws inspiration from The Starry Night by Vincent van Gogh, incorporating expressive brushwork and rhythmic movement. The second quadrant reflects the soft luminosity of an Impressionist sunrise, emphasizing light, atmosphere, and visible strokes. The third quadrant shifts into Cubist and abstract influences, fragmenting space and form to challenge perception. The final quadrant references the neo-expressionist energy of Jean-Michel Basquiat through bold color, layered symbolism, and gestural mark-making. By maintaining my own stylistic interpretation of the sunflower while transforming the surrounding environments, this work highlights dialogue between artistic traditions and contemporary identity, celebrating both individual creativity and the broader humanities.

Visual Arts *Artist Talks*
Abstracts

In a Little Doll House
Amelia Crawford
Faculty Mentor: Ljiljana Obradovic-Edmiston

This piece is a small-scale hanging mobile constructed with white wire and chiffon. Its composition includes clothing hangers suspending miniature garments. The structure emphasizes lightness as well as instability. The piece reinforces fragility through its elements: floating, shifting, and responsive to air. Through recreating them in wire and veiling in chiffon, I intend to translate the softness within intimate objects into something skeletal, exposed. White wire is representative of purity, innocence, and social idealization of femininity; its thinness and weakness highlight how that ideal can be distorted and broken. My work explores the constructed nature of femininity and the vulnerability that coincides, especially in youth. By suspending the garments in space, the piece situates childhood not as a safe and secure memory but as a lingering, fleeting, and unresolved story. The mobile format reinforces the conjunction of teetering memories alongside how trauma can quietly exist beneath ordinary and recognizable objects.

Chomp Chomp Goes the Gator
Aria Falconer
Faculty Mentor: Ljiljana Obradovic-Edmiston

This visual art presentation is about Florida wildlife, specifically gators, and how stunning they are. I went to St. Marks Wildlife Refuge in the summer and photographed this beautiful gator in hopes of turning it into a painting. While painting this piece, over the span of 9 months I've learned so much about colors, shading, and contrast. I was able to use this painting as a means to investigate not only Florida wildlife, but also the art of oil paint. I created this piece by first starting off in acrylic and then layering oil paint on top. Working off a photograph that I took, I was able to transfer all those beautiful details onto canvas while still keeping the ambiance of the original photograph. Painting this piece and working in oil has 100% made me a better artist overall, and I was able to find my passion for painting.

Vanitas
Kimberlee Freeman
Faculty Mentor: Ljiljana Obradovic-Edmiston

This photograph presents a vanitas memento mori scene that dwells on the fragility of life and the inevitability of death. By featuring a skull, hourglass, coins and jewelry, this artwork focuses on mortality and challenges a society obsessed with material wealth and possessions. The items depicted serve as stark reminders that no matter how much we accumulate, nothing lasts forever. The dark tones evoke a somber mood, while brighter highlights draw attention to certain objects, guiding the viewer’s attention. The arrangement of items in the composition is purposeful, leading the eye in a way that encourages contemplation, inviting viewers to pause and engage with the themes presented. This project challenges viewers to consider their own lives and the importance of self-fulfillment over material gain. In this way, it serves as a powerful commentary on human condition and the values that shape society.

Warped Mirror
Heman Getachew
Faculty Mentor: Ljiljana Obradovic-Edmiston

This piece was made oil on canvas. It is made to communicate the bad feeling of having your expression misinterpreted.

The Reality of the Reflection: Personal Study on Body Dysmorphia and Self Worth
Vivian Leeds
Faculty Mentor: Julie Baroody

My piece is a visualized representation of how it feels when I look in the mirror. Women, especially now, are always comparing themselves and their self-worth to what they see in the mirror, and what they see online. I've struggled with body dysmorphia for most of my life, and I wanted to reach the audience on a personal level with this study. I internally studied myself deeply for this piece, namely in my experiences in my womanhood and expressing myself through my craft, whether that be art or makeup. In this artistic study, I learned how important perspective is. I see myself in the mirror as an ugly creature, but if I disconnect from comparing myself, I see a beautiful young woman with dreams and aspirations. Comparing myself to what I see from other people will never let me become the best and most confident I can be.

Mutation: A Sculptural Commentary on the Abnormal
Jason Pham
Faculty Mentor: Joshua Flores

This project highlights the struggle of personal identify and the weight of social disapproval through the concept of a shackled raven. Drawing inspiration from the biological process of mutation in nature and the character Mother Miranda in Resident Evil Village, this project expresses the feeling of being an outcast. Using various cardboard construction techniques, I hand cut 247 feathers to create multiple wing forms to highlight the creature’s unusual anatomy. I then adorned the project with chains, serving as a direct metaphor for the confinement and suppression of identity. The finished product embodies the feeling of insecurity and oddity one feels due to the pressure of society.

Visual Arts *Artist Talks*
Abstracts

The Blues: Exploring Absurdity and Jazz Through Denim
Jason Pham
Faculty Mentor: Joshua Flores

This project celebrates the art of Jazz and ridiculousness of life through denim textiles. Influenced by the saxophone riff featured in the song Careless Whisper by George Michael, I explored how repurposed materials can emphasize lightheartedness. The blue hues of the denim are a parallel to the musical genre that is considered to be the root of jazz (The Blues). Utilizing a combination of cardboard construction techniques, I built base form to layer a hand-stitched amalgamation of denim textiles. This project invites viewer to celebrate absurdity and embrace the notion that life, much like jazz, is best lived with a willingness to improvise. By combining the art of music and comedy, this project contributes to conversations of mental health and welfare.

Unbound: A Sculptural Study of Self-Acceptance and Awakening
Jason Pham
Faculty Mentor: Joshua Flores

This project is a continuation of a commentary on abnormality and shifts focus from concealed identity toward self-acceptance through the image of an unbound crane. Inspired by the story of Sadako Sasaki, the project pulls from the Japanese art of origami crane making to symbolize the idea of hope and healing. Using a variety of cardboard and paper construction techniques, I formed the hydra's heads and wings to give the illusion of paper skin. The choice of paper as a primary material is itself deliberate; its lightness and flexibility speaking directly to themes of freedom and liberty. The finished product embodies self discovery and confidence in one's skin. Embracing one's peculiarities and shedding the shame of being out of the ordinary.

Human Enough: Dehumanization Through Animalistic Epithets
Esther R.P.
Faculty Mentor: Ljiljana Obradovic-Edmiston

This piece was made to express how the use of animalistic names leads to the dehumanization of people groups, and how mistreating animals assists this process. Inspired by Thornton Dials' use of found objects, this work utilizes mixed media to represent animals being limited, and the relation to people groups through a shared label. The collaged aspects showcase the struggles of each group of people. The process for this project was more research based than anything that I've created in the past; it was a challenge to get each part feeling cohesive. Several materials such as produce netting and diamond art supplies were items I've never used before. To conclude, this work asks people to question the words they use that will influence the way they see others. Humans have always dehumanized each other to justify disrespect, but there's a growing rise of this language, and it's being dismissed.

War From Above, Below, and Within

Pearl Thompson
Faculty Mentor: Ljiljana Obradovic-Edmiston

These works have been created to represent the constant effects of war throughout the past and present. Exploring different battles throughout history and to show struggle and emotion such as grief, hope, and pain in a whole new perspective through color, pattern, and tone. When creating these works I researched the tragic effects from the well known bombings in Hiroshima, one piece displaying the physical effects on survivors skin, other pieces displaying an abstract array of the emotional battle for citizens before, during, and after the two bombs. These are mixed media works using mediums acrylic, watercolor, pencil, and plastic. Though there are more works in the collection I had created, these ones speak the loudest. Creating these pieces was a beautiful experience, getting to relay emotion and pain in a completely different perspective, allowing the viewer to see a new side to these tragic events was difficult but rewarding.

Puppet Limbs: a Study of Alien Hand Syndrome

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

This sculpture adroitly represents a research project investigating Alien Hand Syndrome, a rare neurological syndrome characterized by goal-directed movements of a limb without conscious control. The research examined documented cases and literature reviews, which were first described by Goldstein and Akelaitis in 1908. Alien-Hand syndrome has been associated with idiopathic conditions like Parry-Romberg syndrome, mood disorders, psychiatric illnesses, and orthopedic injuries. The research methods involved analyzing peer-reviewed journal articles for possible etiology and certain therapies used to treat this syndrome. The findings are represented by a clay sculpture using neutral tones and a feeling of controlledness to represent the mindset of patients who denied ownership of one or both hands. The artwork, constructed with clay, wire, paper, and wood, visualizes the strange, unfamiliar perception of one's limb(s). Therapies documented in this study include medications, BOTOX, mirror box therapies, and cognitive behavioral therapies.

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 2025-2026

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The 2026 Undergraduate Research Symposium is the capstone event for Tallahassee State College's Undergraduate Research (UR) Program, which is now in its eighth year. 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, which provided publicity in multiple formats throughout the year that increased the visibility of the UR Program. Extra special thanks is due to Caitlyn Bradbury, Digital Marketing Manager, for implementing numerous changes to our website over the past two years. 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 our ever-growing slate of events, which now occur throughout the academic year. We are eternally grateful for their ongoing support of the UR Program.

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. 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.

This Undergraduate Research Symposium is coordinated by 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.

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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. James T. Murdaugh, has supported this initiative from the beginning, taking time out of his busy schedule to attend every symposium since our first year. TSC's Provost and Vice President of Academic Affairs, Dr. Calandra Stringer, has been among our strongest supporters, mobilizing resources and designating UR as an institutional priority. And Dr. Tricia Rizza, Associate Vice President of Academic Affairs, has provided invaluable operational support, without which the UR Program could not carry out its ambitious agenda. We are most grateful to our College's leadership for their continued support of this worthwhile initiative.