

Live Sessions & Extended Sessions, Abstracts & Schedule

Beginning at 9:00 AM (In-Person)

KIRKHOF CENTER 2263

Classics Capstone Research Projects I

Presenters: Melissa Bartlett, Hannah Foster, Kalli Reed-Saba, Elettra Rizzo

Mentor: Charles Ham

Amazons and the Acculturation of Athenian Girls (Melissa Bartlett)

In 5th century BCE Athens, women's roles were limited within society. They were expected to marry, bear children, and maintain the household. Yet, representations of the Amazon, who were a mythical inversion of the qualities that defined a "good" Athenian woman, enjoyed popularity in Greek literature and art. So much so that, young girls in Greece were given dolls in the form of Amazon warriors. While dolls can easily be dismissed as simply children's toys, they also play an important role in forming cultural expectations and norms in children. Therefore, I have studied ancient Amazon dolls as well as other exposures to the Amazon myth that Greek children may have had in order to explore the question of what role they may have played in the acculturation of Athenian girls. Research into the possible uses of the Amazon myth in acculturating children can help us to understand not only 5th century Athenian society, but also can perhaps shed light on the reception of Amazons by children today.

Giant Bones and Heroes' Weapons: Augustus' Attraction to the Wondrous and Monstrous (Hannah Foster)

I studied the interest that Augustus, the first Roman Emperor (31 BCE – 14 CE), had in collecting and exhibiting "wonders" or "biological curiosities." For example, Suetonius in his historical biography of Augustus tells us that Augustus displayed bones of "monsters" or "giants" and the "weapons of heroes" at his villa on the island of Capri (*Aug.* 72). In addition, Pliny the Elder mentions in his *Natural History* that Augustus displayed the bones of two "giants" in Sallust's Gardens in Rome (7.73-75). By looking at these accounts and others, I explore whether Augustus' interest in the "monstrous" is a part of the broader cultural discourse of the Augustan period. In particular, this research may serve to illuminate a connection between Augustus' "monstrous" interests and the antiquarian pursuits of Augustan culture, especially in literature.

Powerful Women? Medea, Dido, and the Question of Female Agency (Kalli Reed-Saba)

The Carthaginian queen Dido makes a relatively brief, but memorable, appearance in Virgil's *Aeneid*. While Virgil modeled Dido on a number of literary characters, I focus in this project on Medea in Euripides' tragedy *Medea* and Apollonius' *Argonautica* as models for Dido. Both Medea and Dido experience a similar narrative arc: they fall in love with male heroes, but their relationships end in tragedy. While it is common in ancient literary texts for gods to intervene in the lives of humans, it is not necessarily the case that humans are simply puppets of the gods. To what extent do Medea and Dido control their fate and to what extent are their actions constrained by divine and/or societal forces? Are Medea and Dido ancient examples of female empowerment? The question of women's agency and empowerment in the face of powerful external forces is still an urgent one today.

Extending Life in Ancient Greece: Myth and Science (Elettra Rizzo)

Not unlike today, the extension of life and the pursuit of immortality were common themes in ancient Greek cultural

discourse. These themes commonly appear in myths, such as those of Medea, Tithonus, and Sisyphus, but also in the writings of philosophers such as Plato and Aristotle. Aristotle, in particular, wrote several works bearing on these issues (*Youth and Old Age*, *Life and Death*, *Short and Long Lifespans*). By analyzing these sources, I explore the question of what ancient Greek attitudes were to the idea of prolonging one's life, and, additionally, of whether or not the beliefs on this topic presented by the mythological texts are different from the ones presented by the philosophical ones. Life extension and immortality are still widely discussed issues in modern medicine, and looking at these ancient texts might contribute to the ongoing debate of whether or not we should scientifically pursue these ideas, and how they might affect our society.

Beginning at 10:00 AM (In-Person)

KIRKHOF CENTER 2263

Grand Rapids Latinx History

Presenters: Nyala Ahmed, Aylinn Calderon, Frieda Campos, Andrew Ingber, Kristen Lach, Alexis Lilly, Hannah McBride, Jocelyn Medina, Maria Rueda-Rodriguez, Lillibeth Whelpley

Mentor: Nora Salas

Over its century-long history the Grand Rapids Latinx community has grown from just a few families to 16% of the city's population. This presentation shows how Mexican Americans, Mexican immigrants, Puerto Ricans, Cubans and other Latinx people navigated the social, cultural, and political realities of the city to make a new home in Michigan. We rely mostly on unpublished oral histories, local archives, and newspaper coverage to reconstruct this history as there are few published secondary sources. Our examination focuses on three community institutions prominent in the Grandville Avenue Neighborhood on the Southwest side of Grand Rapids. Between the 1950s and 1960s, St. Joseph the Worker Church shifted from serving a Dutch congregation to serving a predominantly Latino population, allowing immigrant families to feel a sense of belonging in their communities. Roberto Clemente Park, formerly Rumsey Park, has been significant to the Grand Rapids Latinx community, and a long-standing group of individuals used this space to make life possible for themselves in a place that had very little to offer them. Finally, the Latin American Council, formerly at 929 Grandville Avenue, was a grassroots community organization founded in the late 1970s where Latinx people celebrated their heritage in new ways.

Beginning at 10:00 AM (Virtual)

VIRTUAL VIRTUAL 004

Virtual Global Climate Change Symposium

Presenters: Leah Anderson, Kristin Davis, Jesse Goodyear, Kaytlin Poynter, Julia Shreve, Hannah Zylman

Mentor: Elena Lioubimtseva

(Leah Anderson, Kristin Davis)

"Climate Sisu" is the first documentary to address climate change and community resiliency in Michigan. Taking the audience on a journey from GVSU campus "Up North" in search of community knowledge about climate action, resilience, adaptation, and education, the documentary offers an urgent, yet optimistic call for climate action. It is a collection of powerful stories told by environmental activists, students, climate scientists, educators, farmers, winemakers, and urban planners, looking for climate change solutions in our state. "Sisu" is a concept known by many Michiganders, especially those who reside in the Upper Peninsula. It means "extraordinary determination,

courage, and resoluteness in the face of adversity”. Our team felt a deep connection to this word as we traveled throughout our state. Not only did we see first hand the work of those who embody Sisu in the midst of climate change, but we also felt the hope that they were creating. Rather than inciting action through fear and “doom and gloom” messages, these educators, citizens, and climate activists reinforced how fun and rewarding doing their part in creating a resilient future can be.

(Jesse Goodyear)

Assessing the vulnerability of Australian infrastructure to climate change and reviewing the implications of infrastructure planning can be a complex and multifaceted research topic. Recently, Australia witnessed the worst bushfire crisis seen in a generation, the overall catalyst being wild weather swings. After these fires, the east coast region was hit by significant flooding (2021/2022), which turned much of the dry, arid, cracked land into new drainage zones: many residential areas within those zones’ paths becoming severely flooded. Infrastructure becomes the last resort for many in finding safety during these periods. As an intensifying climate change exponentially increases, infrastructure planning has become a vital area of concern to protect as well as manage. This study identifies Australian infrastructure that is bearing the brunt of climate extremes and explores how the built environment can become more adaptable to this new era of climate change. When exploring the vulnerability of Australian infrastructure to climate change, data collection methods were crucial for the validity and accuracy of the report.

(Kaytlin Poynter, Hannah Zylman)

In recent years climate change has become one of the major topics in philanthropic agendas. Our study analyzes the role that private foundations play in equitable climate action and climate adaptation plans in the Upper Midwest (Michigan and Illinois). Our goal is to examine the best philanthropic practices and challenges for more equitable and inclusive approaches taking place in cities of different sizes supported through private funding [Kresge Foundation, Rockefeller Foundation, Bloomberg Foundation]. This study is based on the analysis of 5 case studies ranging from Traverse City, MI, Marquette City, MI, Grand Rapids, MI, Detroit MI, and Chicago, IL. Data collection and analysis include analyses of climate action and adaptation plans and related documents created by the cities, calls for grant proposals and reports published by the supporting private agencies, and interviews of professionals involved in the planning process. The strategies used in current climate change adaptation plans are examined with each city’s motivators and goals in mind to determine what aspects can be implemented in a future climate change action and adaptation planning for cities in the United States.

(Julia Shreve)

The Great Barrier Reef, located off the coast of Australia, is one of the world's largest and most diverse coral reef systems. Climate change is having significant and profound impacts on the health and survival of the reef and its inhabitants. Rising sea temperatures and ocean acidification resulting from increased atmospheric carbon dioxide levels are causing coral bleaching and death. Ocean pollution is exacerbating the problem by introducing harmful chemicals and waste products into the water. Additionally, increasing frequency and intensity of extreme weather events, such as cyclones and storms, are further exacerbating the damage to the reef. These impacts have far-reaching consequences for the biodiversity of the reef and the livelihoods of the communities that depend on it. Therefore, it is crucial to reduce greenhouse gas emissions and implement effective adaptation measures to protect the Great Barrier Reef and other coral reefs from the devastating impacts of climate change.

Beginning at 12:00 PM (In-Person)

KIRKHOF CENTER 2263

Mathematics and Applications

Presenters: Nicolas Delibero, Robert Dolan, Amelia Goetzinger, Evan Henning, Alaina Hogan, Katherine Mast, Bradley Monarch, Marshall Nicholson, Duc Phan, Jacob Ritsema, Kadence Rosinski, Lisa Shen, Andrew Wilson, Isabella Zelenak

Mentors: Feryal Alayont, Lora Bailey, David Clark, Firas Hindeleh

12:00 – 12:20 On the Classification of seven-dimensional solvable Lie algebras with $A_{5,1}$ nilradical (Robert Dolan, Amelia Goetzinger, Evan Henning, Duc Phan)

In this talk we give an update on the classification problem of the seven-dimensional solvable Lie algebras. We highlight our contribution to the case where nilradical is isomorphic to $A_{5,1}$.

12:20 – 12:40 Minesweeper with Errors (Alaina Hogan, Kadence Rosinski, Lisa Shen, Izzy Zelenak, Andrew Wilson)

Minesweeper on paper is a game played on a 2D grid of cells, some of which are marked with numerical clues that range between 0 and 8. Each clue indicates the number of mines adjacent to its cell. The goal of the game is to identify which unmarked cells contain mines when given the number of mines in the grid. We study the introduction of errors into a game, where an error is changing the value of a clue by 1. We examine the number of possible solutions in an initial game with errors introduced.

12:40 – 1:00 Edge Cover Sequences (Evan Henning)

Graphs are mathematical models used to represent relationships between discrete objects, where the objects are represented by dots (vertices) and any two related objects are connected with a line (edge). An edge cover of a graph is a subset of edges such that each vertex is an endpoint of at least one edge in this subset. It is known that the number of edge covers of path and cycle graph families are the famous Fibonacci and Lucas numbers, providing us with a new combinatorial interpretation of these sequences. We will discuss new sequences and new combinatorial interpretations that resulted as the edge covers of other graph families, and discuss the various methods employed to investigate these sequences.

1:00 – 1:20 Minesweeper with Missing Clues (Marshall Nicholson, Katie Mast, Nicolas Delibero)

Minesweeper on paper is a puzzle that involves a 2-D grid of varying dimensions. The goal of Minesweeper is to locate a given number of mines using numerical clues. These clues are inside the grid and indicate the number of mines in the eight adjacent squares. We study Minesweeper puzzles in which specific clues are missing. We examine when these puzzles are still solvable.

1:20 – 1:40 On the Classification of seven-dimensional solvable Lie algebras with $A_{5,2}$ nilradical (Robert Dolan)

In this talk, we give an update on the classification problem of the seven-dimensional solvable Lie algebras. We highlight our contribution to the case where nilradical is isomorphic to $A_{5,2}$.

1:40 – 2:00 Edge Covers of Graphs (Bradley Monarch, Jacob Ritsema)

Everything in our world is defined by relationships, whether they be between objects, concepts, or individuals. Thus, it is crucial that we have a tool to represent relationships in the world of mathematics. Graphs are mathematical models that, given discrete (separate) objects, are used to visualize relationships between those objects. We use dots (called vertices) to represent objects and lines joining those dots (edges) to represent the relationships

between them. In this talk, we will discuss our research pertaining to edge covers –the configurations by which every dot in a graph is connected by an edge to at least one other dot – including the various methods we employed to investigate this topic.

KIRKHOF CENTER 2270

Classics Capstone Research Projects II

Presenters: Hiro Briganti, Lynsey Masters, Lacey McGillicuddy, Miranda Schriedel

Mentor: Charles Ham

Hiro Briganti: Liveliness is Next to Godliness: Themes of Cheating Death and Time in Greek Mythology

Modern biomedicine is rife with realized and imagined methods of rejuvenation and longevity, but this is not a new ambition. The pursuit of youth or eternal life is a common motif in Greek myth, most often bestowed upon mortals by gods, and to varying effect. Non-deities who attempt or even achieve this power are meddlers; respected, feared, and sometimes punished. But could they have been onto something ahead of their time? When medical innovations such as organ transplants and blood transfusions were first introduced, its proponents were criticized as playing god. When figures in Greek myth attempt to extend life or youth, could the fear and otherness with which they're treated be because they were also seen as testing these boundaries between mortals and the divine? Was this fear baseless, or should it be carefully inspected as we continue to better our understanding of life, longevity, and youth? Here, I analyze Greek myths, especially the myths surrounding the figure of Medea, in order to explore ancient Greek attitudes towards this "meddling".

Lynsey Masters: Imagining Amazons: How We Got From Hypsiratea to Wonder Woman

This project explored the reception of the ancient Greek myth of the Amazons in William Marston's early *Wonder Woman* comics. Amazon women in Greek literature and art were often depicted as beautiful and strong but needing to be conquered by male heroes. With the creation of *Wonder Woman* in 1941 Marston, against the background of first wave feminism, claimed to offer a new kind of Amazon. By looking at Marston's reception of the ancient myth, this project explores whether Marston was effective in his attempt to reimagine the archetypal Amazon, or if he served to further perpetuate misogynistic themes. Contemporary popular culture is filled with reimaginings of ancient myth that make claims to empowering women, but this project demonstrates that there is value in subjecting those claims to critical examination, with the aim of illuminating how the Amazons can be used to change the narrative on strong female characters in the future.

Lacey McGillicuddy: Art Imitating Nature: Mathematical Structures Mirrored in Ancient Buildings and Art

In a famous example of art imitating nature, the mythical architect Daedalus was said to have created a perfect replica of a honeycomb using solid gold, which he gave as a gift to the temple of Aphrodite. The structure of honeycombs, an example of the *daedala tecta* or "skillfully worked buildings" of bees (Virg. G. 4.179), also served as a source of inspiration for some ancient scholars and architects. The Roman scholar Marcus Terentius Varro wrote the "Honeybee Conjecture" which created a theory on why the honeycomb shape was so significant mathematically. Along with the example of the honeycombs, I explore other cases of Greek and Roman artisans who based their art on forms found in nature. Also, I look into whether these structures were explored mathematically to see if the modern fascination with math in nature (such as the Fibonacci sequence seen in natural patterns) still existed back then.

Miranda Schriedel: Hippolytus the Amazon? A Study of Hippolytus' Amazonian Lineage

In this project, I studied the Greek mythological figure of Hippolytus, the son of the Athenian hero Theseus and

an Amazonian queen (either Antiope or Hippolyte, depending on the source material). Ancient texts rarely tell of an Amazon producing a son. When they do, the child is almost always insignificant or killed by the Amazons themselves, making the case of Hippolytus a rare one. Despite the apparent differences between the tales of the warrior women and Hippolytus, they both represent a rejection of the Greek institution of heterosexual marriage and are 'punished' for this rejection. In exploring texts like Euripides' *Hippolytus* and Seneca's *Phaedra*, among other ancient representations of Hippolytus' myth, I explore how Hippolytus' descent from an Amazonian mother has shaped his characterization and informed his myth.

Beginning at 2:00 PM (In-Person)

KIRKHOF CENTER 2263

Department of Psychology Oral Presentations and Award Ceremony

Presenters: Phuc Dang, Matthew Dickinson, Liam Hart, Jacob Maring, Emily Murray, Madison Wheeler

Mentors: Lawrence Burns, Robert Deaner, Mihaela Friedlmeier, Amanda Karsten, Benjamin Swets, Todd Williams, Michael Wolfe

Personal Values and Their Contribution to Financial and Subjective Well-Being (Phuc Dang)

Financial literacy is important to the success of emerging adults (Archueta et al., 2011) and is predicted by attributes such as personal and family characteristics and values (Gudmonson & Danes, 2011). Values are emotionally charged beliefs that refer to goals and motivations (Schwartz, 2012). Some suggest their guiding influence extends to financial socialization and well-being. Literature on materialism and extrinsic motivations find these constructs being inversely related to well-being, warranting further exploration. College students from the US (N=374) and Romania (N=175) answered questionnaires on values, financial outcomes, and life satisfaction. Values were assessed using the Portrait Value Questionnaire (Schwartz et al., 2001). Materialism was captured by the Material Values Scale (Richins, 2004). Life satisfaction was measured utilizing the Satisfaction with Life Scale (Diener et al., 1985). Results revealed that Romanians scored higher on the values of security, universalism, self-direction, stimulation, hedonism, achievement, and power. For both samples, the most important values were benevolence, self-direction, and hedonism whereas the least important were tradition and power. This study highlights the importance of considering cultural and social influences when investigating the connection between values, aspirations, and well-being in emerging adults.

Unearthing the "Earworm": The Impact of Catchy Songs on Working Memory (Matthew Dickinson, Brenden Wardlaw, Destinee Partain & Ashton Cove)

Catchy songs impair our ability to perform on verbal working memory (WM) tasks. Evidence shows that verbal WM scores are lower both during the music, and afterward, when they remain playing in one's head as a so-called "earworm". Researchers have attributed these effects to the fact that music occupies verbal WM resources in the so-called "phonological loop". However, less is known about the potential effects of catchy music on other aspects of WM. We sought to replicate these findings and expand upon them by including a spatial WM task. Participants completed a verbally mediated WM task and a spatially mediated WM task in blocks of music and silence, where we expected that they would continue to hear songs as earworms. Preliminary results indicate that catchy songs affected verbal WM compared to silence, but did not similarly affect a measure of spatial WM. These results are consistent with the notion that the deleterious effects of catchy songs on WM are limited to verbally mediated tasks.

Research, Student Scholarship and Beyond: My Academic Journey (Liam Hart)

As a recent graduate with a bachelor's in psychology and applied statistics, Liam will provide an overview of his academic research and reflect on its value for graduate school applications. In his freshman year, Liam began research in an exercise science lab before declaring psychology as a major. In his senior year (2022), Liam was awarded the "Excellence in a Discipline" and the "Robert Hendersen Leadership" awards. Since then, he has engaged in two separate lines of research in social and cognitive psychology which have led to peer-reviewed publications and several manuscripts in progress. As an integral part of his academic journey, Liam will reflect on his participation in the Student Summer Scholars program and discuss the benefits of such programs offered by the Office of Undergraduate Research and Scholarship (OURS). Liam will discuss the importance of faculty mentorship and how active involvement in a research lab has helped prepare him for graduate school and a career in research.

Do Men and Women Differ in Their Approach to Seeking Status in Rock Climbing? (Jacob Maring)

It has been frequently hypothesized that men are more likely than women to directly compete for status, yet there have been few direct tests of this claim. To address this, we are studying rock climbing, a sport where individuals seek status in ways that range from subtle to conspicuous. Our study's main prediction is that male climbers, relative to female climbers, will report more frequently engaging in climbing-related behaviors that display or show off one's abilities or accomplishments; however, men are not predicted to report more frequently engaging other social behaviors. We will conduct pilot studies to identify behaviors that function, within the climbing community, to seek status, help others, or strengthen social relationships. In the main study, a large sample of climbers will report their frequency of engaging in the behaviors identified in the pilot studies. We will test for sex differences while controlling for climbing experience and demographic factors.

Effects of Remote Vignette-Based Training on Social Initiations of Young Adults with Autism (Emily Murray, Haillie McDonough & Leah Fetzer)

People with Level 1 autism have few work opportunities compared to neurotypical peers due to differences in soft skills. This study evaluates a training package for conversational initiations at work. Participants are young adults with autism who are at least 16 years old. Prior to the study, an employer survey was conducted to examine (a) the social validity of experimenters' definition of appropriate conditions to initiate conversation and (b) whether vignettes were ecologically valid with respect to common conversational opportunities in the workplace. During Zoom-based training, participants with autism respond to written initiation scenarios based on three contextual decision-making factors (e.g., whether the individual was expecting to interact with them at that time). Additionally, investigators assess initiation decisions in simulated work scenarios before and after training.

The Narcissism/Vanity Distinction: Exploring Differences regarding Pride, Empathy, and Social Behaviors. (Madison Wheeler)

The purpose of this study was to answer whether narcissism and vanity could be distinguished as distinct personality constructs. It was hypothesized that based on traits of pride, empathy, and several social behavior variables narcissism and vanity could be differentiated. Correlation and regression analyses were conducted after participant survey data was collected. The results found that multidimensional vanity and narcissism traits reveal differences in their associations with pride, empathy, and social outcome variables of sensitivity to others, selflessness, and communal image management. When controlling for shared variance in the predictors the findings revealed independent associations with social outcomes and affirmed distinct relational patterns between narcissism and vanity with the criterion variables. Distinct relationship patterns between the types of narcissism and vanity are revealed and discussed. The differences in vanity and narcissism are thought-provoking as we seek to better understand intrapersonal motivations and feelings in which the predictors may differ fundamentally, and

how this may translate into variations in social behavior. This study calls for further research to continue evaluating vanity and its respective subtypes separately from narcissism to better understand these constructs within personality psychology.

Beginning at 5:00 PM (In-Person)

KIRKHOF CENTER 2263

IndieTrainer: Enabling Individuals with Cerebral Palsy to Receive Gamified Power Mobility Training in Their Own Manual Wheelchairs

Presenters: Kara Harrington, Jennifer Jenkinson, Brianna Kleikamp, Amanda Montgomery

Mentor: Lisa Kenyon

BACKGROUND: The IndieTrainer system, comprising both a mobility device and gamified training modules, was developed to aid powered wheelchair (PWC) skills acquisition in children with cerebral palsy (CP) or other similar condition. The aims of this small-scale study were to explore use of the IndieTrainer system to improve PWC skills in children who have CP and document parental/caregiver perceptions of, and satisfaction with, the IndieTrainer system. **METHOD:** This study was an open-label single-arm clinical trial involving a three-week PWC training intervention consisting of two 60-minute training sessions per week. A single session retention trial was held four weeks after the completion of the intervention period. Altogether, 25 child-parent/caregiver dyads will participate in the study. Each child participant will be 3 to 21 years of age and have a diagnosis of CP or other similar condition. The Assessment of Learning Powered mobility use will be the primary outcome measure. **RESULTS:** This session will report the outcomes attained by the first 11 child-parent dyads. **CLINICAL IMPLICATIONS:** The IndieTrainer system allows children to explore and use power mobility in their own manual wheelchair and was designed to meet the needs of power mobility learners across the continuum of learning.