SAINT VINCENT COLLEGE

23RD ANNUAL ACADEMIC CONFERENCE

April 22, 2026

2:45 – 5:30 P.M. | SIS AND HERMAN DUPRÉ SCIENCE PAVILION

A multidisciplinary exposition and presentation of student research and academic accomplishments in business, communication, computing, education, humanities, fine arts, mathematics, natural sciences, social sciences and other fields.

FREE ADMISSION

OPEN TO THE PUBLIC

Dear Saint Vincent College Community and Friends,

We welcome you to the 23rd annual Saint Vincent College Academic Conference, during which we celebrate the interesting and often innovative work our students produce throughout the year. This conference is a testament to the dedication of Saint Vincent faculty and administrators who encourage and support students in conducting advanced scholarly inquiry and creative work in their disciplines. Saint Vincent faculty dedicate their time to mentoring students in critical scholarship, as well as in classroom projects in the Humanities, Natural Sciences, Computer Sciences, Social Sciences, Arts, and Business. The students who present at this conference have ambitiously seized these opportunities and brought their projects to completion. We are very proud of their work, and we invite you to take part in this event that recognizes their achievement. This conference is an opportunity for our students to enlighten our academic community by sharing new ideas and creative expression.

The Academic Conference is held in the Sis and Herman Dupré Science Pavilion. This venue facilitates engagement and interaction among Saint Vincent College students, faculty, administrators, staff, friends and family. The central atrium and surrounding hallways are the site of art demonstrations and poster presentations from students in diverse disciplines. The classrooms on the first floor of the atrium and the east wing of the complex hold panel sessions including oral presentations of research and critical analysis papers, literary readings and scientific work, among other things. We encourage attendees to explore the many high-quality intellectual pursuits our conference showcases!

This program contains the schedule of oral and poster sessions and abstracts for each presented project. Please peruse this booklet to find presentations that pique your interest and to learn more about the works our students have accomplished. An electronic version of this program is also available – look for signs around the pavilion with a QR code that will bring you directly to the event program.

Many people have dedicated time and energy to bring this conference to fruition. The faculty, students, staff and administrators who were directly involved in planning the conference are listed in this program. This list, however, is far from comprehensive in recognizing the many individuals who extended themselves at this busy time of year to make this conference possible. This conference is truly a community-wide effort.

We hope that you emerge from your time at the conference with a fuller appreciation for the intellectual dynamic that lies at the center of our work at Saint Vincent College.

Sincerely,

2026 Academic Conference Co-Chairs:

Peter Smyntek, Ph.D.

Biological Sciences Department

Sarah Dumnich, Ph.D.

Department of Mathematics

Saint Vincent College

Twenty-Third Annual Academic Conference

2026 Academic Conference Committee

Dr. Peter Smyntek, Co-Chair

Dr. Sarah Dumnich, Co-Chair

Dr. Derek Breid

Ms. Katherine Pomerleau

Dr. Renee Bernard

Ms. Kim Woodley

Dr. Devin Fava

Dr. Tim Kelly

Dr. Paige Parsley

Dr. I. Mitch Taylor

Ms. Ema Zeglin

Donors

Support for the Academic Conference is given in memory of

Dr. Greg Howard C'68, by Donna Howard.

Acknowledgements

The committee wishes to thank everyone who helped to prepare for this conference. We especially thank the following people and groups for their assistance:

Mr. George Fetkovich & Mr. Donovan Baxter, for designing the cover and promotional materials

Saint Vincent College FMO staff, for their efforts in setting-up for the event

Ms. Kaylee Goykovich, for assisting in the creation of the abstract submission form

The students and committee are also grateful to the faculty who assisted the students with the preparation of their work. Names of faculty sponsors appear in their students' entries in this program.

Grant Support for Student Research

The following grant programs support student-designed research and study at Saint Vincent College. Individual project entries indicate grant-supported projects, where applicable, throughout the program.

The A.J. Palumbo Student Research Endowment

Established in 1996, the Palumbo grant program supports student-initiated learning and discovery in the arts, sciences, humanities and professional programs. Grants are awarded on the basis of proposals submitted by the students and reviewed by a committee consisting of both faculty and students. The endowment memorializes the late Mr. A. J. Palumbo, a noted Pittsburgh industrialist.

The Elizabeth and Tom Andreoli Traveling Scholar Endowment

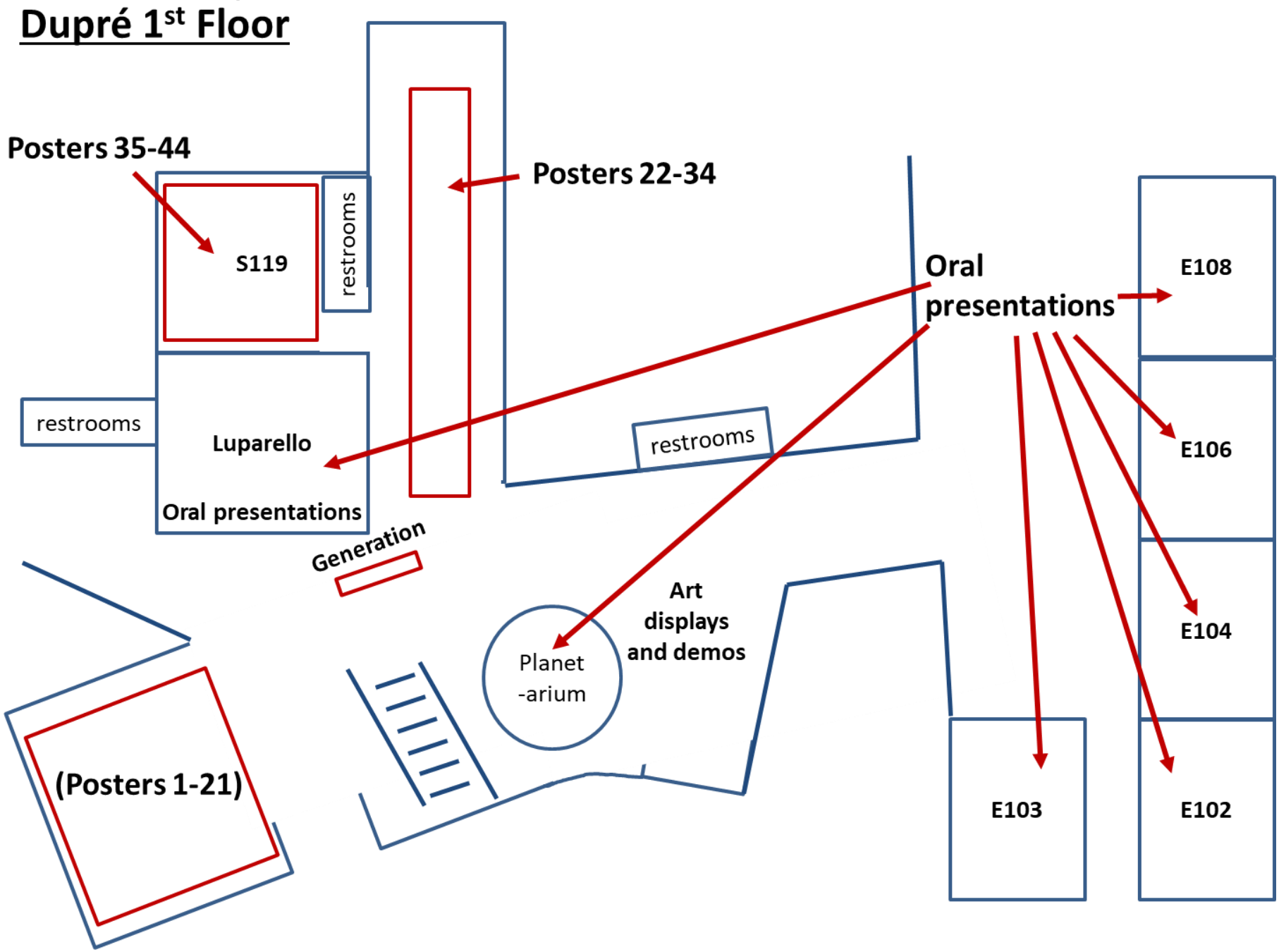
Established in 1997, the Andreoli Traveling Scholar Endowment funds students who wish to enrich their education through special opportunities that require travel in the U.S. or abroad.

Overview of Oral Sessions

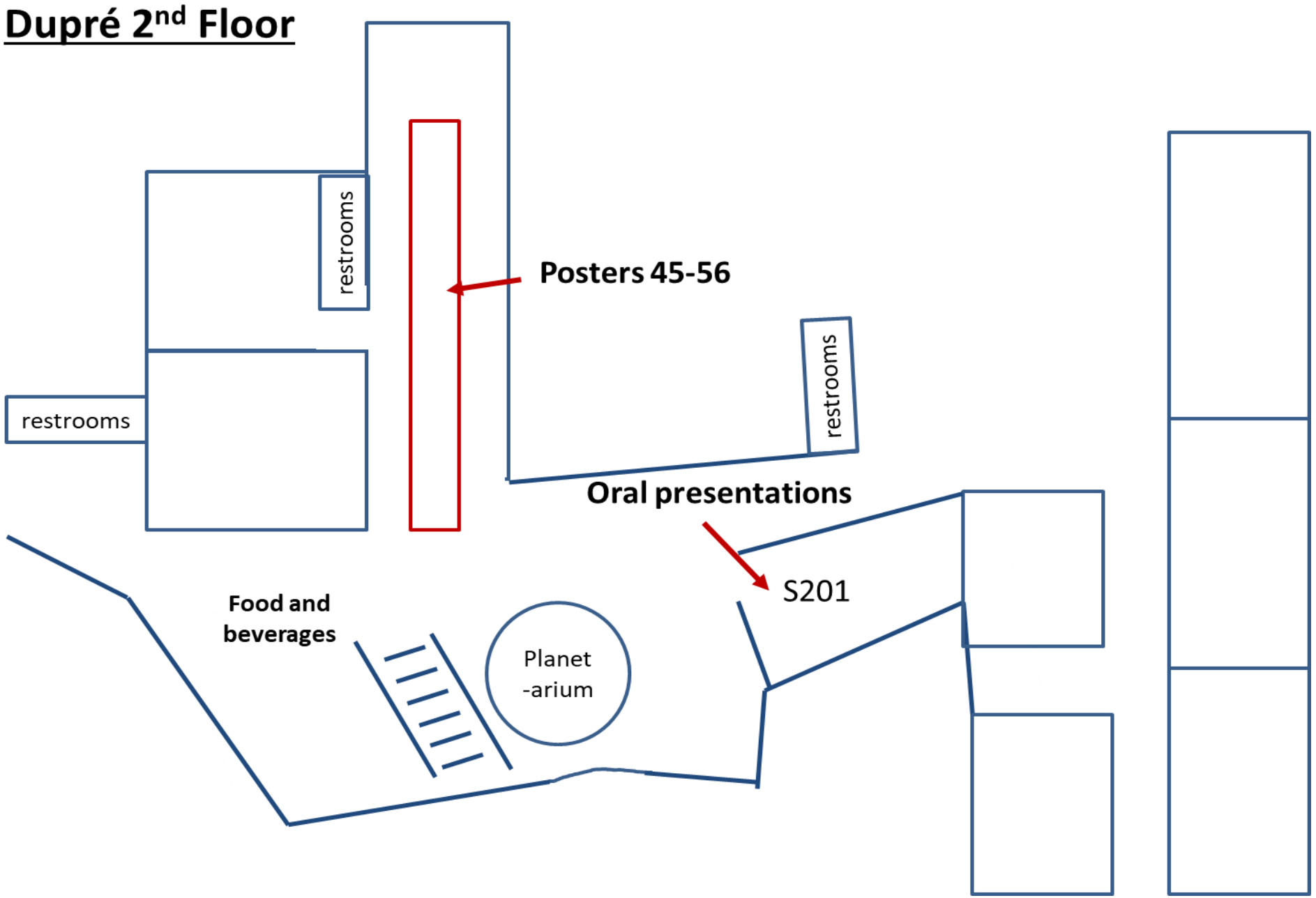
Time	Luparello Lecture Hall	E102	E103	E104
2:45-4:00	Criminology	Engineering Design	Psychological Science	Strategic Partnership for Regional Development (Engineering Capstone)
4:15-5:30	Criminology	Engineering Design	History/Public History	Engineering Capstone

Time	E106	E108	S201	Angelo, J. Taiani Planetarium
2:45-4:00	Philosophy	Economics & Business Data Analytics	Biology & Physics	English
4:15-5:30	Theology (Biblical Exegesis Panel)	Data Science	Biology & Chemistry	Political Science

Conference Map – Lower Level



Conference Map – Upper Level



Generation Magazine

Sophia Nelson, Pearl Russell
Faculty Sponsor(s): *Dr. Michelle Gil-Montero*
Discipline: English

Generation is the student-run Saint Vincent College literary magazine; essentially, students and faculty submit their artwork, poetry, and short creative fiction and nonfiction, it is curated and copyedited by students, and at the end of the year physically published. As a result, we would like to have a table near the Dupre entrance where we could hand out free copies of the completed magazine as well as a submission call for next year and answer questions.

Rapid Fabrication Projects (ENGR 328)

Katlyn Dobransky, Elizabeth Dudley, Julie Evans, Tyler Harpst, Nicholas Jackman, John Labuda, Tyler Miller, Bailey Nicely
Faculty Sponsor(s): *Dr. Adam Wood*
Discipline: Engineering

Rapid Fabrication (ENGR 328) introduces students to a variety of manufacturing and prototyping techniques through fast-paced projects. Students design and build several different products using SolidWorks, laser cutters, thermoforming, molding and casting, and 3D printing. Student projects will be on display at this exhibit.

Stained Glass Art – All Sessions
Dupré 1st Floor

Stained Glass (AR-234)
Jadyn Soto, Ava Tine
Faculty Sponsor(s): *Br. Mark Floreanini O.S.B.*
Discipline: Studio Art
Cutting glass for independent projects as well as assembling glass projects. Selling small decorative stained glass pieces.

Oral Session 1: 2:45 – 4:00pm

E102

Engineering Design

Dr. Adam Wood

Design and Build of a Wind Tunnel
Louis Amatucci, Charlie Wolenter, John Heddleston, Gregg Nogy, William Stickman, Tyler Clark, Henter Blevins, Owen Caracciolo, Tyler Friend, Nathan Barkley, Matthew Greenwood, Tristan Pastor

E103

Psychological Science

Dr. Mark Rivardo

Prior Record Evidence and Limiting Instructions
Leah Duncan

How Positive Traits Relate to Adverse Childhood Experiences and Religiosity
Kelcie Herrmann

Route Learning and Detour Finding Through Different Learning Conditions
Kayla McClucas

Personality and Performance: Examining Task-Switching in Extraverts and Introverts
Madison Scola

Motivational Amplifiers, Not Universal Replacements: A Critical Review of Strengths-Based Education for Autistic K–12 Students
Joshua Wiehagen

E104

Strategic Partnership for Regional Development (Engineering Capstone)

Dr. Michael Robinson & Dr. Derek Breid

Dimensional analysis of complex metal parts made using additive manufacturing
Jordan Raynor, Joseph Nace

Design, Evaluation, and Site Selection of a Solar Farm at Saint Vincent College
Matthew Sadusky, Antonio Scalamogna

E106

Philosophy

Dr. Carl Vater

Becoming All Things: Human Personality from the Perspective of John Deely
Carolina Walters

Ipsum Esse Subsistens & Sein: Thomas Aquinas & Martin Heidegger on Onto-theology & God
Makin Eitel

Two Theories of the Human Person: Platonic Dualism and Thomistic Hylomorphism
Corey Beougher

Beauty, Art, and the Dignity of the Human Person: An Analysis of Prevailing Theories on Art and the Human Person through the Lens of Jean-François Millet
Agnes-Rose Fischer

E108

Economics and Business Data Analytics

Dr. Andy Herr & Dr. Justin Petrovich

Loss Aversion in a Volunteer's Dilemma with Fixed versus Random Pairings
Lucy Brayton, Linus Kalhöfer, Mary McConville, Rachael Babinsack

Inequity Aversion in a Labor Market Game
Jaret Yonker, Logan Bechtold

The Effect of Dark Triad Traits on Behavior in a Prisoner's Dilemma Game
Giovanni Porco, Kecheng Liu

Understanding Higher Education Decisions Through Agent-Based Modeling
Timothy Gorman

Angelo J. Taiani Planetarium

English

Ms. Mallory Saylor

A Badlands Retreat
Joshua Wiehagen

Fantasy Overwritten: How Imagination Shapes Selfhood in The Awakening
Sophia Nelson

Gender Performance, Compulsory Heterosexuality, and The Color Purple
Lauren Campbell

The Objectification and Crisis of the Patriarchal Ideology in Hamlet
Pearl Russell

S201

Biology & Physics

Dr. Mike Rhodes

In vitro hypothalamic – pituitary – adrenal (HPA) axis responses to diazepam and fluoxetine after forced swim tests in male Sprague-Dawley rats
Bethany Smith, Lauren Moretti

Effects of the Lunar Cycle and Oxytocin on the Hormonal Stress Responses, Anxious Behaviors, and Weight Changes of Male and Female Mice
Braden Thomas, Grace Scoville

The Effects of Chronic Stress and Voluntary Exercise on Anxiety, Stress Physiology, and Cross-Sectional Areas of the Hippocampus, Amygdala, and Prefrontal Cortex in Female Mice
Jennifer Long

Optimizing Signal Amplification by Reversible Exchange in Aqueous Media with Novel PEG-Based Iridium NHC Catalysts
Anthony Sparta

Luparello Leture Hall

Criminology, Law & Society

Dr. Kayla Jachimowski

Do Untreated Psychotic Disorders in Children Work as a Factor in Tendencies to Commit More Violent Crime in the Future?
Josiah Weyandt

An Exploration into the Relationship between Subtsance Abuse and Violent Crime
Alexander Taylor

Inmates Mental Health Treatment Effects on Recidivism
Ryan Cawley

Performance Enhancing Drug Use in Collegiate Athletics
Mia Moore

Oral Session 2: 4:15 – 5:30pm

E102

Engineering Design

Dr. Adam Wood

Design and Build of a Wind Tunnel

Grace Neubert, Emily Glass, Rilyn Warner, Bethany Dixon, Nile Thomas, Daniel Marinchak, Tyler Miller, Melih Aksehir

E103

History/Public History

Dr. Tim Kelly & Dr. Gil Bogner

Native Americans in Hollywood Westerns

Isabella Jolly

The Effects of the Easter Rising and how it Contributed to Later Irish Political Developments

Caleb Spillar

Truly the Light is Sweet: The Ecclesiastical Excellence of the Pitassi Stained Glass Studio

Jonah Weaver

E104

Engineering Capstone

Dr. Derek Breid & Dr. Stacy Birmingham

Backpack Water Filtration System for Safe Outdoor Hydration

Zachary Ridilla, Kristen Prince, Nicholas Jackman

Automating Cold Brew Filtration: A Compact System for Faster, Cleaner, and More Consistent Filtration.

Jillian Mannarino, Katlyn Dobransky, Matthew Green

Designing, Prototyping, and Building a Saint Vincent College-Themed Miniature Golf Course Using Principles of Mechanical Engineering

Lily Rush, Tyler Horn, Ethan Moyers, Bailey Nicely

E106

Theology

Dr. Chris McMahon & Dr. Catherine Petrany

The Feast of Dedication: Jesus' Revelation of Divine Unity

Kaitlin Waltman

The Inherent Dignity and Worth of Man as Seen in Genesis 16-22

Lucy Joyce

John's Crucifixion Narrative as a Microcosm of Revelation

Silvana Rocco

Redeeming Esau: Understanding the First Story of Human Reconciliation in the Bible

Luke Vanden Berk

E108

Data Science

Dr. Mary Regina Boland

Football Sub-concussive Head Impacts in Saint Vincent Student Athletes Data Analysis

Anthony Barle, Deven Haywood

Tracking Institutional Demand in U.S. Exchange-Traded Funds

Victoria Barone, Joseph Burke, Nora Cabala

Student Academic Success Forecasting and Detection at Saint Vincent College

Alyssa Henderson, Kate Lipscomb

Angelo J. Taiani Planetarium

Political Science

Dr. Jason Jividen

Flannery O'Connor and the Meaning of Suffering

Sofia Tehrani

The Apotheosis of the Political and the Secularization of the Theological: Dies Irae Venit

Makin Eitel

Homelessness and the American Regime

Alicia Boretti

S201

Biology & Chemistry

Dr. Michelle Duennes & Fr. Shawn Anderson

Investigation of Spotted Lanternfly Genetics in Western Pennsylvania Over Time

Jack Sassani

How urban areas affect the presence of local carnivore and herbivore populations compared to rural areas.

Cassandra Bromke

Synergy Between Silver Nanoparticles and Either Ampicillin or Streptomycin Against E. coli and S. aureus

Brooke Garman

Investigating the Effects of Milk Thistle on Methotrexate-Induced Hepatotoxicity in a Mice Model, in Coordination with Cancer Patients' Treatment Regimen

Trenten Ferree

Luparello Leture Hall

Criminology, Law & Society

Dr. Kayla Jachimowski

Coercion in the Digital Age: A Legal and Criminological Analysis of Adolescent Sextortion in the United States

Abigail Karkowski

How the weaponization of energy and attacks on energy infrastructure affects national security

John (Jack) Zayas

The Role of Traumatic Brain Injury in Aggressive Criminal Behavior

Eamonn Costello

Oral Session 1: 2:45 - 4:00
E-102
Engineering

Design and Build of a Wind Tunnel

Louis Amatucci, Charlie Wolenter, John Heddleston, Gregg Nogy, William Stickman, Tyler Clark, Henter Blevins, Owen Caracciolo, Tyler Friend, Nathan Barkley, Matthew Greenwood, Tristan Pastor
Faculty Sponsor(s): *Dr. Adam Wood*
Discipline: Engineering

Students in Engineering Design and Lab (ENGR 240) will present their semester-long project of designing and building a wind tunnel. The purpose of the wind tunnel is to allow users to visualize and study the aerodynamics of various objects. Students will explain their approach to the design project and how they gradually improved their designs through iteration.

Oral Session 1: 2:45 - 4:00
E-104
Engineering

Strategic Partnership for Regional Development

Dr. Michael Robison, Saint Vincent College, Dr. Sandra DeVincent Wolf, Carnegie Mellon University, and Andres Mateos, General Carbide Corporation

For two years, Saint Vincent College has been partnering with Carnegie Mellon University, and General Carbide Corporation on projects sponsored by the Pennsylvania Infrastructure Technology Alliance (PITA). This session will describe how this partnership was formed, highlight student-led projects, and share outcomes for students, industry, and institutional partnerships.

Dimensional analysis of complex metal parts made using additive manufacturing

Jordan Raynor, Joseph Nace
Faculty Sponsor(s): *Dr. Derek Breid, Dr. Michael Robinson*
Discipline: Engineering
Pennsylvania Infrastructure Technology Alliance Grant

The use of metal additive manufacturing is rapidly expanding within the manufacturing industry, particularly to produce geometrically complex components. This project explored the fabrication of metal parts using Laser Powder Bed Fusion (LPBF) to achieve sufficient dimensional accuracy for use in prototyping and commercial applications. We printed six complex Titanium Alloy parts using a TRUMPF TruPrint 3000 printer and analyzed them using a Keyence VL-500 high accuracy 3D scanner to assess dimensional variations. A dimensional analysis was conducted to compare measurements before and after the stress-relieving process. These measurements will determine if significant shrinkage or dimensional changes occur across the tested components. If these findings suggest that LPBF-produced parts can maintain required dimensional tolerances even after post-processing has occurred. The study will help support the viability of LPBF for manufacturing complex metal components in both prototyping and commercial applications. It also lays the foundation for future exploration into other methods of additive manufacturing which can be used to produce tungsten carbide parts.

Oral Session 1: 2:45 - 4:00
E-104
Engineering

Design, Evaluation, and Site Selection of a Solar Farm at Saint Vincent College

Matthew Sadusky, Antonio Scalamogna
Faculty Sponsor(s): *Dr. Derek Breid*
Discipline: Engineering

Saint Vincent College currently relies on energy generated from coal and natural gas, contributing to environmental impact and long-term sustainability concerns. This project addresses the need for a renewable energy solution that can reduce the campus's carbon footprint while remaining cost-effective and maintainable. To address this issue, we designed and evaluated three potential solar farm configurations on monastery-owned land, analyzing both energy generation and total system costs. After presenting our findings to college administration, we selected the Pig Farmland site as the optimal design based on feasibility, scalability, and financially. The proposed system is a 1.49 MW DC solar array with the potential for future expansion, generating approximately 1.57 GWh annually. Cost estimates include solar panels, racking, and construction expenses. The final design demonstrates the potential to generate 10.87% of the campus's energy demand while remaining practical for implementation and maintenance. Incorporating grant funding and incentives further strengthens the economic viability of the project. Additionally, this work provides a foundation for future integration into environmental engineering and environmental science curricula, supporting both sustainability goals and educational development.

Oral Session 1: 2:45 - 4:00
E-103
Psychological Science

Prior Record Evidence and Limiting Instructions

Leah Duncan
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline: Psychological Science
A.J. Palumbo Student Research Endowment
Previous research has established that limiting instructions to disregard prior record evidence in a criminal trial are ineffective. Limiting instructions are given to a jury during a trial instructing them to consider a piece of evidence for only one purpose, or to disregard a piece of evidence completely. This is so that otherwise inadmissible evidence is not considered when deciding a verdict. In this study, participants read a transcript of a mock court case, then answered questions about their judgements of the guilt and credibility of the defendant. There were no significant differences in perceived guilt, verdict confidence, or defendant credibility in different prior record conditions. There was a small effect of prior record on prior record's perceived influence of final verdict between the prior acquittal and prior conviction conditions.

How Positive Traits Relate to Adverse Childhood Experiences and Religiosity

Kelcie Herrmann
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline: Psychological Science
A.J. Palumbo Student Research Endowment
The purpose of this study was to examine the relationships among resilience, optimism, gratitude, adverse childhood experiences (ACEs), subjective social status, and religiosity. A sample of 345 adults completed validated measures of these constructs. Stepwise multiple regressions assessed how resilience, optimism, gratitude, and subjective social status predicted ACEs and religiosity, and a 2 × 2 MANOVA examined the effects of gender and parental divorce on resilience, gratitude, and optimism. Subjective social status was the only significant predictor of ACEs, with lower perceived status associated with greater adversity. Resilience and gratitude significantly predicted higher religiosity, whereas optimism did not. The MANOVA revealed no significant effects of gender or parental divorce on resilience, optimism, or gratitude. These findings highlight socioeconomic influences on adversity and emotional strengths linked to religiosity.

Oral Session 1: 2:45 - 4:00
E-103
Psychological Science

Route Learning and Detour Finding Through Different Learning Conditions

Kayla McClucas
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline: Psychological Science

Navigation is a crucial part of everyday life and may be influenced by personality. Meneghetti et al. (2020) found that positive wayfinding inclinations correlated with openness, agreeableness, and extraversion, whereas negative inclinations correlated inversely with agreeableness, openness, and emotional stability. Active and passive navigation are levels of a single variable that Gaunet et al. (2021) explored using a joystick and video to mimic those levels. This study examined how active and passive learning conditions affect time, distance, and errors on route learning and detour tasks. A three independent groups (driving, map, passenger) design used personality as a covariate in a MANCOVA. The sample included 36 Saint Vincent College students. Individuals in the driving condition who made wrong turns in the testing route made significantly more turnarounds in the detour route than other conditions, though wrong turns did not differ between conditions in the testing route. Participants who scored higher in extraversion and openness showed greater scores on navigational aspects in the detour route. Learning condition did not affect testing-route performance, but there were main effects on detour time, distance, and turnarounds.

Personality and Performance: Examining Task-Switching in Extraverts and Introverts

Madison Scola
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline: Psychological Science
A.J. Palumbo Student Research Endowment

This study investigated whether task switch-cost varied by extraversion, reading difficulty, and gender. Participants were randomly assigned to read a passage of either easy or hard difficulty while responding to text message interruptions. Switch-cost was measured by their time to return to their location in the passage, analyzed using eye-tracking software. Participants completed a personality scale to measure extraversion and answered questions about their studying and distraction habits. I predicted that introverts would perform better than extraverts. I expected better performance in the less difficult condition than in the more difficult condition. Women were expected to perform better than men. An interaction between extraversion and reading difficulty was expected. An interaction was not expected between gender and extraversion or between gender and reading difficulty. The majority of hypotheses were not supported, no significant effects or interactions were observed for extraversion, gender, or reading difficulty. This study's findings may guide efforts to improve focus and task behavior and examine the costs of task-switching.

Oral Session 1: 2:45 - 4:00
E-103
Psychological Science

Motivational Amplifiers, Not Universal Replacements: A Critical Review of Strengths-Based Education for Autistic K–12 Students

Joshua Wiehagen
Faculty Sponsor(s): *Dr. Christopher Oldenburg*
Discipline: Psychological Science

This research review examines empirical evidence for strengths-based educational practices for autistic K–12 students. With approximately 1 in 31 children meeting diagnostic criteria, traditional remediation-oriented frameworks emphasizing discrete skill acquisition present ongoing challenges. Strengths-based approaches instead integrate student interests, competencies, and intrinsic motivation into instruction. Findings indicate that student engagement outcomes are the most consistent, particularly when interests are authentically embedded rather than superficially incorporated. Academic outcomes are more variable and domain-specific, with limited transfer to non-preferred subjects. Socio-emotional outcomes, including self-concept and belonging, show promise; however, their longitudinal durability remains underdocumented. Effectiveness across domains depends on implementation fidelity, educator preparation, and systemic integration. Overall, strengths-based practices function most reliably as complementary motivational amplifiers rather than universal replacements for structured instruction. Further research requires rigorous experimental designs, validated assessment tools, and cross-cultural replication.

Oral Session 1: 2:45 - 4:00
E-106
Philosophy

Becoming All Things: Human Personality from the Perspective of John Deely

Carolina Walters
Faculty Sponsor(s): *Dr. Carl Vater*
Discipline: Philosophy

Human personality has long been a topic of both philosophical and psychological research. We can see the differences between human beings in the diverse personalities displayed by individuals we meet every day. This paper explores one philosophical explanation for the diversity of human personality from the perspective of philosopher and semiotician John Deely. Deely's theory of the distinctness of human understanding among the cognitive abilities of other animals helps to illuminate the reason for the variety that is found at all levels of human life, and, particularly, the variety that is found among individual human personalities. This paper first explicates Deely's argument for the action of signs and relations in the natural world. Then it offers an account of the action of sensation and perception in all animals and the defining distinction in the human understanding. Finally, it provides an analysis of how Deely's philosophy aligns with psychological research, concluding that the human ability to understand and go beyond the objective world allows for an account of the vast diversity of personalities among the same species of humanity.

Ipsum Esse Subsistens & Sein: Thomas Aquinas & Martin Heidegger on Onto-theology & God

Makin Eitel
Faculty Sponsor(s): *Dr. Carl Vater*
Discipline: Philosophy

Martin Heidegger provides a substantial and apt critique of western metaphysics wherein the meaning of Being has been concealed and forgotten. Being, since the time of Plato and Aristotle, has been hypostasized, i.e., Being has been thought of as a being. Consequently, metaphysics has led us, according to Heidegger, into the oblivion of Being and the oblivion of the meaning of Being. Being has been thought in the history of metaphysics as the ground of all beings, as the highest being, as God, and thus metaphysics is truly an onto-theology. Yet, has Heidegger overlooked a metaphysics which might very well overcome his critique of metaphysics, which might very well escape onto-theology? This paper argues that the Ipsum Esse Subsistens of Thomas Aquinas' metaphysics overcomes Heidegger's critique of metaphysics, avoids any kind of standard onto-theology (as understood by Heidegger), and ultimately provides a richer understanding of Being than the, albeit still rich, account of Being by Heidegger. Aquinas' metaphysics, with the aid of Dionysus the Areopagite and John Deely, has provided a thinking of Being wherein Being has not been concealed and so remained in oblivion, but has been brought out into the open as God.

Oral Session 1: 2:45 - 4:00
E-106
Philosophy

Two Theories of the Human Person: Platonic Dualism and Thomistic Hylomorphism

Corey Beougher
Faculty Sponsor(s): *Dr. Carl Vater*
Discipline: Philosophy

Since ancient times humanity has asked the question "What is a human person?" and come up with multiple different answers. From featherless biped to rational animal, the answer usually acknowledges that humans have the use of reason and live in a complex society; however, when it comes to the question "Are humans material, immaterial, or mixed?" the answers become much more variant. Whatever the answer to either of the questions, the answer must explain not only the reality, but also the individual experience of reality. It is a task that cannot be handled by any of the hard sciences. Biology can explain how the systems of the body work, but not what makes the body alive. Physics can explain the relationship between gravity and the human person but still cannot answer the question of what exactly a human being is. Philosophy steps into that gap to offer potential explanations. Any answer must include explanations of the body and soul, and their interaction. Any theory that fails to do that, fails to offer a comprehensive explanation for the fullness of human experience. A large task for any one discipline to undertake. This paper looks into two theories of the human person from Plato and Aquinas, and their ideas on how the mind/soul and body interact; and then examines what modern psychology has to add to the conversation, in order to put forth the most comprehensive answer.

Beauty, Art, and the Dignity of the Human Person: An Analysis of Prevailing Theories on Art and the Human Person through the Lens of Jean-François Millet

Agnes-Rose Fischer
Faculty Sponsor(s): *Dr. Carl Vater*
Discipline: Philosophy

This thesis will attempt to identify a central idea for beauty, art, and dignity while focusing on an era and artist—Millet, who painted during the Realist era. I will first briefly identify the primary philosophical questions of beauty, art, and dignity, and the primary artistic questions of Realism and Millet before expounding upon them. I will then move into arguments for the objectivity, subjectivity, and the partially objective and partially objective views on a beauty and art through the authors Plato, Kant, Hume, and Sartwell, before analyzing each for the superior argument and highlighting a piece from Millet that I think particularly exemplifies that definition. Then I will then delve into the idea of the dignity of the human person as explored primarily in encyclicals from various authors and examine a piece from Millet that I think holds this definition of dignity. I will finally synthesize this into a concise philosophy of dignity applied to art and then apply it to Millet's career. My thesis for this paper is that art and beauty are both objective and subjective, and dignity is inherent to the human person. When applying these definitions to Millet, we get a humanist view of the world in art.

Oral Session 1: 2:45 - 4:00
E-108
Business Data Analytics

Understanding Higher Education Decisions Through Agent-Based Modeling

Timothy Gorman
Faculty Sponsor(s): *Dr. Justin Petrovich*
Discipline: Business Data Analytics

In this project, I present a replication of Leoni (2021), who used an agent-based model to study what impacts someone's decision to pursue tertiary education over entering the workforce in Italy. Agent-based modeling (ABM) is a modeling approach in which computer programs are used to create a world and simulate the interactions among the artificial individuals (agents) who populate it. Mathematical relationships, either random or deterministic, govern these agents and their interactions in a bottom-up manner, allowing patterns of behavior to emerge. ABM is not a new approach, but it is still very far from the mainstream approach in economics research. Leoni used a process of incorporating economic, social influence, and effort factors to find what possible scenarios increase enrollment rates. Leoni's results showed that the average income gap between college and non-college graduates is a major factor in the college decision process. In addition to replicating Leoni's results, I illustrate the benefits of agent-based modeling and explain why ABM should be used in answering this as well as other economic questions.

Oral Session 1: 2:45 - 4:00
E-108
Economics

Loss Aversion in a Volunteer's Dilemma with Fixed versus Random Pairings
Lucy Brayton, Linus Kalhöfer, Mary McConville, Rachael Babinsack
Faculty Sponsor(s): *Dr. Andrew Herr*
Discipline: Economics
This paper analyzes pairing methods in a Volunteer's Dilemma game where negative payoffs are possible. The design includes two treatments. In the Fixed Treatment, subjects are assigned with the same player in each round. In the Random Treatment, subjects are randomly re-paired in each round. Our results show a higher presence of loss aversion in the Random Treatment in the context of a Volunteer's Dilemma game.

Inequity Aversion in a Labor Market Game
Jaret Yonker, Logan Bechtold
Faculty Sponsor(s): *Dr. Andrew Herr*
Discipline: Economics
This paper examines the concept of inequity aversion in a labor market game setting. The experiment is based on a scenario where an employer offers a wage to a worker, and the worker selects an effort level based on the wage. Our experiment includes two treatment groups where participants were assigned the role of workers, while the experimenters assumed the role of the employer without the participants' knowledge. In Treatment 1 we did not show workers the payoff equation for employers, while in Treatment 2 we did. We find that workers in Treatment 2 exert less effort with results supporting this by showing a significant difference in effort levels between treatments.

The Effect of Dark Triad Traits on Behavior in a Prisoner's Dilemma Game
Giovanni Porco, Kecheng Liu
Faculty Sponsor(s): *Dr. Andrew Herr*
Discipline: Economics
This paper explores the relationship between Dark Triad personality traits and defection behavior in repeat Prisoner's Dilemma games. Using data from a multi-round experimental design, we analyze the relationship between Machiavellianism, Narcissism, and Psychopathy (measured by the Short Dark Triad (SD3) test) and individual defection rates. Our results indicate a positive correlation between Dark Triad trait levels and defection rates, and that individuals exhibit lower defection rates when the Dark Triad personality test is administered before, rather than after, playing the Prisoner's Dilemma game.

Oral Session 1: 2:45 - 4:00
Luparello Hall
Criminology, Law and Society

Do Untreated Psychotic Disorders in Children Work as a Factor in Tendencies to Commit More Violent Crime in the Future?

Josiah Weyandt
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline: Criminology, Law and Society

Psychotic disorders in children, when left untreated or undiagnosed, will increase their likelihood of being more violent and committing violent crimes than others who have been treated for their disorder. The stress of dealing with their disorder causes them to lash out and commit violent acts, which can later lead to criminal acts. There are many different psychotic disorders, the main being Schizophrenia, Schizoaffective disorder, and Delusional disorder, which cause hallucinations, detachment from reality, and delusions. Higher testing for disorders in young children and better treatment for these disorders can help them deal with and cope with them, to keep them from committing violent acts. There are many things that cause psychotic disorders, such as child abuse, prior family history of disorders, brain trauma at a young age, and early substance abuse.

An Exploration into the Relationship between Subtsance Abuse and Violent Crime

Alexander Taylor
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline: Criminology, Law and Society

Substance abuse remains a persistent and evolving public health crisis in the United States, with significant implications of criminality and violent crime. This paper examines the historical progression of drug epidemics in America and the societal and governmental responses to addressing the issue, such as broken windows policing and three strike laws. It explores the relationship between drug use and violent crime through multiple theoretical frameworks, including the tripartite model, criminal thinking, and self-control theory. Empirical data demonstrates that substance abuse is strongly associated with impulsive, emotional, and reactive forms of criminal behavior and increased rates of recidivism. Additionally, this paper analyzes the role of societal factors like economic decline and social disorganization, using the city of Detroit as a case study of a "slow-motion disaster". The discussion further addresses the high prevalence of substance use disorder within incarcerated individuals and the inadequacy of treatment programs, particularly concerning post release and reentry into society. In order to address many of these issues, there must be comprehensive approaches towards prevention and treatment within and beyond the criminal justice system.

Oral Session 1: 2:45 - 4:00
Luparello Hall
Criminology, Law and Society

Inmates Mental Health Treatment Effects on Recidivism

Ryan Cawley
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline: Criminology, Law and Society

This capstone is designed to examine mental health treatment for inmates and how it impacts recidivism. If an individual is not given the proper mental health treatment while they are incarcerated or even after incarcerated, it is predicted that recidivism would be more likely for that individual. The questions that will be focused on are whether providing mental health treatment for incarcerated inmates reduces the recidivism rate of those inmates after their release from incarceration, and the question of whether providing continued mental health treatment after an inmate's release has an additional impact on recidivism? The areas that will be focused on include examining how mental health treatment affects inmates while incarcerated, examining if recidivism has been more likely if an inmate did not receive proper mental health treatment, and examining if mental health treatment after incarceration still is needed or impacts their chance of recidivism. These areas will be examined with a specific focus on how strain theory can explain these areas and questions that are being examined in the capstone.

Performance Enhancing Drug Use in Collegiate Athletics

Mia Moore
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline: Criminology, Law and Society

This paper examines whether participation in collegiate athletics increases the likelihood of performance-enhancing drug use among young adults. The literature review provides historical context and theoretical analysis to explore the prevalence of doping and the factors that influence an athlete's decision to engage in or avoid it. While collegiate athletes face substantial stressors such as balancing academics and training, findings suggest that the use of performance-enhancing drug use remains low. Furthermore, Hirschi's social control theory is outlined, which explains how attachment to coaches, teammates, and parents, along with commitment to athletic and academic goals, high levels of involvement, and strong personal beliefs, all play an important role in preventing doping in collegiate athletes. Then, the legal consequences associated with performance-enhancing substances are examined, including their classification under the Controlled Substances Act and potential penalties such as fines or incarceration for illegal possession or distribution. Additionally, policy implications are discussed regarding anti-doping regulations set by organizations such as the NCAA, WADA, and USADA, which show how standardized testing and consequences aim to maintain fairness and integrity in athletics.

Oral Session 1: 2:45 - 4:00
Planetarium
English

A Badlands Retreat
Joshua Wiehagen
Faculty Sponsor(s): *Ms. Michelle Gil-Montero*
Discipline: English
A Badlands Retreat
“A Badlands Retreat" is a prose-poem sequence composed in the creative nonfiction genre, exploring the South Dakota Badlands through layered perspectives: geological time, human intrusion, and cosmic observation. The piece moves from meditative landscape description to absurdist vignettes — sedimentary strata hold committee meetings, fossils complain about tourists, and alien observers critique human behavior. Formally, this work employs fragmented syntax, direct address, and shifting registers (lyrical, bureaucratic, colloquial) to mirror the terrain’s striations. Thematically, the literature interrogates scale, mortality, and anthropocentrism, positioning humans as brief, fumbling presences against deep time — simultaneously absurd and earnestly striving for connection. The Badlands emerge as both physical place and consciousness: ancient and indifferent, yet strangely companionable. Humor operates as both coping mechanism and critique, leavening ecological grief with play. The piece was developed under Dr. Gil-Montero’s guidance and appears in Generation, the college’s literary magazine.

Fantasy Overwritten: How Imagination Shapes Selfhood in The Awakening
Sophia Nelson
Faculty Sponsor(s): *Ms. Mallory Truckenmiller-Saylor*
Discipline: English
A.J. Palumbo Student Research Endowment
This essay examines Kate Chopin’s 1899 novel The Awakening, focusing on the presence of fantastical spaces and narratives by investigating the 1893 Hurricane of Chenière Caminada, as while it is not acknowledged within the text its presence nevertheless offers a new way to understand the unaffected Grand Isle Chopin depicts. This essay pulls from Patricia S. Yaeger’s “‘A Language Which Nobody Understood’: Emancipatory Strategies in The Awakening” which studies how Robert’s stories influence Edna’s language as well other articles discussing the importance of created spaces within the novel to demonstrate the complex influence of space and fantasy on Edna within The Awakening and how she is trapped in one confining narrative that rather than being subversive binds her to tradition.

Oral Session 1: 2:45 - 4:00
Planetarium
English

Gender Performance, Compulsory Heterosexuality, and The Color Purple

Lauren Campbell
Faculty Sponsor(s): *Ms. Mallory Truckenmiller-Saylor*
Discipline: English
A.J. Palumbo Student Research Endowment
This paper is an analysis of Alice Walker's 1982 novel The Color Purple under the lense of queer and feminist theory. The character of Celie is retrospectively looked at as a woman forced to perform gender roles and repress her own sexuality, until it was brought out by her lover, Shug Avery. The works and theories of Judith Butler and Adrienne Rich are connected to her character, as well as considering how Celie's race affects her forced performance of gender as a submissive wife. Additionally, this paper emphasizes the importance of Celie and Shug Avery's relationship as a commentary on how queer women defy patriarchal and societal expectations, as well as their own personal character flaws and conflicting personalities to be together.

The Objectification and Crisis of the Patriarchal Ideology in Hamlet

Pearl Russell
Faculty Sponsor(s): *Ms. Mallory Truckenmiller-Saylor*
Discipline: English
A.J. Palumbo Student Research Endowment
While Hamlet is usually read as a work of literature, to fully understand the destructive effects of the patriarchal society within Shakespeare's play, it should also be viewed as a play while using the feminist psychoanalytic criticism lens. Shakespeare's writing of Ophelia's character helps represent the objectification of women by men and even women, including family members and love interests. I will utilize Laura Mulvey's essay "Visual Pleasure and Narrative Cinema," to analyze Hamlet through a more modern critical theory lens to gain new perspectives of the play. Often Ophelia is viewed as an object, limited to only her physical beauty and it becomes her only defining feature noticed by the surrounding characters. Additionally she is often subjected to the male gaze of Hamlet, which adds to the forced patriarchal ideological expectations of the society within Hamlet. Ultimately, William Shakespeare's works were initially viewed as a play, and to understand the characters actions towards Ophelia, it must be seen through the feminist psychoanalytic criticism lens to show the social oppression of women and the consequences that arise from it.

Oral Session 1: 2:45 - 4:00
S-201
Biology

In vitro hypothalamic – pituitary – adrenal (HPA) axis responses to diazepam and fluoxetine after forced swim tests in male Sprague-Dawley rats

Bethany Smith, Lauren Moretti
Faculty Sponsor(s): *Dr. Michael Rhodes*
Discipline: Biology
A.J. Palumbo Student Research Endowment
Anxiety and depression are prevalent mental health disorders that often emerge during adolescence and early adulthood. Both are associated with dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, which controls the stress response through the release of corticotropin-releasing hormone (CRH), adrenocorticotropic hormone (ACTH), and corticosterone (CORT) in rodents. This study investigated HPA axis responses to diazepam, a benzodiazepine, and fluoxetine, a selective serotonin reuptake inhibitor (SSRI), with stress and without stress in male Sprague-Dawley rats. Using an in vitro perfusion system, hypothalamic, pituitary, and adrenal tissues were isolated from stressed and control animals. Hormones were measured before and after drug administration, enabling real-time assessment of endocrine activity. It was hypothesized that both drugs would reduce CRH, ACTH, and CORT levels in control and stressed rats. However, neither drug produced consistent reductions in hormone levels. These findings suggest that the lack of drug effect may be due to insufficient dosing or variability in serotonin and GABA receptor presence or sensitivity in the extracted tissues. Notably, stress significantly increased HPA axis activity and the presence of CRH, ACTH, and CORT in all tissues. These results highlight the complexity of HPA axis responses to pharmacological manipulation.

Oral Session 1: 2:45 - 4:00
S-201
Biology

Effects of the Lunar Cycle and Oxytocin on the Hormonal Stress Responses, Anxious Behaviors, and Weight Changes of Male and Female Mice

Braden Thomas, Grace Scoville
Faculty Sponsor(s): *Dr. Michael Rhodes*
Discipline: Biology
A.J. Palumbo Student Research Endowment
The influence of the lunar cycle on animal behavior and physiology represents a captivating yet underexplored research topic. Independent of the moon, other recent studies have suggested the efficacy of oxytocin (OXT) as a weight loss therapy and stress reducer. This novel study integrated these previously unrelated approaches to examine the relationships among stress, the lunar cycle, and oxytocin administration in male and female mice. Corticosterone (CORT), stress behaviors, and body weights were assessed over two lunar cycles in groups exposed to stress and administered OXT. Anxiety and CORT significantly fluctuated across the lunar cycle; the full moon phase augmented anxiety and CORT responses in both sexes. Treatment, lunar phase, and sex influenced anxiety and CORT. OXT significantly lowered CORT to a greater degree in females than in males. Results demonstrate that OXT inversely influenced weight. This study offered a dynamic integration of animal physiology research and the impacts of the lunar cycle. Our results demonstrated interesting interactions among sex, stress, OXT, lunar influences, and behavior. Future studies should account for lunar cycle and hormonal interactions when investigating anxiety behaviors and stress physiology in animals and humans.

Oral Session 1: 2:45 - 4:00
S-201
Biology

The Effects of Chronic Stress and Voluntary Exercise on Anxiety, Stress Physiology, and Cross-Sectional Areas of the Hippocampus, Amygdala, and Prefrontal Cortex in Female Mice

Jennifer Long
Faculty Sponsor(s): *Dr. Michael Rhodes*
Discipline: Biology
A.J. Palumbo Student Research Endowment
The effects of chronic stress on human and animal health are well-documented, and strategies to reverse these consequences remain an ongoing area of research. A proposed method for countering the neurodegenerative effects of chronic stress is exercise. In this study, we investigated how chronic stress and voluntary exercise affect sizes of different brain areas, adrenal gland weight, anxiety, and overall stress physiology in female mice. Chronic stress was induced by placing a cat collar as a predator odor presence in cages of experimental groups for six weeks. During this same period, exercise groups engaged in voluntary exercise twice a week for ten minutes in a novel "gym environment." This design modeled real-life conditions, where stress and efforts to relieve it are often co-occurring, supporting our goal of evaluating exercise as an accessible intervention for alleviating stress-related physiology. Results showed that both stress and exercise decreased the size of the prefrontal cortex and amygdala, reduced adrenal gland weights, and that exercise increased adrenal symmetry. Corticosterone levels and anxiety were also significantly affected by both variables. These findings suggest that voluntary exercise has complex effects on brain structure, anxiety, and stress physiology, highlighting the need for further investigation over longer timeframes.

Oral Session 1: 2:45 - 4:00
S-201
Physics

Optimizing Signal Amplification by Reversible Exchange in Aqueous Media with Novel PEG-Based Iridium NHC Catalysts

Anthony Sparta
Faculty Sponsor(s): *Fr. Michael Antonacci, O.S.B., Dr. Jason Vohs*
Discipline: Physics

Though Signal Amplification By Reversible Exchange (SABRE) has recently been demonstrated in solely aqueous media using catalyst [IrCl(COD)(IDEG)], enhancement is still relatively low compared to that of the standard catalyst, [IrCl(COD)(IMES)], in methanol. Furthermore, due to the limited research on SABRE in aqueous media, the cause of decreased enhancement is not well understood. Here, we report the synthesis of two novel water-soluble iridium-based catalysts derived from the previous synthesis; [IrCl(COD)(ITEG)] and [IrCl(COD)(IMOE)], which each showcase the ability to hyperpolarize pyridine in both deuterated methanol and deuterium oxide. Notably, using [IrCl(COD)(IMOE)], enhancement of pyridine in D2O was observed up to 60-fold on a 60-MHz spectrometer, outperforming the enhancement achieved by the IDEG catalyst over 2.5-times. While still showing enhancement, the larger carbene, [IrCl(COD)(ITEG)] only showed 1.6-fold enhancement in D2O, indicating increased steric hinderance negatively affects SABRE kinetics.

Oral Session 2: 4:15 - 5:30
E-102
Engineering

Design and Build of a Wind Tunnel

Grace Neubert, Emily Glass, Rilyn Warner, Bethany Dixon, Nile Thomas, Daniel Marinchak, Tyler Miller, Melih Aksehir
Faculty Sponsor(s): *Dr. Adam Wood*
Discipline: Engineering

Students in Engineering Design and Lab (ENGR 240) will present their semester-long project of designing and building a wind tunnel. The purpose of the wind tunnel is to allow users to visualize and study the aerodynamics of various objects. Students will explain their approach to the design project and how they gradually improved their designs through iteration.

Oral Session 2: 4:15 - 5:30
E-104
Engineering

Backpack Water Filtration System for Safe Outdoor Hydration

Zachary Ridilla, Kristen Prince, Nicholas Jackman
Faculty Sponsor(s): *Dr. Stacy Birmingham, Dr. Derek Breid*
Discipline: Engineering

Access to safe drinking water remains a critical challenge for outdoor enthusiasts relying on natural water sources in remote areas. This project presents the design and development of a portable, backpack-integrated water filtration system capable of producing clean drinking water in under five minutes. Powered by a rechargeable, battery-operated energy system, the device is designed to store sufficient energy to purify multiple bottles efficiently. Emphasis is placed on user convenience, durability, and sustainability, allowing seamless integration into outdoor activities such as hiking, camping, and fieldwork. The final design prioritizes reliability and ease of use, reducing user concern about water safety while minimizing environmental impact.

To complete this task, we used a combination of membrane, activated carbon filters, and UV sterilization. This allowed us to effectively purify water that was placed into the system and meet health and safety requirements.

The team was successful in our mission to create a reliable system for outdoor recreational use. Water taken from multiple bacteria infested water sources were tested within the system and all fell under the category of "safe" drinking water in EPA standards.

Oral Session 2: 4:15 - 5:30
E-104
Engineering

Automating Cold Brew Filtration: A Compact System for Faster, Cleaner, and More Consistent Filtration.

Jillian Mannarino, Katlyn Dobransky, Matthew Green
Faculty Sponsor(s): *Dr. Stacy Birmingham*
Discipline: Engineering

While cold brew coffee is becoming increasingly popular, its production is limited by inefficient, time-consuming manual filtration, leading to inconsistent results. The purpose of our project was to develop an automated cold brew filtration system to streamline this time-consuming process and make it convenient and reliable for anyone who enjoys making their own coffee. Through an automated filtration mechanism and pumping cycle, the proposed device increases filtration efficiency, minimizes manual work, and enables faster brew times than disposable filter bags. Our project aims to provide an efficient alternative to current filtration methods, enabling home-brewing coffee lovers to recreate the taste of commercially available cold-brew coffee. Attendees will have the opportunity to learn about the process of designing and optimizing this system and to understand some of the challenges that arise when automating filtration. We will also have samples for everyone to try!

Designing, Prototyping, and Building a Saint Vincent College-Themed Miniature Golf Course Using Principles of Mechanical Engineering

Lily Rush, Tyler Horn, Ethan Moyers, Bailey Nicely
Faculty Sponsor(s): *Dr. Derek Breid*
Discipline: Engineering

This capstone project focused on the design and construction of three mini golf holes for an event hosted by Alpha Lambda Delta. The goal was to create engaging, durable, and reusable holes that can be easily assembled, disassembled, and stored for future use. Each hole was themed to represent one of the college's three schools—McKenna, Boyer, and Arts and Humanities—incorporating design elements that reflect their unique identities. Engineering principles such as structural stability, material selection, portability, and efficient manufacturing were central to the project. A standardized base design was developed and used across all three holes to streamline construction and ensure consistency, while still allowing for distinct visual and functional features in each theme. Designs evolved throughout the process due to stakeholder feedback, time and budget constraints, and material availability. Each hole progressed through concept development, consultation, material selection, and refinement to ensure it was visually appealing, structurally sound, cost-effective, and representative of its intended theme.

Oral Session 2: 4:15 - 5:30
E-103
History

Native Americans in Hollywood Westerns

Isabella Jolly
Faculty Sponsor(s): *Dr. Gilbert Bogner*
Discipline: History

The Elizabeth and Tom Andreoli Traveling Scholar Endowment,

Hollywood Western films greatly shape audience ideas of the American West, which has both led to the creation and the persistence of harmful stereotypes. This thesis examines five Hollywood Westerns from the Golden Age of Western film (about 1930-1960) which feature Native Americans to discuss the impact these films have had on audience understanding of the American West and Indigenous Americans.

Oral Session 2: 4:15 - 5:30
E-103
History

The Effects of the Easter Rising and How It Contributed to Later Irish Political Developments

Caleb Spillar
Faculty Sponsor(s): *Dr. Gilbert Bogner*
Discipline: History
The Elizabeth and Tom Andreoli Traveling Scholar Endowment,
This thesis is an examination of the Easter Rising and how it affected the Irish people both in regular life and political thought. The paper looks at five separate groups in Ireland in existence by the time of the rising and looks to see how the rebellion forced them to change individually. These groups are the Southern Nationalists, Southern Unionists, Northern Unionists, Northern Nationalists and non-political civilians. Each group's history and state is examined from before the Easter Rising to what they ended in moving towards because of what happened during the rebellion. Events that occurred during the rising are taken account in this examination as they show some of the important factors that led to the groups having a significant change because of this event in Irish history. These events and what people witnessed during the rising were what allowed for these separate groups to develop significant changes in their views on what Ireland is to be. Ultimately, the Easter Rising was the major force in Irish History that has caused Ireland to end up in its current state.

Oral Session 2: 4:15 - 5:30
E-103
Public History

Truly the Light is Sweet: The Ecclesiastical Excellence of the Pitassi Stained Glass Studio

Jonah Weaver
Faculty Sponsor(s): *Dr. Elizabeth Barker*
Discipline: Public History
The Elizabeth and Tom Andreoli Traveling Scholar Endowment,
From 1926 to 1960, the Pitassi Stained Glass Studio created Gothic Revival windows for churches out of its small workshop in Pittsburgh's Garfield neighborhood. Leo Pitassi, an Italian immigrant, founded the atelier after apprenticing for 20 years in studios in Pittsburgh, Philadelphia, and New York. Pitassi's daughter Louise took over the studio after his death, combining Leo's traditional panache with popular mid-century modern styles. Despite making awe-inspiring windows for churches including Rosary Cathedral in Toledo, Ohio, the work of Tiffany Studios and Pittsburgh's Charles J. Connick (designer of Heinz Memorial Chapel's windows) has greatly overshadowed the Pitassis' legacy. Using the Pitassi Stained Glass Studio collection at Saint Vincent College, a rare archive of hundreds of documents and drawings recording the studio's four decade history, my project demonstrates that the Pitassi Stained Glass Studio thrived because of Pittsburgh's economic, religious, educational, artistic, and industrial influences and the Pitassi's collaboration with other stained-glass ateliers.

Oral Session 2: 4:15 - 5:30
E-106
Theology

The Feast of Dedication: Jesus' Revelation of Divine Unity

Kaitlin Waltman
Faculty Sponsor(s): *Dr. Christopher McMahon*
Discipline: Theology

Scholars divide the Gospel of John into two main books: The Book of Signs and The Book of Glory, which further subdivides. The Book of Sign subdivides into four episodes, one of which being the section of the Jewish festivals, which plays an integral part within the book of John as it encapsulates the fulfillment of each feast by Jesus. The Feast of Dedication, John 10:22-42, is a small portion of the Jewish Festival subdivision, but it holds significant importance serving as the end of the public ministry of Jesus. Within this exegesis, I assert how both the setting of the Feast of Dedication as well as the arguments presented by Christ during his dialogue with the Jews during this festival support Jesus' bold statements of unity with God. The setting of Dedication informs the narrative by having Jesus fulfill the purpose of temple, presenting the real presence of God on earth. Within the dialogue between the Jews at temple and Jesus, Jesus makes two distinct statements, claiming full unity with God. He supports the first by declaring his divine power over life and death. Within the second, he supports the final unity claim by quoting Psalm 82 and providing an explanation of how his earthly works prove his close relationship with God. This scene is only a small part of a much larger scheme of the revelation of the identity of Christ within the Gospel of John.

The Inherent Dignity and Worth of Man as Seen in Genesis 16-22

Lucy Joyce
Faculty Sponsor(s): *Dr. Catherine Petrany*
Discipline: Theology

This paper seeks to outline how the stories of Isaac and Ishmael in Genesis 16-22, 27 affirm the Catholic belief that all humans have inherent dignity, and therefore worth, rooted in their creation, as is detailed in Genesis 1 and 2. The stories affirm this belief by revealing that dignity is not dependent on one's status as elect or non-elect, but rather on one's creation in the image of God.

Oral Session 2: 4:15 - 5:30
E-106
Theology

John's Crucifixion Narrative as a Microcosm of Revelation

Silvana Rocco
Faculty Sponsor(s): *Dr. Christopher McMahon*
Discipline: Theology

There have been many treatments of Christ's death, emphasizing various aspects of this crucial event, throughout the life of the Church. Looking specifically at the Gospels, the Johannine author stands out from the synoptic tradition by virtue of the narrative emphasis he places on the crucifixion (cf. Jn 19:17-37). This paper posits that the crucifixion narrative is the climax of the Gospel of John, inasmuch as it functions both as a summation of previously given revelation and as the founding rationale for the communion of believers (i.e., the Church) which transmits that revelation to others. I argue that this use coheres with the thoroughgoing Johannine understanding of Jesus as a decisive revealer of the Father, sent from the Father with this revelation so that all people might "become children of God" (Jn. 1:12). Jesus both fulfills earlier forms of revelation (such as the tenets of the Old Law) and explicitly reveals new realities or clarifies obscure ones throughout His entire public ministry. Consequently, care is taken within John to emphasize the directedness of this ministry toward the Cross, particularly in the way signs and events are narrated.

Redeeming Esau: Understanding the First Story of Human Reconciliation in the Bible

Luke Vanden Berk
Faculty Sponsor(s): *Dr. Catherine Petrany*
Discipline: Theology

While reading the Bible, it is tempting to focus on the pivotal players and overlook any side characters. Without close observation, we could see these "side characters" as only one-dimensional figures that either help to further God's plan or attempt to hinder it. One character that often gets characterized in this way is Esau, the brother of Jacob. Although Esau is frequently viewed in a critical light by readers, his unprecedented forgiveness of Jacob sheds a new light onto his character, making him the first example of human reconciliation in Scripture.

Oral Session 2: 4:15-5:30
E-108
Data Science

Football Sub-concussive Head Impacts in Saint Vincent Student Athletes Data Analysis

Anthony Barle, Deven Haywood
Faculty Sponsor(s): *Dr. Mary Regina Boland, Dr. Andrew Palko*
Discipline: Data Science

For this project, we explored data collected from a cohort of Saint Vincent College football players to analyze the effects of sub-concussive head impacts over the season. This could lead to discoveries in concussion prevention for student athletes. Our dataset tracked 17 using the Riddell InSite helmet system. This contained information on impact intensities, locations, and times. We also had data on weekly measured near point convergence distances and pupillary light reflex metrics such as response latency and pupil diameters after receiving a stimulus. For analysis, we used the language R to track and analyze teamwide trends and individual player statistics. We were able to find an increase in NPC distances over the season and increasing variability in PLR latencies. This variability increase was correlated with higher impact volume. PowerBI was then used to create interactive visuals of the data and analysis results. Our biggest limitation was the small sample size. Without more subjects, it is difficult to know when a trend or lack thereof is due to randomness of the small sample or if the results are more broadly applicable. A control group of non-football players would also be useful to see if some trends were related to semester schedules rather than impacts. Overall, we were able to see trends in higher impact volumes and worsening eye metrics over the season.

Oral Session 2: 4:15-5:30
E-108
Data Science

Tracking Institutional Demand in U.S. Exchange-Traded Funds

Victoria Barone, Joseph Burke, Nora Cabala
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline: Data Science

Exchange-Traded Funds (ETFs) have experienced rapid growth as vehicles for active management. As ETFs become increasingly prevalent across the investment industry, their adoption has expanded to include institutional participants. In collaboration with Federated Hermes, a global leader in active and responsible investment management, this project aimed to identify the most popular ETFs among U.S. investors through an automated, continuously updating framework, with particular emphasis on emerging trends in investor demand.

We developed an understanding of the investment landscape and identifying data from the U.S. Securities and Exchange Commission (SEC) using Python. This dataset contains Form 13F filings—mandatory quarterly disclosures of equity holdings submitted by investment managers engaging in interstate commerce with more than $100 million in assets under management. Data exploration and integration were conducted through a Microsoft Power BI dashboard to provide insights into leading ETFs based on the most recent thirty days of 13F filings. The dashboard features interactive visuals and slicers that enable filtering by category, investor type, and active versus passive strategy. Federated Hermes can deploy this solution within its infrastructure using Databricks to automate the execution of the Python pipeline, ensuring that the dashboard is refreshed daily.

Oral Session 2: 4:15-5:30
E-108
Data Science

Student Academic Success Forecasting and Detection at Saint Vincent College

Alyssa Henderson, Kate Lipscomb
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline: Data Science

Student success is an important indicator colleges track to ensure the quality of education, and to help support students during their learning experience. The purpose of our study is to utilize past student performance and detect patterns associated with poor academic performance (defined as a letter grade of less than a C). Our task is focused on developing a prediction method so that the Student Academic Success Office (SASO) at Saint Vincent College (SVC) can step in and assist a student as soon as possible. Our data consists of the Fall 2022 through Fall 2025, with information collected by the college and by the learning management system (Schoology) used for all courses. Using the statistical programming language R, we created models of Lasso Regression, Logistic Regression, Decision Trees, K-Nearest Neighbors Clustering, and Association Mining. Our results provide the SASO Staff with a set of guidelines and characteristics to flag students who may need assistance in hopes of increasing the college's success rate. We found that variables such as missed classes, gender, resident status, past course failures, past student failures, and the class's academic school are all important in identifying the success of a student. Our findings, although largely consistent with initial assumptions, will assist SVC's efforts to improve the student retention rate.

Oral Session 2: 4:15 - 5:30
Luparello Hall
Criminology, Law and Society

Coercion in the Digital Age: A Legal and Criminological Analysis of Adolescent Sextortion in the United States

Abigail Karkowski
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline: Criminology, Law and Society

This study examines adolescent sextortion in the United States as an emergent and rapidly evolving form of technology-facilitated sexual exploitation, focusing on the adequacy of existing legal frameworks and systemic gaps that undermine prevention and enforcement. Sextortion, defined as coercing individuals, most often minors, into producing or sharing explicit material under threat of exposure, presents challenges distinct from traditional child sexual exploitation. Drawing on interdisciplinary literature, this research analyzes victimization patterns, grooming dynamics, and offender behaviors while evaluating federal and state legal responses.

Findings show that the U.S. legal framework is fragmented and misaligned with the digital and coercive nature of sextortion. Existing statutes, though used in prosecution, were not designed for this crime, resulting in inconsistency and evidentiary challenges. State-level variation further exacerbates disparities, while jurisdictional limits, resource gaps, and technological barriers intensify enforcement difficulties.

This study argues that sextortion reflects a systemic failure and proposes a comprehensive policy framework including a standalone federal statute, victim protections, platform reforms, and improved prevention strategies.

Oral Session 2: 4:15 - 5:30
Luparello Hall
Criminology, Law and Society

How the weaponization of energy and attacks on energy infrastructure affects national security

John (Jack) Zayas
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline: Criminology, Law and Society

This study examines how the weaponization of energy and attacks on energy infrastructure have affected national security through the analysis of policy, legal issues, and theory. Modern society is dependent on energy for all necessities in life, which presents major problems if access to energy is lost for a long period of time. This is what makes energy structure a suitable target, as the effects of a successful attack will have negative effects across many institutions. This is the vulnerability modern societies have because they are not equipped to operate without energy. Access to energy has been influenced politically with policies that put restrictions on emissions, which may mean some forms of energy are unacceptable. The switch to renewable energy presents new security challenges as new supplies are needed and infrastructure may be suitable for an attack. The importance of secure energy is shown in the Russia-EU and United States-Iran situations, as overdependence can backfire, affecting gas prices, military spending, and national security.

The Role of Traumatic Brain Injury in Aggressive Criminal Behavior

Eamonn Costello
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline: Criminology, Law and Society

Traumatic Brain Injuries (TBI) are becoming more frequent in the population due to sport-related injuries and vehicular crashes. TBI affects all aspects of an individual's life, and damage from TBIs can lead to damage to pathways in the frontal lobe of the brain. Damage to specific pathways can interrupt communication in the brain. This lack of communication leads to an individual's inability to regulate aggressive behaviors (Potegal, 2012). This impairment is associated with higher rates of aggressive criminal behavior among individuals who have experienced a traumatic brain injury (Williams et al. 2015). In this paper, the effects of TBI on frontal-lobe pathways will be examined, and neuromoral theory will be applied to explain aggressive criminal behavior. The extent to which neuroscience evidence should be used to mediate criminal actions in court will also be addressed. Policy implications will be proposed to address the effects on aggressive criminal behavior.

Oral Session 2: 4:15 - 5:30
Planetarium
Political Science

Flannery O'Connor and the Meaning of Suffering

Sofia Tehrani
Faculty Sponsor(s): *Dr. Michael Krom*
Discipline: Political Science
A.J. Palumbo Student Research Endowment
It is hard to come across a writer with works as striking as Flannery O'Connor's. Her stark descriptions of southern life lures controversy, love, and hatred. Her southern gothic style, although often described as shocking or grotesque, reveals the harsh truths of the human condition. Suffering, a harsh truth, is born with all humans through the fall of man. In her short stories, O'Connor argues that suffering is proof of God's existence, and that even those who suffer are not completely innocent. Perhaps the most common form of fiction is that which features a protagonist and an antagonist. The protagonist – the good, and the antagonist – the evil. However, O'Connor's concern does not lie within this stereotype of good versus evil, rather, she portrays human life with reality. For the Catholic, the protagonist believes in God or maybe comes to believe in Him and the antagonist is the obstacle. The Catholic reader expects these strong contrasts and can even be opposed to writing in which these opposites are not present. However, O'Connor, a Catholic herself, refuses to write in this expected and common way. Her stories certainly have main characters, but they do not necessarily have heroes or villains…

Oral Session 2: 4:15 - 5:30
Planetarium
Political Science

The Apotheosis of the Political and the Secularization of the Theological: Dies Irae Venit

Makin Eitel
Faculty Sponsor(s): *Dr. Jason Jividen*
Discipline: Political Science

There is a track of thinking that seeks to both secularize the concepts of religion and to divinize the concepts of politics. Such thinking previously lurked in the deep and murky crevices of history, but now has been brought into the light of the 19th and 20th century modern philosophers. August Comte, Karl Marx, the Marxist God-Builders, and Carl Schmitt number among these atheist political prophets argue for a political religion. Such thinkers, in producing political religions, replace religion with a diluted humanism, a Christianity without the myths. Moreover, we see a desire to bring about salvation for humanity, a desire to immanentize the eschaton (as Eric Voegelin has pointed out) in these thinkers and in the nations of the world. This paper acknowledges that while there has been a Catholic Christian response to thinkers such as Comte and Marx, there has not yet been a response to the Marxist-God Builders. This paper seeks to respond to the Marxist God-Builders in a critical manner, with the help of Pierre Manent, Eric Voegelin, and Henri de Lubac. This paper also seeks to analyze how the transnational political organizations constitute concrete evidence of a developing world political religion. Such an analysis of the Marxist-God Builders and the transnational political organizations will show the both the conceptual and concrete sides of political religion.

Oral Session 2: 4:15 - 5:30
Planetarium
Political Science

Homelessness and the American Regime

Alicia Boretti
Faculty Sponsor(s): *Dr. Jerome Foss*
Discipline: Political Science

In the current American regime there is a crisis occurring at the communal level. In recent decades, homelessness has skyrocketed, with this past year reporting the highest levels recorded yet. The problem of homelessness must be situated within a broader understanding of the regime itself and how it ought to function. This issue can be understood in light of Catholic social teaching. This is done through first looking at American political and sociological thought. In tying this to Catholic social teaching one is able to approach the problem of homelessness with a new lens. This project attempts to show that there is a correlation between the necessity for religious moral values and a healthy regime. This matters because in our current state there is a continual trend away from the community and towards the self. Ultimately, the ramifications of this problem could weaken the regime as a whole. This is evidenced by Alexis de Tocqueville who argues mores are a necessary and vital element for a regime to flourish. Homelessness is one visible area in which one can see the issue played out today. A good regime should be focused on its people. If America wants to strive to be the best regime it can be, then it must think about its moral values as this is the basis on which it was built. This project does not argue for a cure to the problem of homelessness. Rather, it contends from a theoretical perspective that until modern political thinkers and policy makers take seriously the need for healthy mores, and therefore religion within society, the problem of homelessness will only continue to be pervasive as it is a sign of an unhealthy regime.

Oral Session 2: 4:15 - 5:30
S-201
Biology

Investigation of Spotted Lanternfly Genetics in Western Pennsylvania Over Time

Jack Sassani
Faculty Sponsor(s): *Dr. Michelle Duennes*
Discipline: Biology
A.J. Palumbo Student Research Endowment
In 2014, the Spotted Lanternfly (Lycorma delicatula) was discovered in Berks County, Pennsylvania, marking the arrival of a new invasive species to the United States. Since then, the planthopper has spread to multiple states in the northeast and rustbelt, feeding off plants such as grapevines and tree of heaven. Over the years, Spotted Lanternfly (SLF) populations have likely greater genetic structure and diversity due to gene flow and genetic drift. This can be tested by comparing the genetics of SLF samples gathered from the same area but at different years. To this end, I extracted and sequenced SLF DNA, testing eight different microsatellite loci. I then analyzed the data and compared patterns in genetic diversity. This research will allow for a greater understanding of how genetic diversity changes and evolves over time, which is important in better predicting and controlling the spread of an invasive species.

How Urban areas affect the presence of local carnivore and herbivore populations compared to Rural areas.

Cassandra Bromke
Faculty Sponsor(s): *Dr. James Kellam*
Discipline: Biology
Urban areas are becoming more common as the human population continues to grow. This increase in urban areas can negatively and positively affect local wildlife. I hypothesize that the increased human presence that urban areas provide will decrease the presence of carnivores while increasing the presence of herbivores. To test these hypotheses, I set up 6 trail cameras, three in an urban area and three in a rural area. These cameras recorded the number of herbivores and carnivores in each area. This data will then be used to find the average presence of herbivores and carnivores in each area. With the data from this experiment, we are able to better understand how urban areas affect wildlife in southwestern Pennsylvania and be able to better adjust our urban areas to be more accommodating for wildlife.

Oral Session 2: 4:15-5:30
S-201
Chemistry

Synergy Between Silver Nanoparticles and Either Ampicillin or Streptomycin Against E. coli and S. aureus

Brooke Garman
Faculty Sponsor(s): *Dr. Matthew Fisher*
Discipline: Chemistry
A.J. Palumbo Student Research Endowment

Antibiotic resistance is a growing concern globally with 1.27 million people dying from antibiotic resistant bacteria in 2019. After the use of antibiotics against a bacteria over one dosage or several doses, the bacteria begin to develop resistance mechanisms that prevent the antibiotics from infiltrating the cell. Silver nanoparticles have been used to combat this because of their small size, their ability to avoid the resistance mechanisms of bacteria, and silver has a long history of antibiotic use. Silver nanoparticles were synthesized by reducing $AgNO_3$ with ethylene glycol in the presence of polyvinylpyrrolidone to prevent particle aggregation. The nanoparticles were then characterized by UV-Vis spectroscopy. Minimum inhibitory concentrations (MICs) of E. coli (gram-negative) and S. aureus (gram-positive) will be determined separately for ampicillin, streptomycin, and the nanoparticles before using them in combinations. The antimicrobial synergy test can be used to determine if there is a synergistic effect between the antibiotics and the nanoparticles by obtaining a fractional inhibitory concentration (FIC). The FIC will be calculated and if it is below 0.5 there is a synergistic effect, between 0.5 and 1 there is a partial synergistic effect, between 1 and 2 there is no effect, and above 2 is an antagonistic effect.

Oral Session 2: 4:15 - 5:30
S-201
Biology

Investigating the Effects of Milk Thistle on Methotrexate-Induced Hepatotoxicity in a Mice Model, in Coordination with Cancer Patients' Treatment Regimen

Trenten Ferree
Faculty Sponsor(s): *Fr. Shawn Anderson, O.S.B.*
Discipline: Biology
A.J. Palumbo Student Research Endowment
Cancer is the second leading cause of mortality in the United States. Many chemotherapy treatments exist to combat cancer, but they often cause side effects, including liver damage, or hepatotoxicity. Options for treating drug-induced liver damage are scarce, and many drugs used to treat it also cause side effects, increasing the need for effective and practical hepatoprotective agents within a cancer patient's treatment regimen. This study analyzes the hepatotoxicity of methotrexate, a commonly used chemotherapy agent, and how the natural herb milk thistle, with few known adverse reactions, can protect the liver in a mouse model. Mice were assigned to control/DMSO, MTX, or milk thistle + MTX treatment groups, and hepatotoxicity was assessed using AST and ALT assays, along with recorded mouse weights and intake. Results of the study show food and water intake changed over time, with intake dropping after each injection, followed by a steady recovery. There were no significant differences among groups in intake. AST enzyme levels did not differ between groups, but ALT was significantly lower in the milk thistle-treated MTX group; this significance should be interpreted cautiously due to limitations in the assay's standard curve. Milk thistle may provide some hepatoprotective benefit against MTX-induced liver injury, though further study is needed.

Poster Session 1: 2:45 - 4:00

1. Developing independent living and vocational skills: Teaching record keeping in the office setting.

Advera Jeremia

Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*

Discipline: Bearcat BEST

Accurate record keeping in an office setting is an important foundation for efficiency and accountability at work. In this research project, a 20-year-old female with autism spectrum disorder was trained to accurately implement alphabetical filing skills in the Derry Area School District administration office. Task analytic instruction employing a least-to-most prompting hierarchy was implemented to teach the student the record-keeping skill. The goal was for the student to gain independence and generalize the skills she learned in the Derry office to future employment environments.

2. All Aboard My Career: Skills on Track for the Transportation Industry

Robert Wiggers

Faculty Sponsor(s): *Mr. Chad Bender, Alison Cox*

Discipline: Bearcat BEST

At my time at SVC, I have gained communication skills, and important work skills to prepare for my employment after graduation. I have worked hard for 5 jobs. 3 on campus internships, and 2 off campus externships. On campus, I worked at Public Relations, The SVC Shack, And The SVC Bookstore. Off campus I worked at the Lincoin Highway Experience and at Brookdale Nursing Living. After graduation, I plan to get a job in the transportation industry in the future.

3. Two worlds, One lesson: understanding Behavior through Kids and Animals

Catelyn Giaquinto

Faculty Sponsor(s): *Mr. Chad Bender, Alison Cox*

Discipline: Bearcat BEST

At Saint Vincent College and through the Bearcat B.E.S.T. program, I have gained important work skills to help me after graduation. The 3 internships I worked on campus included, The SVC Bookstore and Community and Campus Outreach (office assistant) and Winnie Palmer Nature Reserve. I had one externship at Latrobe Kinder-Schull to gain hours towards my goal of working with children in the future. I would like to work with kids or animals part-time or full-time after graduation.

4. Building a Career One Meal at a Time
Olivia Pavsek
Faculty Sponsor(s): *Mr. Chad Bender, Alison Cox*
Discipline: Bearcat BEST
At Saint Vincent College, I have grown more than I could imagine through both my vocational placements and the independence skills I have learned. My three internships were the SVC Bookstore, the SVC Shack and SVC Fitness Center. I also completed 2 externships which included Barne's Senior Living Home and Independence Health at Latrobe Hospital in dietary department. After graduation, I am hoping to get hired at the Westmoreland Hospital as a dietary aide in the future.

5. A Recipe for Career Success: My Food Industry Experience
Jessica Roycroft
Faculty Sponsor(s): *Mr. Chad Bender, Alison Cox*
Discipline: Bearcat BEST
At SVC, I learned a lot of job skills to prepare for work after graduation. Some skills I learned were how to work hard and follow directions to complete tasks. On campus I worked at Leander Hall cleaning, The SVC Shack for food prep and The SVC Cafeteria food prep. My off campus I worked at Giant Eagle Hot Food prep and Shop N Save food prep. After graduation I was offered a position at Shop N Save continuing with food prep assistance.

6. Mopportunities: Career Lessons from Cleaning Jobs
Klarenz Moreno
Faculty Sponsor(s): *Mr. Chad Bender, Alison Cox*
Discipline: Bearcat BEST
At SVC, I learned how to work hard and pay attention to details while I am working. I prepared for a job after graduation by completing several internships and externships. On campus, I worked for FMO Carey cleaning, Parkhurst Cafeteria food prep, and Leander Hall cleaning. Off campus, my externships included, Hampton Inn for cleaning and Brookdale Senior Living for cleaning also. After graduation I hope to work as a janitor close to my home.

7. From Under Ground to Above: My Vocational Journey in Animal Care and Campus Grounds

Cole Vay
Faculty Sponsor(s): *Mr. Chad Bender, Alison Cox*
Discipline: Bearcat BEST

During my years at Bearcat BEST, I have learned that I am a hands-on learner and the importance of skills in the workplace such as communication and following directions. I've been fortunate enough to work at 5 internships/externships, including The Winnie Palmer Nature Reserve, FMO Grounds, Saint Vincent College Admissions, Pennsylvania Animal Wellness & Surgery, and Lindwood Farms. The following are the experiences from all of my vocational placements.

8. From Kitchen to Career: Lessons Learned Through Food-Based Employment

Kassidy White
Faculty Sponsor(s): *Mr. Chad Bender, Alison Cox*
Discipline: Bearcat BEST

My time at SVC and the Bearcat B.E.S.T. Program helped me gain important work skills. I had 3 on-campus jobs, which included the cafeteria food prep, FMO Carey, and cafeteria bakery. I worked 1 off-campus placement at the Giant Eagle Bakery. Throughout my time at the Giant Eagle Bakery, they have offered me a permanent job.

9. Checked In, Checked Out, Moving Forward: My Journey to Office Work

Lauren Lucas
Faculty Sponsor(s): *Mr. Chad Bender, Mr. Philip Pisone*
Discipline: Bearcat BEST

My time at SVC and the Bearcat BEST Program has helped me by getting a job and being independent. I had 3 on-campus internships which included the Cafeteria, Public Relations, and the Latimer Family Library. My 2 off-campus placements were at The Unity Township Municipal Building and the Derry Area School District Administration Office. After graduation, I hope to work either a part-time or a full-time job in an administrative assistant position.

10. Synthesis and Optimization of Quinoline Intermediates Toward Selective HOCl Fluorescent Probes

Sloane Condo
Faculty Sponsor(s): *Dr. Sarah Hejnosz*
Discipline: Biochemistry

A.J. Palumbo Student Research Endowment

Chronic inflammation in diseases such as rheumatoid arthritis (RA) is associated with increased levels of reactive oxygen species, including hypochlorous acid (HOCl), which contributes to tissue damage. Current imaging methods mainly detect structural damage rather than real-time inflammation, which creates a need for selective probes that can detect HOCl. Quinoline-based fluorescent probes are promising due to their stability and tunable chemical properties.

This project focused on developing and optimizing synthetic routes toward quinoline intermediates for future HOCl-responsive probe design. A known synthetic method was reproduced to prepare 2-prop-2-yn-1-yloxybenzaldehyde and N-(2-(prop-2-yn-1-yloxy)benzylidene)aniline, and their structures were confirmed by ^{1}H NMR. Purification methods were also refined to improve product recovery. In addition, a novel intermediate was successfully synthesized and characterized using ^{1}H NMR and GC-MS

11. Penicillium expansum Growth and Patulin Concentration in the Presence of Essential Oils

Rebecca Slate
Faculty Sponsor(s): *Dr. Matthew Fisher*
Discipline: Biochemistry

This research aims to find an ecofriendly approach to reducing the impact of patulin, a mycotoxin found in the mycelium of the mold Penicillium expansum common to apples. Patulin is known to cause illness and even death to a variety of animals and humans. Essential oils have been shown to reduce the growth of P. expansum. However, it has not been determined how the inhibition of growth by the essential oils might impact the patulin concentration. P. expansum was grown on Potato Dextrose Agar (PDA) media plates and patulin was extracted from the mold using ethyl acetate. Patulin concentrations were determined using high performance liquid chromatography. Clove, thyme, cinnamon, and eugenol oils are incorporated into the PDA media. As the mold was given time to grow, the coverage of the mold on the plate and the patulin concentration will be measured over time. Our goal was to determine if these essential oils slow the growth of P. expansum and, as a result, lower the amount of patulin present.

12. Investigating Fluoxetine Analogs for Nanoparticle Drug Delivery Using Lipid-Polymer Hybrid Nanoparticles

Elizabeth Dacanay
Faculty Sponsor(s): *Dr. Jason Vohs*
Discipline: Biochemistry

Membrane transport is essential for drug delivery, yet the selectively permeable lipid bilayer limits the intracellular uptake of many small, polar molecules. Fluoxetine hydrochloride (Prozac), a selective serotonin reuptake inhibitor with emerging antiviral potential, exemplifies this challenge due to its polar amine group, which restricts membrane diffusion. Lipid-polymer hybrid nanoparticles (LPHNs) offer a promising solution by enhancing drug solubility, stability, and cellular uptake through combined polymer and lipid properties. This study evaluates the feasibility of synthesizing and encapsulating fluoxetine analogs within LPHNs to improve delivery. Structural modifications of N-methyl-prozac were explored by replacing its trifluoromethyl group with amide and dinitro substituents to assess effects on encapsulation and loading efficiency. A fluoxetine control was successfully synthesized (86.75% yield) and confirmed by GC-MS and H-NMR. However, analog synthesis was hindered during aromatic substitution, producing unintended products such as 4-chlorobenzamide. Nanoprecipitation yielded nanoparticles, though resuspension issues indicated formulation limitations. These findings highlight the need to optimize synthetic and nanoparticle strategies for repurposed antiviral drug delivery.

13. Investigating Demographic and Lifestyle Factors to Predict Systolic Blood Pressure

Elizabeth Dacanay
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline: Mathematics

This project investigated how demographic and lifestyle factors predict systolic blood pressure, a continuous indicator of cardiovascular risk. The analysis quantified the relationships between age, body mass index (BMI), smoking status, cholesterol level, and physical activity and their combined ability to explain variations in systolic blood pressure. The goal was to identify what predictors are the most informative and determine which modeling approach provides the most accurate and interpretable predictions of cardiovascular health.

14. Stony Coral Analytics Report - An Exploration Utilizing Data to Predict the Summed Living Tissue Area of Stony Coral Species at Various Locations in the Dry Tortugas

Amelia Grace McVay
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline: Mathematics

Utilizing data form the Florida Fish & Wildlife Conservation Commission's research on the Dry Tortugas Coral Reef Evaluation Monitoring Project (CREMP), we aim to predict the summed living tissue area of stony coral species in squared centimeters for any given stony coral in the Dry Tortugas. Data ranges from 2011 to 2024 and is composed of a plethora of species in a multiplicity of reef locations. There are 26,716 data entries, so we have a large dataset to work with, which is promising for reasonably accurate results. We will be honing in on the scientific name of stony coral species, diameter (cm), height (cm), location, sample year, and possibly site ID to determining our target variable. Data for this project was collected amongst 40 reef habitats in 5 out of the Environmental Protection Agency's 9 Water Quality Segments in the Florida Keys Marine Sanctuary. The project, funded through a grant from the National Park Service, was managed by the Corals Research Program and the Fish & Wildlife Research Institute.

15. Understanding Cholesterol Through Health Data

Kison Coates-Edmondson
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline: Mathematics

Cardiovascular disease is a major public health concern, and understanding the factors that influence heart health is an important area of medical research. Cholesterol levels are commonly used as an indicator of cardiovascular risk because elevated cholesterol can increase the likelihood of developing heart disease and related complications. When researchers and healthcare professionals can better understand the factors associated with cholesterol levels, they may be able to identify patterns that contribute to cardiovascular risk.

In this project, we aim to develop regression models that examine how demographic characteristics and cardiovascular health indicators relate to cholesterol levels. Using patient data from cardiovascular examinations, variables such as age, sex, resting blood pressure, and exercise-related heart measurements will be used to explain variation in cholesterol levels. The resulting analysis may help highlight which factors are most strongly associated with cholesterol and demonstrate how statistical modeling can be used to better understand patterns in cardiovascular health data.

16. What Makes A Movie

Andrew Downs
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline: Mathematics

The purpose of this project is to determine what makes a movie rating on IMDB higher versus what makes the gross income higher using variables such as rating, gross, genre, run time, and classification. We want to find the influential variables to determine what makes a good movie. This is useful for people filming movies so they know what form they should follow in order to maximize either IMDB rating or money and see how they compare.

17. Identifying In-Game Strategies for NBA players

Makenna Maier
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline: Mathematics

The purpose of this project is to understand how different variables affect an NBA player's points per game across the regular season and playoffs. Some of these variables include: age, efficiency field goal percentage, 2 pointers made per game, minutes per game, and 3 pointers made per game. This could be an effective regression for an NBA coach to analyze and see which strategies in game result in the most points per game. Other people that may be interested in this model are college and high school basketball coaches.

18. Using Video Game Metrics to Predict Median Playtime, per Player

Chloe Ott
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline: Mathematics

The video game industry has grown into one of the largest entertainment markets in the world, with thousands of titles released on digital platforms each year. Among these platforms, Steam dominates PC gaming, hosting over 100,000 games and serving hundreds of millions of players. For developers, publishers, and platform analysts, understanding what drives sustained player engagement is critically important for informing design decisions, marketing strategies, and resource allocation. In this project, I predicted long term average player playtime for games available on Steam, using metrics such as game characteristics, player and critic reviews, game performance, and platform support. The resulting insights can help developers and publishers make more informed decisions, reducing the risk of commercial and creative damage from releases that fail to retain players long term.

19. Predicting Private School Enrollment

Chaely Raynor
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline: Mathematics

Using data collected in the Private School Universe Survey from the National Center for Education Statistics, I created a model to predict total enrollment at private schools. The data I used for this project is from their 2021-2022 survey, which has responses from 22,346 schools across the nation. This dataset includes a plethora of variables including school characteristics (religious affiliation, grade levels offered, enrollment per grade), demographics of students, number of teachers, and length of school day and school year.

20. Utilizing Machine Learning Techniques to Understand Airbnb Pricing Metrics

Anthony Barle, Joshua Havrilla
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline: Data Science

This project provides key insights on Airbnb pricing metrics such as price and cleaning fees. Understanding these pricing metrics can help listing hosts make more informed decisions when determining their listing rates. In addition, by understanding how the rates were decided, Airbnb guests can make better financial decisions. The analysis utilizes four main machine learning techniques: LASSO regression, decision trees, clustering, and imputation methods. These four techniques allow for both supervised and unsupervised learning, supporting prediction and pattern discovery in the data. The dataset for the project utilizes real data collected directly from Airbnb and includes listings primarily from New York. With the use of decision trees, we were able to see a connection between price quartiles and three main variables. These were room type, number of bathrooms, and the cleaning fee. It was determined that private rooms were mostly in the first quartile of price, under $70. Entire homes with multiple bathrooms or high cleaning fees were in the fourth quartile, over $175. Clustering told us that there was one group of posters that featured wheelchair accessibility, which was the determinant variable for one cluster. Imputation was used to compare multiple decision trees predicting cleaning fee quartiles. The tree without imputation and those with imputation all used the same variables for splits, namely price, room type, and minimum nights, with the only difference being the precise values of the splits. This tells us that these variables are absolutely the most influential in determining cleaning fee quartile.

21. Analyzing International Water Quality

Joseph Burke, Victoria Barone, Deven Haywood
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline: Data Science

Surface water quality is essential to ensuring public health. There are many measures in place to monitor water health country by country, but not many that look at it from a global level. The study we are exploring consists of a massive dataset focused on global water quality, with samples taken from the United States of America, Canada, China, Ireland, and England. Our project examined the following questions: How does the water quality in the USA compare to the rest of the world? What characteristics determine the water quality? To do this, we employed three different machine learning methods: decision trees, k-means elbow method, and principal component analysis and implemented using R. U.S. samples are distributed across multiple chemical-profile clusters, indicating substantial regional variation: some areas display high-nutrient, high-BOD pollution signatures, while others align more closely with the cleaner, low-nutrient profiles observed in England and Ireland. In contrast, countries such as England and Ireland have more stable chemical profiles. These findings highlight that relying solely on CCME_WQI categories (Water Quality Index by the Canadian Council of Ministers of the Environment) may oversimplify the true environmental complexity and advanced modeling approaches can help identify regions that may require targeted monitoring or intervention.

22. Illusion, Ego, and Growth: A Comparison of Don Quixote and Cars

Cadence Smith
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Disciplines: Spanish, Spanish Literature

This project will examine common thematic concerns presented in the works of Don Quixote by Miguel de Cervantes and the animated movie Cars through analyzing the themes of ego, distorted perception of reality, and personal growth. Even though these stories are written within completely different eras and are of distinct genres, they both represent characters who develop an inflated ego which makes them perceive reality incorrectly and alienates them from other people. Additionally, this work will touch on Sancho Panza and Mater and explain their importance in terms of supporting the idea of personal growth of the main character. Ultimately, this comparison demonstrates that while ego can lead to misunderstanding and conflict, meaningful relationships play a crucial role in fostering self-awareness and growth, showing relevance of Cervantes' ideas in modern storytelling.

23. B vitamins and their effects on growth and activity of Lactobacillus rhamnosus

Malley Kotula
Faculty Sponsor(s): *Dr. Michelle Duennes, Dr. Jennifer Koehl*
Discipline: Biology
A.J. Palumbo Student Research Endowment
B vitamins are essential for human health. Their functions in the human body and the gut microbiome are numerous, and the research on the health benefits of these vitamins continue to be a prominent source of study as the popular culture shifts towards a focus on healthy eating. This project aims to identify the effects of different concentrations of vitamins B2 and B12 on the Lactobacillus bacteria that are found in the gut microbiome. The Lactobacillus bacteria were grown with MRS media to create a laboratory simulation of the gut microbiome. The lactic acid output of these fermentative bacteria was measured using a pH indicator and a spectrophotometer. How the addition of vitamins to the media affected bacteria growth was examined by quantifying colonies using the microdilution plate technique. This research provides a closer look at the benefits of vitamins to the gut microbiome and their necessity in biological processes performed by the gut bacteria.

24. Disinfectants and Lysozyme Against Staphylococcus aureus and Klebsiella pneumoniae Biofilms

Julie Peterson
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline: Biology
A.J. Palumbo Student Research Endowment
Biofilms are complex microbial communities encased in a protective extracellular matrix that makes them resistant to conventional disinfectants. The effectiveness of commonly used disinfectants, sodium hypochlorite (bleach) and hydrogen peroxide, alone and in combination with lysozyme, were tested against biofilms of Staphylococcus aureus (Gram-positive) and/or Klebsiella pneumoniae (Gram-negative) bacteria. Previous studies suggested that lysozyme may enhance disinfectant efficacy by degrading the bacterial cell wall (Hukic et al., 2017). A two-phase experimental design was used: the first phase established biofilm growth curves over 24 hours, while the second phase assessed biofilm reduction with simultaneous or sequential treatment with disinfectants, lysozyme, or their combinations. Biofilms were quantified using crystal violet staining and absorbance measurements at 570 nm. Sodium hypochlorite and lysozyme treatments resulted in significant biofilm reduction ($p < 0.05$), while hydrogen peroxide showed no statistically significant effect ($p > 0.05$), indicating bleach with lysozyme is a more effective disinfectant than hydrogen peroxide.

25. Acute Compartment Syndrome Following Traumatic Tibia/Fibula Fracture: A Type 3 Clinical Case Study

Ava Baeslach
Faculty Sponsor(s): *Dr. Andrew Palko*
Discipline: Health Science

Acute compartment syndrome (ACS) is a limb-threatening condition resulting from increased intracompartmental pressure, most commonly following tibial fractures. Early diagnosis is challenging, as neurovascular findings may initially appear normal. This case describes a 23-year-old collegiate football athlete who sustained a displaced tibia/fibula fracture. Initial assessment revealed significant pain and deformity with intact distal pulses and sensation. Despite appropriate management, the patient developed worsening, disproportionate pain and progressive numbness, raising concern for ACS.
Emergent surgical intervention included four-compartment fasciotomy and fracture fixation, followed by multiple procedures for wound management. The patient returned to full participation at six months with mild residual deficits.
This case emphasizes the importance of serial assessment and recognition of symptom progression. Worsening pain and emerging neurologic symptoms may be more sensitive indicators of ACS than vascular changes. Early recognition and timely escalation of care are critical to preventing irreversible damage and optimizing outcomes.

26. The Effects of Natural Agents on Biofilm Formation Within the Oral Cavity

Bella Baumgardner, Reese Gadsby
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline: Biology

A.J. Palumbo Student Research Endowment

Peppermint essential oil influence on Streptococcus mutans bacteria was tested. S. mutans is the primary bacteria that causes oral bacterial issues including cavities and gingivitis. Peppermint oil is a common essential oil compound used in toothpaste brands and oral care products worldwide. The swine oral cavity was analyzed, as it closely models that of humans. Peppermint oil proved to inhibit the growth of S. mutans bacteria both in manipulation of 6-well plates in the laboratory, and on teeth extracted from the swine cavity. Peppermint oil proved to create a barrier between bacterial growth and teeth surface ensuring a healthy product for the oral cavity microbiome. Toothpaste and oral care brands worldwide should continue to use peppermint oil as the natural agent in inhibiting cavities, plaque, and gum diseases. Peppermint oil is a beneficial treatment to keep the oral cavity of humans healthy and promote a proper oral microbiome.

27. Broad-Spectrum Inhibition: Evaluating Tetracycline's Impact on Escherichia coli and Staphylococcus aureus

Olivia Trotter
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline: Biology
A.J. Palumbo Student Research Endowment
Tetracycline is a broad-spectrum antibiotic commonly used to treat bacterial infections by inhibiting protein synthesis in bacteria. It works by binding to the 30S ribosomal subunit, preventing the attachment of tRNA and ultimately stopping bacterial growth. Because of its widespread use, understanding how tetracycline affects different types of bacteria is important, especially in the context of human health and the microbiome. This study investigated the effects of tetracycline on the growth of Escherichia coli (Gram-negative) and Staphylococcus aureus (Gram-positive) under controlled laboratory conditions. Both bacteria can be part of the normal human microbiota, particularly within the intestinal environment. Cultures were grown in tryptic soy broth (TSB), with experimental groups exposed to tetracycline and control groups left untreated. Growth was measured across multiple plates, including both individual and combined bacterial cultures. Statistical analyses, including ANOVA and t-tests, showed that tetracycline significantly reduced bacterial growth ($p < 0.05$) compared to controls. However, there was no significant difference in the degree of growth inhibition between E. coli, S. aureus, or their combined cultures. These findings suggest that tetracycline has a similar inhibitory effect on both Gram-positive and Gram-negative bacteria in this setting.

28. Exploration of the Gut Microbiome of Leafcutter Bees

Jakob Krumenaker
Faculty Sponsor(s): *Dr. Michelle Duennes*
Discipline: Biology
A.J. Palumbo Student Research Endowment

The management of pollinators in agricultural settings often raises questions of pathogen transmission between managed bee species and the native pollinators in the area. Characterizing the gut microbiomes of commonly managed bee species can give a baseline for what microorganisms are to be expected in the gut, and which ones are possible pathogens. Alfalfa leafcutter bees (Megachile rotundata) are essential to the agriculture in the United States due to their unique ability to efficiently pollinate alfalfa, which feeds livestock that are eventually processed into meat and dairy products consumed worldwide. Despite their necessity for agriculture, little is known about the pathogens and general microbiome of these managed pollinators. Thus, we hope to characterize and identify the gut microbiota of M. rotundata by means of 16S rRNA bacterial metagenomic sequencing. We removed prepupae from their leaf-wrapped cocoons and reared them in a sterile environment in microwell plates. We collected bees at different stages of development and of different adult sexes to examine if the gut microbiota changes with developmental stage and sex. Finally, we examined differences in species and abundance of the gut and compared them to previously published studies on the gut microbiota of wild and managed Megachile and other species in the Apidae superfamily.

29. Examining Learning and Memory Capabilities in Previously Untested Solitary Bee Species

Jakob Krumenaker, Jack Sassani, Alex Sarver, Aubree Bloom, Cassandra Bromke, Ryanna Collazzo, Aidan Fraser, Jack Glassman, Lucy Gross, Andrew Hagins, Kaitlyn Hare, Benjamin Hudson, Maura Jodkin, Stephen Laun, Hanna Leitenberger, Lauren Moretti, Bailey Olson, Julie Peterson, Rachel Saraceni, Jadyn Soto, Dominick Spence, Olivia Trotter, Briana Turner, Aidan Upholster, Ryan Zimmerman, Alexandra Zucker
Faculty Sponsor(s): *Dr. Michelle Duennes*
Discipline: Biology

Since Karl von Frisch's description of honey bee dance language in 1927, research on bee cognition has demonstrated the surprisingly complex tasks and information bees can perform and learn. Within the last couple of decades, research on social bee cognition has exploded along with research on factors contributing to bee population declines worldwide. Studies of bee learning and memory can help us understand how threats to bee populations like pesticide exposure, lack of floral resources, competition with non-native species, disease, and more affect their cognitive abilities.

Most studies of bee cognition have been done with social bee species. It can be assumed that bees with sociality also possess a wider array of cognitive abilities to aid in communication within the hive, but relatively little research has explored the learning and memory capabilities of solitary bees. Using the Free-Moving Proboscis Extension Response (FMPER) protocol, our class explored the learning capability of alfalfa leaf-cutter bees (Megachile rotundata) and long-horned mason bees (Osmia cornifrons). Although our data are limited and many bees refused to participate in training, we have successfully demonstrated that these two species of solitary bees can learn to associate a color with a sugar reward.

30. Evaluation of Photocatalytic Activity in TiO2, BiMoO6, and TiO2-BiMoO6 Heterostructures

Skyler Olp
Faculty Sponsor(s): *Dr. Steven Gravelle*
Discipline: Chemistry

Water pollution from industrial dyes is a growing environmental problem. Many of these dyes are toxic and resistant to conventional water treatment, making advanced removal strategies necessary. Photocatalysis that uses light and a semiconductor material to break down organic pollutants is one promising solution. Titanium dioxide (TiO_2) is the most well-known photocatalyst but only absorbs ultraviolet light, limiting its use under natural sunlight. This project combined TiO_2 with bismuth molybdate (Bi_2MoO_6) to create heterostructures capable of absorbing visible light. A custom diffuse reflectance spectrometer was built to measure the optical band gap of each material. All synthesized composites showed band gaps near 2.5 eV, confirming visible-light activation compared to 3.0–3.3 eV for the stock materials. Photocatalytic performance was evaluated by degrading methylene blue dye under visible and full-spectrum light. The best performer was a mixed-phase TiO_2–Bi_2MoO_6 composite achieving around 7–8% degradation under visible light. This is attributed to favorable band alignments that reduce electron-hole recombination.

31. Synthesis of Polyphenolic Liquid Crystalline Elastomers in Underwater Micro-fibril Arrays

Brayden Russell
Faculty Sponsor(s): *Dr. Jason Vohs*
Discipline: Chemistry

Liquid crystalline elastomer compounds (LCEs) are a class of cross-linked polymer chains that exhibit dynamic responses to external stresses due to their anisotropy. Electron-donating OH groups are known to increase the responses of LCEs to stress. Two polyphenolic LCEs, or P-LCEs (2OH-eMAC, 3OH-eMAC) were synthesized directly from phenolcarboxylic acids by colleagues at the University of Pittsburgh. We report here the synthesis of a similar P-LCE, 4OH-eMAC, for its incorporation into underwater micro-fibril arrays to measure its properties, including tensility, shearing strength, water adsorption, rubber transition temperature, isotopic transition temperature, and adhesion in simulated saltwater solutions and on various material substrates. These P-LCEs have industrial applications as underwater adhesives for pipeline construction and repair.

32. Predicting Seasonal NFL Team Win Totals Through Machine Learning Regression Models

Jack Kaczmarski
Faculty Sponsor(s): *Dr. Marcela Mera*
Discipline: Computer Science

As the field of data analytics has progressed, machine learning has become a valuable tool to gather insights from large sets of data and apply those insights to future predictions. An interesting field to apply these insights to with much data is sports. Both teams and fans have started to incorporate machine learning principles to better predict the outcomes of games and seasons. This project aims to better predict win totals and improve the interpretability of these machine learning models. This project uses multiple different machine learning algorithms, such as linear regression, decision tree regression, and random forest regression to predict the amount of wins a particular team will have in a season. This project utilizes data from the SCORE Sports Data Repository, including features such as point differential, yards gained, and yards allowed. The methods chosen provide a great amount of flexibility and precision in predicting win totals. After training and testing the models, the results are presented in succinct, readable formats. Findings indicate that the regression models indicated achieve accurate predictions without overfitting data. The results also indicate that regression models as mentioned earlier can be effectively used to predict win totals, and this methodology can be expanded to other sports.

33. Vision-Based Autonomous Parking

Justin Wrubel
Faculty Sponsor(s): *Dr. Sergio Paredes*
Discipline: Computer Science

Autonomous parking remains a significant challenge in robotics, requiring accurate spatial perception, precise alignment, and controlled maneuvering. This project develops an autonomous parking system for an Elegoo Smart Robot Car that detects open parking spaces and successfully parks using integrated vision and proximity sensing. The robot will use its camera with image processing techniques such as edge detection and color segmentation to identify parking space boundaries through visual markers or parking lines. The ultrasonic sensor will provide real-time distance measurements to obstacles during the parking maneuver, enabling safe proximity control. PID controllers will regulate both steering angles and speed throughout the process. The parking scenario will focus on perpendicular parking into clearly marked spaces under controlled lighting conditions. The primary objective is to achieve consistent, accurate autonomous parking that combines visual space detection with ultrasonic-guided maneuvering, without requiring external intervention. Success will be measured by the system's ability to reliably detect available spaces and complete the parking maneuver within defined spatial boundaries.

34. Comparing Machine Learning Methods for Bird Species Identification from Images

Cassandra Lanza
Faculty Sponsor(s): *Dr. Marcela Mera*
Discipline: Computer Science

Birds are an integral part of the global ecosystem, meaning tracking species' population health via visual identification and human reporting has become an increasingly important cataloging method. Visual identification can be difficult even for experienced birders, so support tools that use computer vision and machine learning (ML) techniques have become common. This project aims to compare the performance of three ML methods in correctly identifying bird species from images. Based on the Caltech-UCSD Birds-200-2011 dataset, each model will be trained and tested on colored images from 200 bird species. By including a convolutional neural network (CNN), a random forest, and a support vector machine (SVM) in this approach, this project compares how feature extraction techniques, model selection, and parameter tuning affect identification outcomes. Random forests and SVMs rely on Scale-Invariant Feature Transform (SIFT) for feature extraction while CNNs use raw image data, or pixel values. Each approach will be evaluated by its accuracy, precision, recall, and F1-score across all classes. It is important to note that, while ML methods have been successful in many image classification tasks, species identification often involves additional context like location and time of year. Future work may consider incorporating data of this type for further accuracy and applicability.

35. Hand Gesture Recognition for Real-Time Robot Control Using a Convolutional Neural Network

Nicholas Smith
Faculty Sponsor(s): *Dr. Marcela Mera, Dr. Sergio Paredes*
Discipline: Computer Science

I am developing a vision based system that enables real time robot control through specific hand gestures. The project uses a convolutional neural network (CNN) trained in PyTorch to classify five gestures—fist, thumbs up, open hand, peace, and "I love you"—from 128×128 grayscale images. The model was trained with normalization, data augmentation, and cross entropy loss using the Adam optimizer, and evaluated on a held out test set to verify performance. A real time inference pipeline processes webcam input and converts predictions into control signals.

The system is being integrated with an Elegoo Smart Robot Car V4.0, where recognized gestures trigger actions such as moving forward, turning, or stopping. This enables hands free robot control through intuitive visual commands. While the gesture recognition model performs reliably during testing, full robot control validation is ongoing as integration is completed. This project demonstrates how machine learning and computer vision can support natural human robot interaction, highlighting potential applications in accessibility, remote control, and interactive robotics.

36. Visual Color Signal Recognition and Safe Navigation Using Elegoo Smart Robot Car

Nicolas Serapiglia
Faculty Sponsor(s): *Dr. Sergio Paredes*
Discipline: Computer Science

In Robotics, we have learned many different ideas on to how give robots movement and reactions. This development has happened over the course of this semester and has pushed the idea of a final project forward for this class. This project is aiming to enhance the visual recognition signal on the Elegoo Uno Smart Robot Car to detect the color that it is being shown. The idea is for the car to detect the color and then run the task related to that color. When that response to the signal is running, the robot will be checking to make sure that it is at a safe approach to distance to any obstacle. All of this will be driven by Python code along with the hardware that is on the robot. The hardware consists of the camera to detect the color and the ultrasonic sensor that continuously monitors the world around it to maintain a safe distance. It will be utilizing the OpenCV library to be able to conduct each of the movements. The code will be first written into an FSM developed to use adaptive/reactive controls to be able to read signals and objects and move accordingly. This allows us to have the outcome of a reliable, autonomous robot capable of making intelligent decisions based on color cue and proximity data from an object.

37. Short-Term Stock Price Prediction Using Machine Learning

Steven Rotonto
Faculty Sponsor(s): *Dr. Marcela Mera*
Discipline: Computer Science

The stock market is difficult to predict due to its volatility and the many factors influencing price movements. This project investigates whether machine learning models can identify patterns in historical stock data to make short-term predictions. K-nearest neighbors and linear regression are used with features including opening price, closing price, daily high and low values, trading volume, and an industry classification tag.

To improve generalization, stocks are grouped by industry so models learn industry-level patterns rather than company-specific behavior, assuming companies within the same industry exhibit similar trends. The methodology includes data cleaning, feature selection, model training, and evaluation.

During training, full daily data is used. However, in prediction, only partial intraday data is available, including the opening price, high and low values up to a given point, and accumulated trading volume. This reflects realistic conditions where the full day's data is not yet known.

Models are evaluated using mean squared error and related metrics. Results show that while some trends are captured, performance is limited by market noise and the inherently unpredictable nature of financial systems.

38. Vision-Based Autonomous Parking with Spot Selection

Joseph Turkovich
Faculty Sponsor(s): *Dr. Sergio Paredes*
Discipline: Computer Science

This project uses an Elegoo Uno Smart Robot Car to detect, identify, and park in an available parking space by using both a camera and an ultrasonic sensor. The camera is used to identify multiple parking spaces by detecting ArUco markers. The robot then uses this data to choose the ideal open space based on a selection rule. Rules can include choosing the first available spot from left to right or choosing the space that has the most open space around it. The ultrasonic sensor is used to ensure a safe distance during approach and ensure that the robot stops safely before an incident can occur. After a spot is selected, the robot aligns itself and maneuvers autonomously into the parking spot. The goal of this project is to create a proof of concept for a low-cost self-parking system that is also able to select spots based on a priority system with predetermined values.

39. Estimating Construction Time With Machine Learning

Margaret Fatula
Faculty Sponsor(s): *Dr. Marcela Mera*
Discipline: Computer Science

While there are many ways that construction time is predicted, Machine Learning (ML) models are the key to better estimates. By simulating critical aspects, builders can plan ahead and use fewer materials. While machine learning may not be able to predict all the nuances of a specific area, using best practices for creating an ML model for time estimation can mitigate the difference. The best data set for a construction project cuts out unnecessary variables, while carefully choosing ones that have a great impact. I simulated time using Kaggle's Building Performance Dataset for a wider range of options and from there, continued to narrow down the variables used. Additionally, the linear regression model is selected due to being ideal for estimating time over a long period, and in tandem with a Random Forest Regressor, can lead to a more consistent result. The additions help individuals develop their own models and take into account factors that have an impact on overall time.

40. Glacier Recession and Climate Change

Jonathan Glassman
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Glaciers are an incredibly important sink for world freshwater stores. They account for 70% of the world's freshwater. Glaciers additionally help prevent positive melting feedback loops where white ice and snow increase net reflectivity and help prevent darker surface coverage, leading to increased melting and heat absorption. There is much evidence to support glacier recession as a result of climate change. The Mendenhall glacier serves as a model for glacier recession due to climate change. The Mendenhall Glacier is located in Juneau, Alaska. Tracking with current trends, the glacier has lost approximately 5.5km^3 of ice since 1948. The lake below the glacier shelf, Mendenhall Lake, experienced record flooding in the years 2023, 2024, and 2025.

41. Extinction in a Changing World

Hanna Leitenberger
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Biodiversity, the variety of life in an area, is incredibly important for life. It is ethically and morally important to us as humans. Loss of biodiversity through species extinctions is a natural process; however, due to climate change, extinction rates are rising. Warming across the planet can put species at risk because of the stress that increasing temperatures put on animals. Species migration can be altered because of warming and thus disrupt other ecosystems. Rising sea levels are changing coastal habitats, presenting risks for the plants and animals that live on the coasts. More and more species are becoming threatened, and this trend will likely continue. Ecosystems like mountains, islands, and freshwater areas are more at risk because the species have very limited space to escape from the changing climate. To prevent species extinction, we can try to reduce carbon emissions and restore forest biomes that naturally store carbon to reduce global warming. The protection of species is incredibly important to maintain the biodiversity of our ecosystems.

42. How is climate change affecting marine life?

Bailey Olson
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Climate change is affecting the whole world, but its impacts on the ocean are impossible to ignore. One of the biggest impacts is the rise in water temperature. As global temperatures rise, so do water temperatures. This is the root of most of the aquatic issues. This is causing the habitat of some cold-water fish, such as cod, to no longer be habitable. This caused the fish to move North. The warmer water also reduces food quality. The other major contributor is ocean acidification. This affects the calcium concentration of the ocean. Because of this, marine life has to put a lot of energy into preserving and building their shells. Without marine life, parts of our diet will be cut out, and we will lose biodiversity all over the world.

43. Investigating how water systems and the Earth's reflectivity interact to amplify climate change

Kristen Prince
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Climate change is deeply interconnected with Earth's water systems, making the hydrologic cycle a critical driver of environmental change. As global temperatures rise, processes such as ocean warming, ice melt, and increasing atmospheric moisture escalate, amplifying climate impacts worldwide and affecting water availability, ecosystem stability, and human livelihoods. This project examines how water systems and the albedo effect interact through positive feedback loops that reinforce climate change. Key findings show that melting ice reduces Earth's reflectivity (albedo effect), increasing solar absorption and accelerating warming; since oceans absorb over 90% of excess heat, this contributes to sea level rise and stronger storms. In addition, increased evaporation raises atmospheric water vapor, further enhancing the greenhouse effect. Together, these processes create self-reinforcing cycles that intensify climate change beyond initial human influences. These findings highlight significant environmental, economic, and societal risks, including flooding, water scarcity, ecosystem loss, and economic disruption, and emphasize the urgent need for sustainable water management and climate mitigation strategies to slow these feedback loops and protect both natural systems and human communities.

44. What kind of consequences does climate change have?

Caden Zambo
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Modern day media often reports of climate change occurring and possible remedies to stop it but there is never a clear focus on what climate change exactly causes.Climate change consequences can affect not only the ocean, the atmosphere but also living creatures such as humans. As the planet gets warmer so do our oceans, everything in the ocean Aexperiences change from the coral reefs bleaching due to increased acid from the temperature change to the ice caps which bring less reflectivity through their melting. These changes in the Earth can lead to floods of lower elevation land masses and can prevent the future generations from seeing the world as we do and maybe affect how they will be living in it. These changes not only affect the surface of the Earth but the Atmosphere too, drastically changing weather from increasing storms to causing droughts which may have massive economic downsides. It is important that the consequences of climate change are understood as the issues may not be noticeable at first, but when these problems do become noticeable, it might be too late to remedy them.

46. Permafrost Thawing and its Role in Climate Change Dynamics

Eliot Belli
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Permafrost is the ground that consistently stays frozen at or below 0 degrees Celsius for two years or more and is mainly found in the Artic regions. It contains large amounts of undecomposed organic matter that holds around 1,500 gigatons of carbon, which is estimated to be twice as much that is currently in the atmosphere. Permafrost consists of two layers: an active layer that will thaw and refreeze depending on season, and a deeper, frozen layer which holds most of the undecomposed material. As our temperature worldwide rise, this starts the thawing of the active layer, and intensifies the decomposition of the organic matter, which releases this carbon into the atmosphere. This will intensify climate change. This entire process affects every earth system as greenhouse gases are increased into the atmosphere, land becomes destabilized in the geosphere, water paths are altered in the hydrosphere, and ecosystems are jeopardized in the biosphere. At the time there is not a set in stone way to stop perma frost thawing. We can help to reduce it by decreasing our greenhouse gas pollution globally, turning towards renewable energy, and starting reforestation.

47. Climate Change Impacts on the Water Cycle and Water Availability

Brianna Coulson
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Water is an invaluable resource that is essential for life, economic development, and environmental sustainability. The water cycle ensures that water is distributed across the Earth in order to sustain life and support ecosystems, however this process is being impacted by climate change. Climate change causes disruptions in the water cycle which can cause more evaporation and moisture in the atmosphere. This causes heavier rainfall in some areas and extreme droughts in others. Climate change has led to more extreme weather events, melting of glaciers, and water scarcity in some regions. These results of climate change on water have led to higher demand for water as temperatures increase and aquifers are depleted before they can refill. Also, more extreme weather events have led to more loss of human life, threats to biodiversity, and infrastructure damage.

48. Education Strategies in Mister Rogers' Neighborhood: Hidden Foundations of Children's Learning

Olivia Struck, Mia Martin
Faculty Sponsor(s): *Makenzee Knott*
Discipline: Education

Fred Rogers says, "Where would any of us be without teachers- without people who have passion for their art or their science or their craft and love it right in front of us? What would any of us do without teachers passing on to us what they know is essential about life?" Through Mister Rogers' Neighborhood, Fred Rogers implemented a variety of education strategies. Through our research, we have examined how Mister Rogers brings education strategies out of the classroom and into the everyday lives of children.

50. Don Quijote vs. Po: A Timeless Character Comparison

Dakota Hershberger
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline: Modern & Classical Languages

First published in 1605, Don Quijote by Miguel Cervantes is still relevant to modern-day literature, music, and films. The knight's adventures are often comical and absurd yet illustrate meaningful life lessons with practical applications. The film "Kung Fu Panda" in particular parallels well to the classical novel in ways both comical and sincere, following Po's challenging yet gratifying development into the "Dragon Warrior" in a bildungsroman fashion. As unlikely heroes, Po and Don Quijote persistently chase seemingly unfeasible dreams, endure harsh criticism by others, and demonstrate well-meaning intentions in their pursuits. Maybe these characters overcome challenges due to detachment from reality, good luck, and wishful thinking, or maybe their persistence proves the power of positive thinking and self-confidence.

51. Up and Don Quixote: Unlikely Adventures

Cesar Guerrero
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline: Modern & Classical Languages

Reading Don Quixote throughout the semester has been an experience. We talk a lot in our class discussions about how Don Quixote is not only a good fictional story, but also how there are many real world examples and connections that we can make to modern media. One of those examples that connects really well with Don Quixote is Pixar's Up. A lot of similarities can be drawn from protagonists, sidekicks, and the adventures they embark on. Both stories follow an unlikely pair consisting of an older main character who is chasing dreams and fantasies, along with a sidekick who is more grounded but naïve at the same time. In each story, we see how the character's imaginative worlds contrast with the reality in which they live in. Both Don Quixote and Carl are trapped in the past in some capacity. Don Quixote keeps thinking back to the stories he read in the books of chivalry, while Carl keeps thinking about his late wife Ellie and the dreams they wanted to achieve together. The stories of Don Quixote and Up portray the value that holding on to ideals can have for people, as well as the emotional cost of living in a world that does not match one's dreams and expectations.

52. Don Quixote Comparison with Teddy Danials

Javier Tinoco
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline: Modern & Classical Languages

This project will discuss how Don Quixote relates to a well known movie character. You'll see that they have similar habits as well as ideas.

53. A Comparison of "Don Quixote" by Miguel de Cervantes to "Deadpool" from Marvel Comics

Trenten Ferree
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline: Modern & Classical Languages

Despite being written over four hundred years ago, many modern parallels exist within the work of "Don Quixote" by Miguel de Cervantes. This project seeks to compare the early 1600s Spanish novel with another modern work- your friendly neighborhood Deadpool- as they both use parodic heroes to challenge traditional notions of heroes. Both works use their main protagonist as the stars of their respective parodies. The two characters, Don Quixote and Deadpool, create humor through satire, irony, and absurdity. This comparison argues that although both works use comedy as their main driving attraction to their audience, more meaning lies behind their humor. These works do not use comedy merely to ridicule heroism, but also to reveal deeper themes such as suffering, the human desire for purpose, and more, in a way that almost reinforces the beliefs we hold when idolizing heroes. At the same time, "Don Quixote" and "Deadpool" critique society's tendency to idolize heroic figures, demonstrating how heroism can distort reality and promote unrealistic worldviews, thus creating hysterical, yet more meaningful irony beyond surface value.

54. Distorted Realities: Justice and Madness in Don Quixote and the Joker

Hailey Rossman
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline: Modern & Classical Languages

The majority of people think that reality and justice go hand in hand, but literature explains how it can be changed through personal perception. Don Quixote, written by Miguel de Cervantes, talks about an old man who decides to become a knight and adventure through towns in order to restore the knightly order to resolve societies problems. Joker, performed in several different comic books and movies, is a guy who creates chaos to challenge society including painting his face. They exist in different time periods and contexts but share key characteristics they want to share with the world. Similar attributes of characters in Don Quixote and the Joker, both control reality through their personal narration to seek fairness by idealized justice and chaotic justice.

55. Let's clean it right! Teaching proper santization and cleaning skills

Lindsey Lauffer
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline: Special Education

A single-subject instructional plan focused on teaching table cleaning and sanitizing skills to promote independent and vocational training was implemented with a 19-year-old female with Down Syndrome and mild intellectual disability who demonstrated delays in adaptive and life skills. The goal of this intervention was to increase independent skills and complete multi-step tasks in a work-based setting. The instruction was delivered in the Saint Vincent Community Center using a structured task analysis, visual checklist, and a least-to-most prompting. The student was taught to clean and clear tables. Progress was observed and monitored through verbal praise and visual cues to reinforce skill acquisition. This intervention supported the development of essential life and employment skills for individuals with intellectual disabilities.

56. One fold at a time: Developing vocational independence and emotional regulation

Sarah Yeskey
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline: Special Education

A single-subject research design was implemented with a 19-year-old female having Autism to evaluate vocational skill development and emotional regulation. The intervention focused on the skills necessary to fold clothing using a tool in a workplace setting. Along with this, the student's ability to accept constructive feedback while self-regulating and staying on task was measured. Proper and organized folding of clothing is a necessary daily living skill that is also essential in many potential vocations for the student. This aligned with her personal goals of both independence and helping others, such as her parents or future employers. Over several weeks, the student demonstrated increased independence and regulation with folding skills.

Poster Session 2: 4:15 - 5:30

1. Microbial Role in Alzheimer's Pathology and Neurodegeneration

Mateo Camacho
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline: Biology
A.J. Palumbo Student Research Endowment
Alzheimer's Disease (AD) is a neurodegenerative illness that affects 1 in 9 people above the age of 65 in the United States (Alzheimer's Association, 2024). AD has been declared a public health crisis by the World Health Organization. Scientific studies indicate that bacteria is correlated with AD pathology and prevalence. This research investigates the role of bacteria in degeneration of brain tissue. Sixty-three fish specimens (Giant Danios and Zebrafish) were exposed to Pseudomonas aeruginosa and/or Aeromonas hydrophilia bacteria via food and/or water inoculation. Following 3 weeks of low-dose, chronic exposure, brain examination did not yield any significant, observable anatomical changes across type(s) of bacteria or type of inoculation. The bacterial exposure did, however, appear to disrupt the gastrointestinal tract as fish presented with large, distended abdomens, potentially signaling a disruption of the gut-brain axis.

2. The Comparison of Soluble Caffeine on Biking Performance in Division III Collegiate Female Student Athletes

SaniAnne Jones
Faculty Sponsor(s): *Fr. Shawn Anderson O.S.B.*
Discipline: Biology
As society continues to grow as a highly technological based group, sedentary lifestyle is on the rise. This sedentary lifestyle is largely due to people sitting in front of screens instead of engaging in physical activity. This lack of physical activity leads to a variety of consequences such as physical and mental ailments, whereas an increase in physical activity leads to a healthier lifestyle. One potential way to improve this beneficial physical activity is an intake in caffeine. This study aimed to observe the effects of caffeine intake from soluble caffeine by measuring various physiological variables, for example tidal volume, heart rate, and respiratory rate, to name a few. This was done by observing stationary biking performance from a variety of Division III Collegiate female student athletes at Saint Vincent College.

3. The Effects of Chronic Caffeine, Nicotine, and Ethanol Consumption on Tricaine Methosulfate Anesthesia in Adult Male Zebrafish

Nicholas Gaydos
Faculty Sponsor(s): *Fr. Shawn Anderson O.S.B.*
Discipline: Biology
A.J. Palumbo Student Research Endowment

General anesthesia, which induces unconsciousness and muscle relaxation, affects several ion channels and receptors, primarily by enhancing inhibitory signals and suppressing excitatory ones in the central nervous system. Caffeine, ethanol, and nicotine alter neurotransmitter activity and receptor regulation, which can influence anesthetic metabolism and recovery. Lidocaine, although traditionally a local anesthetic, has emerging systemic roles in reducing postoperative pain by acting on sodium, potassium, and glutamate channels, as well as glycine and G-protein-coupled receptors. Zebrafish (Daneo rerio) serve as a valuable model for anesthesia research, with tricaine methosulfate commonly used to study sedation and recovery due to its effectiveness and compatibility with aquatic environments. In this experiment, sixty-six adult male zebrafish were divided into three cohorts and exposed daily to chronic concentrations of either freshwater, caffeine, nicotine, or ethanol for 14 days. During the third week, all fish were subjected to novel tank testing before being sedated with buffered tricaine methosulfate to assess response to anesthesia. After at least 12 hours, the fish were euthanized using tricaine methosulfate, and their weights and lengths were recorded. This process was repeated for two more cohorts over nine weeks.

4. Investigating the Effects of Curcumin on Inflammatory Hyperalgesia in Comparison to Traditional Nonsteroidal Anti-inflammatory Medication

Maverick Vaniel
Faculty Sponsor(s): *Fr. Shawn Anderson O.S.B.*
Discipline: Biology
A.J. Palumbo Student Research Endowment
Inflammation is one of the human body's first responses to immediate threats, but when this response becomes uncontrolled the result is a chronic state of pain and in many cases bodily dysfunction. Inflammation is associated with a heightened sensitivity to painful stimuli known as hyperalgesia. Traditional treatments for inflammation, steroids and nonsteroidal anti-inflammatory drugs (NSAIDs), often lead to unintended and harmful side effects. Curcumin, the active ingredient of a supplement known as turmeric, has the potential to treat inflammation. It was hypothesized that curcumin can act to decrease inflammation and associated inflammatory hyperalgesia to a greater extent in comparison to traditional treatment with NSAID, ibuprofen. In this experiment mice were injected with lipopolysaccharide (LPS), a potent inflammatory chemical derived from gram negative bacteria and were treated with either oral curcumin or ibuprofen. These mice participated in a series of tests to assess hyperalgesia to mechanical, cold thermal and hot thermal stimuli. Blood concentrations of IL-6 were also monitored as a means of assessing general systemic inflammation. Altogether this study evaluated the effectiveness of curcumin supplement for inflammatory pain.

5. Investigating the Effects of Sodium Benzoate and Vitamin C on Pre- and Post-Embryonic Development in Danio Rerio

Ryan Zimmerman
Faculty Sponsor(s): *Fr. Shawn Anderson O.S.B.*
Discipline: Biology
A.J. Palumbo Student Research Endowment

Sodium benzoate is a common food additive used to preserve acidic foods. While sodium benzoate is considered safe for human consumption, it has been shown to react with vitamin C under acidic conditions to produce the toxic compound benzene. Two experiments were conducted in this study; the first looked at the effects of exposure to different concentrations of sodium benzoate on hatch rate and survival rate of zebrafish, while the second looked at the effects of hatch rate, survival rate, final lengths, and brain, eye, heart, and body weights as concentrations of vitamin C increased in the presence of sodium benzoate. In experiment 1, increased concentrations of sodium benzoate appeared to significantly decrease survival rates and increase hatch rates in zebrafish. In experiment 2, vitamin C appeared to significantly increase hatching rates. Sodium benzoate and Vitamin C did not appear to significantly impact animal length or weight; however, zebrafish with embryonic exposure to sodium benzoate and Vitamin C appeared to have higher heart weights and lower eye and brain weights than controls. Despite this, the eye and brain weights appeared to increase as vitamin C concentrations increased while sodium benzoate was present. This indicates that Vitamin C could counteract the negative effects of sodium benzoate rather than increase its severity.

6. The Presence of Gender-Stereotyped Lyrics in Popular Music: A Content Analysis of NLE Choppa

Eric Harris
Faculty Sponsor(s): *Dr. Jessica Harvey*
Discipline: Communication and Media Studies

Media has grown immensely in many ways, as artists, TV shows, and films continue to be created to reflect the evolving interests of each generation. However, some media has been criticized for containing sexual and violent themes, as well as for the overall messages conveyed through these forms. One particular type of media that has faced criticism in mainstream discourse is hip hop music. Specifically, some rap lyrics include language that is interpreted as degrading and sexual, with certain references relating to sexual assault and violence. NLE Choppa, a popular rapper among today's teenagers, has been criticized for using derogatory lyrics in his music. This study aims to better interpret and understand the validity of that criticism by examining the lyrics across his albums and determining whether album popularity correlates with overall success.

7. Content Analysis: Fantasy Media's Portrayal of Empathy and Moral Reasoning for Adolescents

Morgan Mesich
Faculty Sponsor(s): *Dr. Jessica Harvey*
Discipline: Communication and Media Studies

This content analysis explores how youth-oriented fantasy media depicts empathy, and moral reasoning in ways that support adolescent growth. Focusing on Adventure Time, Avatar: The Last Airbender, and Spirited Away, the analysis examines how characters model emotional regulation and empathy, as well as how fantasy elements communicate emotional realism and moral reflection.

Using qualitative content analysis, seven episodes from each series and the full film of Spirited Away (divided into four segments) were analyzed through purposeful sampling. Each unit was coded using ten categories, including emotional expression, regulation, empathy (toward others and antagonists), moral dilemmas, character growth, mentorship, emotional realism, symbolic representation, and emotional tone, scored on a 0–2 scale.

Findings show consistently high levels of emotional realism, empathy, and character growth across all media. Emotional expression and regulation were frequently depicted, while empathy toward antagonists highlighted the importance of perspective-taking. Symbolic representation emerged as a dominant feature, with fantasy elements externalizing internal emotional states in accessible ways.

Overall, the results suggest that fantasy media offers a metaphor-rich, safe environment for adolescents to explore empathy, emotional regulation, and moral reasoning.

8. CLP Redesigned

Jaden Alesi, Grant Harsch, Shane Tomb, Daniel Hough, Logan Haberman
Faculty Sponsor(s): *Dr. Anthony Serapiglia*
Discipline: Computer Science

CLP, short for the Collaborative Learning Project, was something that started as part of the grant program for Saint Vincent's STEM division. It involved student lead study sessions in which a topic from a class was tackled in a more practical sense like what would be on a test. Since the grant program ended, CLP has been left in a state where its purpose is unclear, and professors are unable to keep track of it due to the rules that were in place from the grant program. We are proposing a technological solution to the problems CLP has currently. The biggest problem is an inability for professors to get info on who of their students is going to CLP until the semester is over. What started as a rule during the grant program era has now become an inconvenience, and we will address that by creating an application on the Saint Vincent CIS servers that professors can access to see the attendance of the CLP sessions for their classes. The application will also allow professors to create reports from their CLP sessions. It is set up to work with the current hardware setup for scanning student IDs and uploading them to the database we have set up for the application. This will streamline the information from CLP sessions getting to professors, so they will know how much of their class is taking advantage of CLP sessions.

9. Caritas: A Community and Charity Focused Web Platform

Ryan Bodner, Matthew Haines, Cassandra Lanza, Owen Miele, Chloe Ott
Faculty Sponsor(s): *Dr. Anthony Serapiglia*
Discipline: Computer Science

Community organizations and charitable groups form the backbone of local support networks, connecting donors, volunteers, and those in need within their communities. Yet without a dedicated online presence, many rely on fragmented communication channels that leave resources uncoordinated and needs unmet. In this project, a team of computer science and cybersecurity seniors at Saint Vincent College developed Caritas, a charity-focused web platform designed to unify resource offerings and needs into a single, accessible space. Using React and Vite for the frontend, Node.js and Express for the backend, PostgreSQL for data management, and Meilisearch for real-time searching, Caritas emphasizes performance, scalability, and usability. The goal of Caritas is to provide organizations a place to post and discover goods, services, and volunteer opportunities, while also establishing a public profile for those without an existing web presence, all without advertisement or engagement-driven algorithms. In doing so, Caritas aims to reduce the communication gaps that leave charitable organizations isolated, enabling more effective coordination and ensuring that fewer critical needs go unmet.

10. Bearcat Brain: An AI-Powered Tutoring App

Dylan Sever, Cameron Black, Owen Dzurko, Alexander Leskovanksy, Philopter Bassous
Faculty Sponsor(s): *Dr. Anthony Serapiglia*
Discipline: Computer Science

For our senior project, we built the Bearcat Brain. It is an AI-powered tutoring web application designed to help students study and get personalized help with their coursework whenever they need it.
The app is built using a React frontend so the user interface is clean and easy to navigate. For the backend, we are using FastAPI to handle the data quickly and tie in the AI features. Everything is hosted behind an NGINX web server to keep it secure and running smoothly. The main goal of Bearcat Brain is to make studying more effective by giving students an on-demand tutor. Instead of just searching the web for answers, users can ask the app specific questions and get clear, broken-down explanations and study help. It takes full-stack development and artificial intelligence and turns them into a practical tool that actually helps students improve their grades and understand their classes better.

11. Color Recognition and Safe Navigation Using the Elegoo Smart Robot Car

Marton Sziksz
Faculty Sponsor(s): *Dr. Sergio Paredes*

Disciplines: Computer Science, Robotics

The goal of this project is to create a fully automated robot, which will be able to recognize visual signals and respond safely to the sudden changes in the environment.

The project will integrate visual color recognition with an ultrasonic distance sensor to ensure safety measures and avoid collisions. The robot will be designed to detect at least three different, and trigger appropriate responses. Green will make the robot move forward, red will make it stop and blue will make the robot turn in one direction.

A finite state machine (FSM) will be used to control the robot using safety constraints and it will use states like, patrol, detect, response and return. While in motion, the ultrasonic sensor will continuously scan for obstacles ahead, preventing unsafe movements and collisions. Color detection will trigger the robot to change states. An example, if the robot detects a close object or a wall it will stop moving and alert the user, since its priority is its own safety.

The main objectives of the project are to achieve an accurate color recognition and maintain safety through continuous distance monitoring. Expected outcomes include a functional robot capable of responding to visual signals while adjusting its behavior based on proximity to obstacles, demonstrating automated color recognition with integrated safety measures.

12. PID-Based Object Tracking Robot Using the Elegoo Smart Car

Shane Tomb
Faculty Sponsor(s): *Dr. Sergio Paredes*
Discipline: Computer Science

This project focuses on developing an autonomous object-tracking robot using the Elegoo Smart Robot Car. The system integrates a camera and an ultrasonic sensor to enable the robot to follow a moving object while maintaining a specified distance. Object tracking will be achieved through color-based detection, using a predefined range of yellow-green shades (e.g., a tennis ball) to identify and locate the target within the camera's field of view. A PID (Proportional-Integral-Derivative) control system will be implemented to ensure smooth and stable motion. The robot will continuously adjust its position to keep the object centered in the camera frame while regulating its speed based on distance measurements from the ultrasonic sensor. This allows the robot to follow the target through both linear and non-linear paths while minimizing oscillations and abrupt movements.

If the object is temporarily lost, the system will initiate a search behavior by rotating the camera using a servo mechanism to relocate the target. Once detected again, the robot will resume tracking. The system will operate in real time using a continuous control loop, with sensor data guiding both navigation and speed adjustments.

The expected outcome is a reliable object-tracking robot capable of maintaining smooth motion, consistent distance control, and robust target reacquisition. This project demonstrates the integration of computer vision, feedback control (PID), and sensor fusion to achieve dynamic and adaptive robotic behavior.

13. Eyes on the Road with the Elegoo Smart Car

Jovany Philistin
Faculty Sponsor(s): *Dr. Sergio Paredes*
Discipline: Cybersecurity

This project focuses on developing an autonomous navigation system using the Elegoo Smart Car platform by integrating vision-based perception with ultrasonic sensing. The system will utilize a camera module to capture real-time visual data and an ultrasonic sensor to detect and measure distances to nearby obstacles. Basic image processing techniques, such as edge detection or simple object recognition, will be used to identify obstacles in the vehicle's path. Based on sensor input, the system will apply rule-based decision-making to control the car's movement, allowing it to move forward, turn left, or turn right to avoid obstacles. Due to hardware limitations of the Elegoo Smart Car, image processing may be performed using an external device, with processed data sent back to the car for execution. The objective of this project is to design an efficient and responsive obstacle avoidance system that demonstrates the integration of multiple sensing technologies. This project highlights key concepts in autonomous robotics, including real-time perception, decision-making, and system constraints in embedded environments.

14. Bearcat Weather: Raspberry Pi Based Weather Station

Justin Wrubel, Nicolas Serapiglia, Nicholas Smith, Kowonou Amouzou
Faculty Sponsor(s): *Dr. Anthony Serapiglia*

Discipline: Cybersecurity

A.J. Palumbo Student Research Endowment

This project focuses on contributing real-time weather data to the Citizen Weather Observer Program (CWOP) through the design and deployment of a student-built weather station at Saint Vincent College. After a previously installed campus system remained nonfunctional for nearly eight years, there was a need for accurate, accessible environmental data to support both academic research and participation in national meteorological networks.

The system is built using a Raspberry Pi 5 and a suite of sensors to measure wind speed and direction, temperature, humidity, atmospheric pressure, precipitation, and geographic location. Installed on the back of the Dupre Science Pavilion, the station continuously collects and processes data using Python scripts, which is then transmitted to CWOP for use by the National Weather Service (NWS) in forecasting and research.

In addition to external data contribution, the system stores structured data in a MySQL database and archives raw data in a public GitHub repository and a CIS department server, ensuring accessibility for students and faculty. This project provides a cost-effective and scalable solution for environmental monitoring while supporting both campus needs and national weather data collection efforts.

15. AI and Media: Exploring Creative Tools, Practical Applications

Peter Zito
Faculty Sponsor(s): *Mr. David Safin*
Discipline: Digital Arts and Media

This presentation explores how artificial intelligence (AI) can be used as a creative tool in digital media production. The focus is on hands-on experimentation with prompt writing, including refining descriptions, using specific keywords, and testing different prompting techniques to improve results. A variety of AI tools were explored, including ChatGPT, Sora 2, Runway, Adobe Firefly, Seedance 2.0, Kling 3.0 Omni, Veo 3.1, and Wan 2.7. Instead of industry research, the study centers on practical application creating a video using AI-generated images and transforming them into video content. The presentation also shows how using AI-generated images as references can improve consistency and quality in outputs. By comparing different prompt styles and tools, the goal is to better understand the strengths and limitations of AI in the creative process.

16. Enhanced Radiosensitization of Medulloblastoma Cells by CDDO-2P-Im Relative to Omaveloxolone

Kate Bollinger
Faculty Sponsor(s): *Dr. I. Mitch Taylor*
Discipline: Biochemistry

Medulloblastoma is a malignant pediatric brain tumor originating in the central nervous system. Current treatment involves surgical resection followed by chemotherapy and radiation, resulting in an approximate five-year survival rate. CDDO-2P-Im (2P-Im), a pyridyl derivative of synthetic oleanane triterpenoids (SOTs), has shown promise in other cancers due to enhanced plasma stability and distinct protein interactions. Omaveloxolone (Omav), a related SOT approved for Friedreich's ataxia, activates the Nrf2 pathway and may also have anti-tumor effects. To compare their efficacy in medulloblastoma, we performed colony-forming assays and Incucyte imaging using DAOY and UW228 cell lines. Colony assays showed reduced growth and greater radiosensitivity with 2P-Im at lower doses compared to Omav. Incucyte data confirmed stronger effects of 2P-Im at low doses.

17. Evaluating Biosorbent Selection for AMD Remediation: Impacts of Charring on Iron and Manganese Removal

Aidan Fraser
Faculty Sponsor(s): *Dr. James Kellam*
Discipline: Environmental Science

Abandoned mine drainage (AMD), a byproduct of historic coal and metal mining in Pennsylvania, significantly degrades aquatic ecosystems by lowering pH and introducing dissolved metals such as iron and manganese. Biosorption using organic substrates offers a low-cost remediation strategy, and thermal conversion to biochar may enhance adsorption capacity. This study compares the effectiveness of raw and charred biosorbents—pinewood, pinecones, and corn plant material—in removing Fe and Mn from AMD. AMD samples were exposed to each substrate under continuous agitation for three hours, then filtered and analyzed using microwave plasma atomic emission spectrometry (MP-AES). Pinewood achieved high Fe removal (84.06% raw; 91.61% charred), as did pinecones (92.20% raw; 91.40% charred), while cornstuffs showed lower but improved performance when charred (50.45% to 71.63%). Conversely, pinewood increased Mn concentrations substantially (207.35% raw; 311.43% charred), indicating net metal release. Pinecones and cornstuffs reduced Mn, with charred treatments improving removal. Due to limited replication, cornstuff data were excluded from statistical analysis. Welch's t-tests indicated a significant increase in Mn release for charred pinewood. This indicates that while charring can enhance metal removal, biosorbent selection is critical, as intrinsic metal content may worsen water quality.

18. Benthic Macroinvertebrate Response to Abandoned Mine Drainage

Stephen Laun
Faculty Sponsor(s): *Dr. James Kellam*
Discipline: Environmental Science

Macroinvertebrates are among the most important groups of organisms in stream ecosystems. They serve as bioindicators that can be analyzed to show what is happening in the surrounding environment. I hypothesize that macroinvertebrate species richness is directly proportional to water quality parameters, including dissolved oxygen, pH, water temperature, and electrical conductivity. I also predict that the spatial distribution of macroinvertebrate biodiversity is affected by abandoned mine drainage around Four Mile Run. For this project, macroinvertebrate sampling using two methods, along with water quality parameter sampling, was conducted at Four Mile and Monastery Run once a week for 10 weeks. Species richness decreased with declining pH, as more acidic waters stress organisms. Proven to be significant, the kick net method yielded more species than flipping rocks. Dissolved oxygen levels increased as water temperature declined. Species richness is affected by the environmental stresses put forth on the environment. This project expands understanding of the relationship between water quality parameters and macroinvertebrate species richness in aquatic ecosystems. Knowing which parameters (e.g., pH) and environmental variables (e.g., abandoned mine drainage) affect macroinvertebrate communities is important because these communities serve as unique indicators of stream health.

19. Climate Change's Impacts on Wildlife: The Race for the Poles

Nathan Schultz
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Many understand that climate change has extreme consequences for humanity. However, climate change also has the capacity to shift entire populations of animals. Not only are many animals facing pressure from the increased heat and acidification of the ocean, such as animals who rely on coral reefs, but the increased temperatures are shifting entire ecosystems toward the polar regions, as ideal temperature regions continue to move. This research looks at the direct effects of climate change on a region's fauna as being a mechanism for the movement of population boundaries, and the consequences brought about by the continued movement, such as population collapse due to altered ecosystems, or strain on ecological infrastructure.

20. The Effectiveness of Pleurotus ostreatus at Degrading LDPE Plastics Based on Plastic Size

Ben Hudson
Faculty Sponsor(s): *Dr. James Kellam*
Discipline: Environmental Science

Microplastics in the environment pollute bodies of water and fill landfills, harming the environment and the organisms that interact with them. A possible solution to this problem could be Pleurotus ostreatus, a mushroom that can degrade plastics. The size of the plastics can change how effectively the mushroom can degrade them. Pleurotus ostreatus is expected to degrade the smallest pieces of plastic, 5 cm^2, most effectively, and become increasingly less effective as the size increases, to 10 cm^2 and 15 cm^2. After the plastics are cut and weighed, they will be introduced to fungal cultures. The cultures will incubate with the plastics, and the plastic degradation will be examined by finding the percent weight loss in the plastic samples. Finding a way to solve the problems caused by plastic pollution is important, and having a solution that is naturally occurring has many advantages.

21. Fred Rogers: Entertainer, Producer, Engineer

Henry Theriault
Faculty Sponsor(s): *Ms. Sarah Goehring*
Discipline: Fred Rogers Scholars

Fred Rogers embodied multiple roles, including entertainer, producer, and advocate for children. He can be understood as an engineer who identified a societal challenge—the need for children to witness peaceful emotional expression and creative development—and applied his expertise to address it. Through the creation of Mister Roger's Neighborhood, Rogers provided a constructive platform for children to engage in emotional and creative learning in a supportive and effective manner. This study explores his approach as an engineered solution to social and developmental needs.

22. A Legacy of χάρις: A Study of Fred Rogers' Songwriting on the Development of Children

Isabella Snyder
Faculty Sponsor(s): *Emily Uhrin*
Discipline: Fred Rogers Scholars

The discography of Fred Rogers was investigated for evidence of 4 pillars of child development: Learn, Grow/Understand, Play, and Feel. It was found that many songs cover more than one concept and/or reinforce certain emotions. It has been proven that the works of Fred Rogers work to show children that change is not only okay, but normal and good. In a world where funding for public children's television is being cut, one must really think about the impact that the loss of quality children's television will have on the future of television and child development. In fact, on May 1st 1969, Mr. Rogers spoke to Congress about this exact issue. The work of Fred Rogers shows that songwriting can serve as a powerful but gentle way for children to not only know about emotions, but what they mean and how to navigate them.

23. An Advocate for Kindness: The Social and Developmental Reforms Championed by Mister Rogers

Matthew Dalton
Faculty Sponsor(s): *Emily Uhrin*
Discipline: Fred Rogers Scholars

Throughout his work as a children's television host, Mister Rogers impacted the world in countless ways with his calm demeanor and neighborly attitude. This project examines many of the different impacts that Mister Rogers had and specifically focuses on his advocacy for a variety of causes. Using a number of resources from the Fred Rogers archive along with other published articles and texts, this project showcases some notable examples of Mister Rogers' advocacy and his efforts to create a better community. The work of Fred Rogers will always be important in modern society and his defense of the ideals that he taught was something very central to his character. Some of the primary causes that are focused on in this project are Rogers' involvement in gaining funding for the growth of children's television, his push for greater understanding of childhood development, and his challenge to racial prejudices during the twentieth century. Although he is often remembered by many for his television appearances and lessons, Mister Rogers was a champion for many different causes and his work as an advocate is one of the greatest influences that he had on society.

24. Comparing Don Quixote to Las Meninas and the Question of Creation

Caden Horton
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline: History

Miguel de Cervantes wrote Don Quixote, and throughout the story, he places himself within his story through various methods, including narrating the story through the voice of fictional Arabic historian Cide Hamete Benengali, and the use of fake translators. In a similar fashion, Diego Velázquez painted Las Meninas, and he too places himself into his artwork, painting himself as a figure within the painting itself, making it unclear who is the observer, and who is being observed. In both cases, the question of who the author is and who the viewer is leaves the audience wondering what is really going on in both the novel Don Quixote, and the painting, Las Meninas. Rather than simply signing their works, both Cervantes and Velázquez embed themselves within their works in a way that was very forward thinking for their time. By doing this, they transform their works into subtle critiques on the process of creation itself, forcing the audience to think critically, not only about what they see/read, but about the process of creating. Cervantes uses Don Quixote's obsession with books of chivalry to blur the boundaries between fiction and history. On the other hand, Velázquez uses multiple perspectives within his art, blurring the lines between the artist, subject, and viewer. Together, these techniques force the audience to actively question who is responsible for what they see/read.

25. Rock and Roll: Voices of Peace during the Vietnam War Era

Jack Quinn
Faculty Sponsor(s): *Dr. Tim Kelly, Dr. Emily Arledge*
Discipline: History

A.J. Palumbo Student Research Endowment

This poster will show the relationship between Rock and Folk music in the peace movement of the 1960s and the responses from state and federal government in their attempts to silence them. It will highlight the turbulent and violent time of the Vietnam war era. This will be done through the perspective of the war's greatest critics in the musical community and specifically show stories of federal and state governments attempting to silence these messages and eliminate disagreement. The musicians primarily focused on will be John Lennon, Pete Seeger, and Bob Dylan. Primarily their contributions to the message of peace and ending of the war was shown in their music and that is what will be on display. New protest music from bruce Springsteen will show the evolution of protest music to the modern age.

26. Integrating GPS Nanosecond Timing Precision to Cosmic Watch Muon Detectors

Jude Pontzer
Faculty Sponsor(s): *Dr. David Grumbine,*
Discipline: Physics

In this experiment, we are attempting to integrate a Sparkfun GPS module into our Cosmic Watch muon detectors. The GPS module is able to measure time accurately down to the nanosecond, so instead of relying of millisecond precision provided by an Arduino micro processor, we can time stamp our cosmic events down to the nanosecond. This, newfound precision will be able to tell us more information about incoming cosmic ray showers. This experiment is a work in progress.

27. Developing a High Vacuum System for use in Inertial Electrostatic Confinement Fusion

Nicholas Cole
Faculty Sponsor(s): *Dr. David Grumbine*
Discipline: Physics
A.J. Palumbo Student Research Endowment

Inertial electrostatic confinement fusion is a method by which large differences in electric potential are applied across a region of high vacuum in order to facilitate fusion reaction events. Seeking to create a system capable of producing and measuring fusion reaction events, we have begun the development of a high vacuum system that utilizes a two-stage rotary vacuum pump, a vacuum gauge, and a cylindrical chamber. The system itself is controlled with a Python program on a Raspberry Pi 5.

28. Stellar Radio Luminosity Extremes and Prospects for SETI Broadband Radio Communication

A. Battaglia
Faculty Sponsor(s): *Dr. Daniel Vanden Berk*
Discipline: Physics

We examine the luminosity distribution of the largest sample of radio stars collected to date. Radio stars occur among all spectral types, including main sequence stars that could potentially harbor intelligent civilizations in stable solar systems. Radio luminosities from main sequence stars rarely exceed 1019 ergs/s/Hz. This indicates that SETI (Seach for Extraterrestrial Intelligence) broadband radio communications may be detectable at luminosities above this value. We have examined a set of radio star candidates to search for possible broadband SETI radio beacons.

29. The Relationships Between Humidity, Temperature, and Radon in the Atmosphere

Charles Sullivan
Faculty Sponsor(s): *Dr. David Grumbine*
Discipline: Physics

Using data from this year alone, the relationships between radon and humidity, in addition to radon and temperature, were measured. Both temperature and humidity have no significant correlation to the radon levels recorded, with the correlations being 0.195 and 0.312, respectively.

30. The effect of competency: Prediction, self-assessment, and new-tasks

Jeremy Bender
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline: Psychological Science

This study questioned whether pre-task competency training affects the accuracy of participants' performance predictions and post-task self-assessments and whether post-task feedback affects the accuracy of participants' post-task self-assessments. I hypothesized that participants who received pre-task competency training and/or post-task feedback would be more accurate in their performance predictions and post-task self-assessments. Participants were randomly assigned to receive competency training or not, predict their performance on a cognitive reflection test (CRT), and complete the CRT. Then, participants were randomly assigned to receive feedback or not and self-assessed their performance. Participants who received pre-task competency training made predictions lower than their performance on the CRT. Participants who received post-task feedback or competency training also made lower self-assessment than their actual post-task percentile rank. The accuracy of predictions and self-assessments depended on quartile rank. The results confirmed previous findings that feedback leads to lower self-assessments and show that pre-task competency training can lead to lower predictions and self-assessments.

31. The Impact of Alcohol and Drug Abuse History on Hiring Outcomes

Tamara Davis, Madeline Eagler, Elijah Miller
Faculty Sponsor(s): *Dr. Brandi Klein*
Discipline: Psychological Science
A.J. Palumbo Student Research Endowment

We examined hireability based on disclosure of prior alcohol or drug abuse. We predicted disclosure would reduce hireability ratings, and alcohol abuse would be evaluated better than drug abuse. Participants viewed a job ad, cover letter (randomly assigned to conditions: alcohol abuse, drug abuse, or no abuse), and resume. They then rated their likelihood of hiring the employee. Results showed no significant effect of disclosure, suggesting prior substance abuse history does not impact hiring likelihood.

32. Social Anxiety and Social Isolation as Predictors of AI Use for Social Applications

Giana Dalicandro, Faith Costa, Wesley Jividen
Faculty Sponsor(s): *Dr. Brandi Klein*
Discipline: Psychological Science

The purpose of the study was to see if social anxiety and social isolation were predictors for AI use for social applications. We hypothesized that both social anxiety and social isolation would be significant predictors of AI use for social applications. For this project, participants completed an online survey that consisted of three different scales that measured social anxiety, social isolation, and AI use for social applications. Our results did not support our hypothesis. Neither social anxiety nor social isolation were significant predictors of AI use for social applications. These two variables should not be used to predict social AI use.

33. Perceived Stress and Sleep Quality as Predictors of Avoidance Behaviors

Alex Steiner, Vanessa Roman, Eamonn Costello
Faculty Sponsor(s): *Dr. Brandi Klein*
Discipline: Psychological Science

The purpose of this study was to assess if perceived stress and sleep quality can predict avoidance behaviors. We hypothesized that both sleep quality and perceived stress would be significant predictors of avoidance behaviors. In our study participants took an online survey, where they answered questions related to their sleep, stress, and avoidance behaviors. Our results supported our hypothesis. These findings suggested that together sleep quality and perceived stress can predict avoidance behaviors in individuals; however, sleep quality alone cannot be used to predict avoidance behaviors. Overall, our findings may guide future efforts in understanding factors contributing to avoidance behaviors.

34. Strain, Morality, and Academic Behavior

Alexandros Fekos
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline: Psychological Science

This study examined the relationships between academic dishonesty, moral disengagement, and strain among undergraduate students. Academic dishonesty was examined through the theoretical frameworks of Agnew's General Strain Theory and Bandura's Moral Disengagement. It was hypothesized that strain and moral disengagement would be positively correlated with academic dishonesty and that the failure to achieve a positively valued goal would be the most predictive source of strain. Participants (N = 144) completed a survey assessing self-reported academic dishonesty, perceived strain, and implementation of moral disengagement mechanisms to predict the prevalence of cheating behaviors. Results showed that certain sources of strain, particularly those related to perceived academic pressure, are strongly correlated with moral disengagement and academic dishonesty. Findings may inform academic integrity policy implications moving forward and provide insight into the criminological mechanisms underlying student cheating. To the researcher's knowledge, this study is the first of its kind, which required the implementation of a new Strain in Academic Dishonesty measure to examine which sources of strain conceptualized in General Strain Theory are most prevalent in academia.

35. Globalization Before the Internet: The Transnational Phenomenon of The Beatles

Mia Martin
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Disciplines: Art Administration in Performing Arts, Art Education, Art History,

The 1960's band The Beatles are famously known for their music that was heard around the world. Pulling culture from many different areas of the world The Beatles managed to unite young people around the globe amidst a war-ridden and shell-shocked era of history. Using their discography and information that I learned on my trip to London, I have examined the long-lasting impact that The Beatles leaves on the world as their work speaks for them. They stand world-renowned by their emotionally charged acts of courage in a multitude of political climates. Through my research, I have explored the international influence that The Beatles had on the youth of America in a time without internet support or social media.

36. Beyond the Big Five: Small Press Publishing in Practice

Sarah Lazeski
Faculty Sponsor(s): *Ms. Michelle Gil-Montero*
Discipline: English
A.J. Palumbo Student Research Endowment

When many people hear "publishing," they think of New York and the Big Five publishing houses that dominate a significant share of the market. However, this view overlooks the wide ecosystem of small and independent presses that operate outside this center and play a vital role in shaping literary culture. Over the past year, I have worked as an editorial assistant for Eulalia Books, a small translation press affiliated with Saint Vincent College, where I have learned about each stage of the publishing process firsthand, applying and extending my coursework in a professional setting. These stages include manuscript preparation, editorial review, production, and publication. In addition to editorial work, I have tabled at book fairs and literary events, including the New Orleans Poetry Festival, where I gained experience in book sales and had the opportunity to network with publishing professionals. Together, these experiences demonstrate how small press work offers applied, end-to-end training in publishing practice, supporting the development of editorial, production, and marketing skills essential for a career in the field.

37. From Beatlemania to Hertiage industry: How London remembers The Beatles
Logan Cuomo
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English
This project dives into how the United Kingdom memorializes the Beatles and the city's transformation from just a band into an identity. The Beatles began as a working-class band starting in Liverpool in the late 1950s. They have since become one of the most recognizable cultural symbols in the world. This raises my exact questions how do places like London and Liverpool uphold their great legacy? What aspects of beademania are overemphasized and what aspects are forgotten? I would argue that the UK has tranformed their image of the Beatles from disruptive, youth-driven, created heritage, which was once described as "New Madness." With screaming fans, rebellion, and media frenzy has been repackaged into something more marketable. Today, the Beatles are no longer viewed as youthful chaos but as icons of British pride and global influence. This shift shows how cities selectively remember history in ways that align with the values of the present day. For further investigation, this project will focus on the physical locations of Abbey Road, Soho, and The Cavern Club, and how they reflect as focal points for observing their legacy. In addition, I was also taking a deeper look into the shops, markets, and vendors that sell Beatles memorabilia.

38. England in Word and Song--a set of poster presentations
Logan Cuomo, Nikolas Guidos, Mia Martin, Lydia Morgan, Pearl Russell, Kara Smith, Matthew Thomas, Aidan Upholster
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English
Eight students from the travel course "England in Word and Song" will present posters that connect their study of Shakespeare's Macbeth, Virginia Woolf's Mrs. Dalloway, and the words and music of The Beatles to their spring break trip to London and Liverpool, UK.

39. Working-Class Origins and Popular Art: How Class Identity Informed The Beatles' Lyrics and Personas

Pearl Russell
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English

From all aspects The Beatles were one of the most influential bands in history to have made a lasting impact on popular art and paving the way for more artists to experiment with their music. Exactly what made their lyrics so relatable and resonated with the working-class and youth of the 1960s-70s. The working-class and youth especially in England and the United States of America were the majority who connected with their music and public personas the most for many reasons such as accessibility and relatability to the songs. In understanding just how popular The Beatles got, their roots and history in a post-war Liverpool greatly influenced their many of their most popular songs and public personas. The Beatles had a respect and appreciation for where they came from in Liverpool, especially for their working-class origins and interests in popular art. In each of the band members' upbringing, like John Lennon and Paul McCartney's childhood, their working-class families in a post-war Liverpool informed their lyrics that then influenced the working-class identity and voices in mainstream media in Britain during the 1960's-70s. By examining the lyrics, visiting Liverpool's Music Museum, and The Beatles Museum, it made it clear why the working-class youth of the 1960s-70s, and today's youth connected with and cherished their music so much.

40. London as Political Stage in Shakespeare's Plays: How London's geography reflects power, monarchy, and public performance.

Matthew Thomas
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English

Shakespeare's plays often use London as more than just a setting—they turn it into a place where politics happens in front of everyone. This paper argues that different parts of London, like the royal court, busy streets, and taverns, represent different kinds of power. The court shows official authority and control, while public spaces show how ordinary people react and influence events. By moving between these places, Shakespeare shows that power is not just about being in charge, but also about how leaders present themselves and how people respond to them. In the end, London's layout helps show that political power depends on public opinion and performance, not just position.

41. Before/After Photography: Literary Sites Then and Now

Kara Smith
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English

This poster explores how literary sites in London have changed over time by comparing historic photographs with pictures taken on a class trip. Focusing on locations linked to writers like William Shakespeare and Virginia Woolf, it highlights how history, tourism, and modern life shape our experience of literature

42. From Liverpool to London: How The Beatles Became Global Icons

Nikolas Guidos
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English

This project explores how place shapes artistic development by examining the relationship between Liverpool and London in the rise of The Beatles. While Liverpool's working-class culture and status as a port city exposed the band to diverse musical influences and helped form their early sound, London provided the infrastructure that transformed them into international icons. Through analysis of key songs and visual documentation of important London sites such as Abbey Road Studios and Abbey Road itself, this project argues that cities function as creative engines, shaping not only artistic style but also cultural impact. By connecting music, geography, and history, the project demonstrates how The Beatles' evolution reflects the broader role of urban environments in producing global cultural movements.

43. Big Ben, Empire, and Time: How Woolf uses London landmarks to critique authority and imperial time.

Lydia Morgan
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English

This project looks at how Virginia Woolf uses famous landmarks in London to challenge power and control in her novel Mrs Dalloway. One main focus is Big Ben, whose loud chimes represent strict, official time controlled by the government and society.
Woolf compares this kind of structured time to the personal thoughts and memories of her characters, which don't follow a set schedule. By doing this, she shows how systems like the British Empire try to control people's lives.
Overall, this project argues that Woolf utilizes London's landmarks to critique authority and demonstrate that time and power are not as fixed as they appear.

44. Beatlemania as Cultural Protest

Aidan Upholster
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline: English

When the Beatles exploded in popularity in the early sixties, they changed more than just the music scene. The youth of Britain were quickly infatuated with this new boy band and their fresh style. Many young women seemed to fall in love with the four members while young men wanted to be just like them, starting the phenomenon known as "Beatlemania"—the hysterical and pop cultural obsession with the Beatles. This love for the Beatles eventually moved to North America with the "British Invasion" within American music. Touring the United States during the sixties, the Beatles interacted with and embraced the colorful and psychedelic aspects of hippie culture of the area, and their fans followed, deepening their place in the countercultural movements of the time and putting an even bigger target on their backs from the more conservative voices in power. My presentation will focus on how the Beatles changed the ways in which the youth of the time expressed themselves and the pushback they received by doing so.

45. Applying DMAIC to Improve Operational Performance at Ebara Elliot Energy

Cadence Smith, Ceronel Cerisier, Chrystiaan Sexton
Faculty Sponsor(s): *Mr. Mark Kachmar*

Disciplines: Management - Operational Excellence, Operational Excellence

This Lean Six Sigma Green Belt project examines inefficiencies within the Rotor division at EBARA Elliott Energy, specifically with the Methods Engineering handling of CNC programming requests. Currently, requests are often unstructured and lack clear prioritization, placing the team in a reactive "firefighting" environment and increasing the risk of errors. Using the DMAIC methodology, this project focuses on identifying root causes and developing a more standardized and efficient process. The goal is to improve workflow, reduce errors, and support more effective communication within the department. If successful, the proposed improvements have the potential to be implemented across other areas of the organization.

46. Don Quixote And The Truman Show: A Twisting Of Reality

Margaret Fatula
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*

Discipline: Modern & Classical Languages

Don Quixote and The Truman Show are explored through a comparative lens that stems from the twisting of reality in both works. It covers characters acting as another to garner intrigue, the concealment of truth, and even touches on characters who want to break the mold by snapping the protagonists out of their false reality. While both works may not seem similar at first, Don Quixote and The Truman Show have a lot in common despite being made during different time periods. Both cover a titular protagonist who is fully convinced that the world around them is real, even when lies make up the majority of what they see.

47. Misguided Heroes: A Comparative Analysis of Don Quixote and Wreck-It-Ralph

Corinne Bieber
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Disciplines: Spanish, English Analysis but for a Spanish course

Don Quixote by Miguel de Cervantes and translated by Edith Grossman, and the movie Wreck-It-Ralph by Rich Moore both exemplify characters who struggle with their identities and need for validation. Although the stories have two very different and distinct storylines, both Don Quixote and Ralph show similar traits when chasing after their goals. This essay explores their desire to do good for others, their struggles in identifying reality and their self-purpose, and their determination.

48. She's the Man vs. Don Quixote

Kyra Smith
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline: Spanish

In 17th-century Spain, women were viewed from a patriarchal standpoint as beings who should be submissive and in need of protection. Although the prevailing view held that women were inferior, some people, such as Miguel Cervantes, challenged this view and expressed more progressive attitudes toward women in his novel Don Quixote. Over time, the world has become a more progressive place in its view of women and their roles in society. The movie She's the Man, released in 2006, also challenges societal views of women and the roles they should play. By comparing Don Quixote and She's the Man, both works explore societal views such as misogyny, cross-dressing, and gender norms imposed on women.

49. Don Quixote Modern Comparison

Ashley Thiel
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Disciplines: Spanish, Classic Literature

Miguel de Cervantes, the author of "Don Quixote" (1605), tells the story of Don Quixote, a madman who believes he is a noble knight errant. One of the episodes that Cervantes includes in the novel is an interaction between Don Quixote and a group of Galley slaves. This scene leads to chaos and destruction through Don Quixote's misguided heroism, which presents the theme of good intentions that lead to chaos. Cervantes' ideas about this moral issue are seen in many examples of modern media. One parallel to this scene is the prison breakout in Guardians of the Galaxy (2014). The breakout scene from the prison called "Kyln", in Guardians of the Galaxy, reflects the same pattern as the Galley Slave episode in Don Quixote. They show how freeing criminals can create chaos, demonstrating the blurred line between good-intentioned heroism and recklessness.

50. Montane Cloud Forests and the Hydrologic Cycle

Rachel Saraceni
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline: Environmental Science

Montane Cloud Forests are incredibly delicate and rare ecosystems found at higher elevations at or south of the equator. They are characterized by their high elevations, averaging around 1,000 to 2,500 meters above sea level, incredible diversity in endemic plant and animal life, and propensity for constant rain and cloud cover. Due to their growing rarity, from both climate change and logging, public awareness of cloud forests is low; but a loss of montane cloud forest ecosystems is a cause for great concern, not just for the flora and fauna that live there, but for the humans that depend on the ecosystems' unique influence on the water cycle such as with reservoir replenishment. Because of climate change, precipitation patterns become less predictable and droughts become more frequent, highlighting the need for awareness and greater specific protection for montane cloud forests.

51. From mess to mastery: Teaching proper mopping skills in a vocational setting

Alexandra Pilyih
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline: Special Education

A single subject research design was implemented with a 19-year-old male having Autism Spectrum Disorder. The purpose of this interventions was to improve vocational skills, particularly independent cleaning skills, mainly focused on mopping. Results indicated steady improvement on the student's independence, consistently decreasing prompts needed. The findings show that direct instruction along with reinforcement can effectively support the development of functional life skills. Increasing vocational skills helped him to improve his independent living skills.

52. Snip, snip hooray! Teaching successful scissor skills

Abby Gundersen
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline: Special Education

A single-subject instructional plan was implemented with a preschool student in a general education classroom. This instructional plan was designed to develop scissor skills in a 4-year-old male student displaying symptoms consistent with Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD). The primary goal was to build fine motor control, increase independence in self-care tasks, and increase school readiness. The program consisted of clear, measurable objectives that emphasized safety, correct grasp, controlled snipping, and cutting precision. Progress was assessed through structured data collection tools measuring accuracy, interrater reliability, and procedural fidelity. The results demonstrate a clear relation between structured, evidence-based instruction and an improvement in the student's scissor skills.

53. Teaching independent living skills: A task analysis of vacuuming

Rachel Tallion
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline: Special Education

Over the course of the Spring 2026 semester, a student in the Bearcat B.E.S.T. program gained real-life job experience at Brookdale nursing home. The student is a 20-year-old male who is diagnosed with Autism. Through this study the student focused on the task of vacuuming. The goal was for the student to improve his ability to follow directions and stay on task. Vacuuming is an essential skill for the student that aligns with his vocational goals. The student was instructed through task analytic instruction including verbal prompting. Throughout the semester, the student demonstrated consistent progress, showing increased independence each week.

54. Developing Independent Living and Vocational Skills: Teaching Pizza Preparation in a Workplace Setting

Sr. Maria Ngat
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline: Special Education

Independent food preparation skills are essential for daily living and future employment. In this project, a 19-year-old student with Down syndrome was taught to prepare and pack pizzas during a vocational placement at Shop N Save. Task analysis using a forward-chaining approach was used to teach the skill in small, manageable steps. A least-to-most prompting hierarchy supported learning and increased independence in a natural work environment. The goal of this project was to improve the students' independence in completing multi-step job tasks and to support the generalization of these skills to future employment settings.

55. Testing how different supplements can affect a horse's gut microbiome

Kaitlyn Hare
Faculty Sponsor(s): *Dr. Michelle Duennes*
Discipline: Biology

A.J. Palumbo Student Research Endowment

This investigates how different dietary supplements affect the gut microbiomes of American Quarter Horses, specifically focusing on their potential for preventing or treating gastric ulcers and enhancing overall performance. Performance horses often face gastrointestinal issues such as colic and ulcers due to training and environmental stress, leading to the use of supplements like DAC Cool Gut and Purina Outlast. My hypothesis is that these supplements will significantly influence the gut microbial communities of horses, with one supplement proving more effective in promoting gut health than the other. To test this hypothesis, nine horses have been divided into three groups: one control group without supplements, one group receiving DAC Cool Gut, and another receiving Purina Outlast. Supplements were administered for two weeks during morning feedings at Jeff Prescott Performance Horses in Smock, PA. Fecal samples were collected and analyzed for microbial composition using DNA extraction with the QiaAmp PowerFecal Pro DNA Kit and subsequent 16S bacterial gene sequencing conducted by Jonah Ventures. Results from bacterial identification have been statistically analyzed to identify variations in microbial communities between groups.

This project will provide insights into the benefits of specific supplements for improving equine gut health and performance.

Quick Reference Guide For Student Locations

Project	Student First Name	Student Last Name	Discipline	Room	Time	Type	Poster number
63	Jaden	Alesi	Computer Science		4:15 - 5:30	Poster	8
131	Louis	Amatucci	Engineering	E-102	2:45 - 4:00	Oral	
44	Ava	Baeslach	Health Science		2:45 - 4:00	Poster	25
20	Anthony	Barle	Data Science		2:45 - 4:00	Poster	20
125	Anthony	Barle	Data Science	E-108	4:15 - 5:00	Oral	
160	Victoria	Barone	Data Science	E-108	4:15-5:00	Oral	
85	A.	Battaglia	Physics		4:15 - 5:30	Poster	28
26	Bella	Baumgardner	Biology		2:45 - 4:00	Poster	26
45	Eliot	Belli	Environmental		2:45 - 4:00	Poster	46
100	Jeremy	Bender	Psychological		4:15 - 5:30	Poster	30
145	Corey	Beougher	Philosophy	E-106	2:45 - 4:00	Oral	
102	Corinne	Bieber	Spanish		4:15 - 5:30	Poster	47
64	Ryan	Bodner	Computer Science		4:15 - 5:30	Poster	9
71	Kate	Bollinger	Biochemistry		4:15 - 5:30	Poster	16
163	Alicia	Boretti	Political Science	Planetarium	4:15 - 5:00	Oral	
126	Lucy	Brayton	Economics	E-108	2:45 - 4:00	Oral	
115	Cassandra	Bromke	Biology	S-201	4:15 - 5:00	Oral	
21	Joseph	Burke	Data Science		2:45 - 4:00	Poster	21
141	Soma	Burt	History	E-103	4:15 - 5:00	Oral	
56	Mateo	Camacho	Biology		4:15 - 5:30	Poster	1
137	Lauren	Campbell	English	Planetarium	2:45 - 4:00	Oral	
120	Ryan	Cawley	Criminology, Law and	Luparello	2:45 - 4:00	Oral	
15	kison	coates-edmondson	Mathematics		2:45 - 4:00	Poster	15
84	Nicholas	Cole	Physics		4:15 - 5:30	Poster	27
10	Sloane	Condo	Biochemistry		2:45 - 4:00	Poster	10
124	Eamonn	Costello	Criminology, Law and	Luparello	4:15 - 5:00	Oral	
46	Brianna	Coulson	Environmental		2:45 - 4:00	Poster	47
92	Logan	Cuomo	English		4:15 - 5:30	Poster	37
93	Logan	Cuomo	English		4:15 - 5:30	Poster	38
12	Elizabeth	Dacanay	Biochemistry		2:45 - 4:00	Poster	12
13	Elizabeth	Dacanay	Mathematics		2:45 - 4:00	Poster	13
87	Giana	Dalicandro	Psychological		4:15 - 5:30	Poster	32
78	Matthew	Dalton	Fred Rogers Scholars		4:15 - 5:30	Poster	23
101	Tamara	Davis	Psychological		4:15 - 5:30	Poster	31
16	Andrew	Downs	Mathematics		2:45 - 4:00	Poster	16
150	Leah	Duncan	Psychological	E-103	2:45 - 4:00	Oral	
144	Makin	Eitel	Philosophy	E-106	2:45 - 4:00	Oral	
149	Makin	Eitel	Political Science	Planetarium	4:15 - 5:00	Oral	
39	Margaret	Fatula	Computer Science		2:45 - 4:00	Poster	39
82	Margaret	Fatula	Modern & Classical		4:15 - 5:30	Poster	46
89	Alexandros	Fekos	Psychological		4:15 - 5:30	Poster	34
52	Trenten	Ferree	Modern & Classical		2:45 - 4:00	Poster	53
162	Trenten	Ferree	Biology	S-201	4:15 - 5:00	Oral	
146	Agnes-Rose	Fischer	Philosophy	E-106	2:45 - 4:00	Oral	
72	Aidan	Fraser	Environmental		4:15 - 5:30	Poster	17
117	Brooke	Garman	Chemistry	S-201	4:15-5:00	Oral	
58	Nicholas	Gaydos	Biology		4:15 - 5:30	Poster	3
3	Catelyn	Giaquinto	Bearcat BEST		2:45 - 4:00	Poster	3
40	Jonathan	Glassman	Environmental		2:45 - 4:00	Poster	40
116	Timothy	Gorman	Business Data	E-108	2:45 - 4:00	Oral	
50	Cesar	Guerrero	Modern & Classical		2:45 - 4:00	Poster	51
97	Nikolas	Guidos	English		4:15 - 5:30	Poster	42
107	Abby	Gundersen	Special Education		4:15 - 5:30	Poster	52
110	Kaitlyn	Hare	Biology		4:15 - 5:30	Poster	55

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Project	Student First Name	Student Last Name	Discipline	Room	Time	Type	Poster number
61	Eric	Harris	Communication and		4:15 - 5:30	Poster	6
161	Alyssa	Henderson	Data Science	E-108	4:15-5:00	Oral	
151	Kelcie	Herrmann	Psychological	E-103	2:45 - 4:00	Oral	
49	Dakota	Hershberger	Modern & Classical		2:45 - 4:00	Poster	50
79	Caden	Horton	History		4:15 - 5:30	Poster	24
75	Ben	Hudson	Environmental		4:15 - 5:30	Poster	20
1	Advera	Jeremia	Bearcat BEST		2:45 - 4:00	Poster	1
140	Isabella	Jolly	History	E-103	4:15 - 5:00	Oral	
57	SaniAnne	Jones	Biology		4:15 - 5:30	Poster	2
158	Lucy	Joyce	Theology	E-106	4:15 - 5:00	Oral	
32	Jack	Kaczmarski	Computer Science		2:45 - 4:00	Poster	32
122	Abigail	Karkowski	Criminology, Law and	Luparello	4:15 - 5:00	Oral	
23	Malley	Kotula	Biology		2:45 - 4:00	Poster	23
28	Jakob	Krumenaker	Biology		2:45 - 4:00	Poster	28
29	Jakob	Krumenaker	Biology		2:45 - 4:00	Poster	29
34	Cassandra	Lanza	Computer Science		2:45 - 4:00	Poster	34
54	Lindsey	Lauffer	Special Education		2:45 - 4:00	Poster	55
73	Stephen	Laun	Environmental		4:15 - 5:30	Poster	18
91	Sarah	Lazeski	English		4:15 - 5:30	Poster	36
41	Hanna	Leitenberger	Environmental Science		2:45 - 4:00	Poster	41
113	Jennifer	Long	Biology	S-201	2:45 - 4:00	Oral	
9	Lauren	Lucas	Bearcat BEST		2:45 - 4:00	Poster	9
17	Makenna	Maier	Mathematics		2:45 - 4:00	Poster	17
135	Jillian	Mannarino	Engineering	E-102	4:15 - 5:00	Oral	
90	Mia	Martin	Art Administration in		4:15 - 5:30	Poster	35
152	Kayla	McClucas	Psychological	E-103	2:45 - 4:00	Oral	
14	Amelia Grace	McVay	Mathematics		2:45 - 4:00	Poster	14
62	Morgan	Mesich	Communication and		4:15 - 5:30	Poster	7
121	Mia	Moore	Criminology, Law and	Luparello	2:45 - 4:00	Oral	
6	Klarenz	Moreno	Bearcat BEST		2:45 - 4:00	Poster	6
98	Lydia	Morgan	English		4:15 - 5:30	Poster	43
136	Sophia	Nelson	English	Planetarium	2:45 - 4:00	Oral	
132	Grace	Neubert	Engineering	E-102	4:15 - 5:00	Oral	
109	Sr. Maria	Ngat	Special Education		4:15 - 5:30	Poster	54
30	Skyler	Olp	Chemistry		2:45 - 4:00	Poster	30
42	Bailey	Olson	Environmental		2:45 - 4:00	Poster	42
18	Chloe	Ott	Mathematics		2:45 - 4:00	Poster	18
4	Olivia	Pavsek	Bearcat BEST		2:45 - 4:00	Poster	4
24	Julie	Peterson	Biology		2:45 - 4:00	Poster	24
68	Jovany	Philistin	Cybersecurity		4:15 - 5:30	Poster	13
106	Alexandra	Pilyih	Special Education		4:15 - 5:30	Poster	51
83	Jude	Pontzer	Physics		4:15 - 5:30	Poster	26
128	Giovanni	Porco	Economics	E-108	2:45 - 4:00	Oral	
43	Kristen	Prince	Environmental		2:45 - 4:00	Poster	43
80	Jack	Quinn	History		4:15 - 5:30	Poster	25
19	Chaely	Raynor	Mathematics		2:45 - 4:00	Poster	19
133	Jordan	Raynor	Engineering	E-102	2:45 - 4:00	Oral	
129	Zachary	Ridilla	Engineering	E-102	4:15 - 5:00	Oral	
157	Silvana	Rocco	Theology	E-106	4:15 - 5:00	Oral	
48	Hailey	Rossman	Modern & Classical		2:45 - 4:00	Poster	49
53	Hailey	Rossman	Modern & Classical		2:45 - 4:00	Poster	54
37	Steven	Rotonto	Computer Science		2:45 - 4:00	Poster	37
5	Jessica	Roycroft	Bearcat BEST		2:45 - 4:00	Poster	5
134	Lily	Rush	Engineering	E-102	4:15 - 5:00	Oral	
31	Brayden	Russell	Chemistry		2:45 - 4:00	Poster	31

Quick Reference Guide For Student Locations

Project	Student First Name	Student Last Name	Discipline	Room	Time	Type	Poster number
94	Pearl	Russell	English		4:15 - 5:30	Poster	39
138	Pearl	Russell	English	Planetarium	2:45 - 4:00	Oral	
130	Matthew	Sadusky	Engineering	E-102	2:45 - 4:00	Oral	
105	Rachel	Saraceni	Environmental		4:15 - 5:30	Poster	50
112	Jack	Sassani	Biology	S-201	4:15 - 5:00	Oral	
74	Nathan	Schultz	Environmental		4:15 - 5:30	Poster	19
153	Madison	Scola	Psychological	E-103	2:45 - 4:00	Oral	
36	Nicolas	Serapiglia	Computer Science		2:45 - 4:00	Poster	36
65	Dylan	Sever	Computer Science		4:15 - 5:30	Poster	10
11	Rebecca	Slate	Biochemistry		2:45 - 4:00	Poster	11
22	Cadence	Smith	Spanish		2:45 - 4:00	Poster	22
35	Nicholas	Smith	Computer Science		2:45 - 4:00	Poster	35
81	Cadence	Smith	Management -		4:15 - 5:30	Poster	45
96	Kara	Smith	English		4:15 - 5:30	Poster	41
103	Kyra	Smith	Spanish		4:15 - 5:30	Poster	48
111	Bethany	Smith	Biology	S-201	2:45 - 4:00	Oral	
77	Isabella	Snyder	Fred Rogers Scholars		4:15 - 5:30	Poster	22
147	Anthony	Sparta	Physics	S-201	2:45 - 4:00	Oral	
142	Caleb	Spillar	History	E-103	4:15 - 5:00	Oral	
88	Alex	Steiner	Psychological		4:15 - 5:30	Poster	33
25	Olivia	Struck	Education		2:45 - 4:00	Poster	48
86	Charles	Sullivan	Physics		4:15 - 5:30	Poster	29
66	Marton	Sziksz	Computer Science		4:15 - 5:30	Poster	11
108	Rachel	Tallion	Special Education		4:15 - 5:30	Poster	53
119	Alexander	Taylor	Criminology, Law and	Luparello	2:45 - 4:00	Oral	
148	Sofia	Tehrani	Political Science	Planetarium	4:15 - 5:00	Oral	
76	Henry	Theriault	Fred Rogers Scholars		4:15 - 5:30	Poster	21
104	Ashley	Thiel	Spanish		4:15 - 5:30	Poster	49
95	Matthew	Thomas	English		4:15 - 5:30	Poster	40
114	Braden	Thomas	Biology	S-201	2:45 - 4:00	Oral	
51	Javier	Tinoco	Modern & Classical		2:45 - 4:00	Poster	52
67	Shane	Tomb	Computer Science		4:15 - 5:30	Poster	12
27	Olivia	Trotter	Biology		2:45 - 4:00	Poster	27
38	Joseph	Turkovich	Computer Science		2:45 - 4:00	Poster	38
99	Aidan	Upholster	English		4:15 - 5:30	Poster	44
159	Luke	Vanden Berk	Theology	E-106	4:15 - 5:00	Oral	
59	Maverick	Vaniel	Biology		4:15 - 5:30	Poster	4
7	Cole	Vay	Bearcat BEST		2:45 - 4:00	Poster	7
143	Carolina	Walters	Philosophy	E-106	2:45 - 4:00	Oral	
156	Kaitlin	Waltman	Theology	E-106	4:15 - 5:00	Oral	
155	Jonah	Weaver	Public History	E-103	4:15 - 5:00	Oral	
118	Josiah	Weyandt	Criminology, Law and	Luparello	2:45 - 4:00	Oral	
8	Kassidy	White	Bearcat BEST		2:45 - 4:00	Poster	8
139	Joshua	Wiehagen	English	Planetarium	2:45 - 4:00	Oral	
154	Joshua	Wiehagen	Psychological	E-103	2:45 - 4:00	Oral	
2	Robert	Wiggers	Bearcat BEST		2:45 - 4:00	Poster	2
33	Justin	Wrubel	Computer Science		2:45 - 4:00	Poster	33
69	Justin	Wrubel	Cybersecurity		4:15 - 5:30	Poster	14
55	Sarah	Yeskey	Special Education		2:45 - 4:00	Poster	56
127	Jaret	Yonker	Economics	E-108	2:45 - 4:00	Oral	
47	Caden	Zambo	Environmental		2:45 - 4:00	Poster	44
123	John (Jack)	Zayas	Criminology, Law and	Luparello	4:15 - 5:00	Oral	
60	Ryan	Zimmerman	Biology		4:15 - 5:30	Poster	5
70	Peter	Zito	Digital Arts and		4:15 - 5:30	Poster	15