



APRIL 24, 2026



**EASTERN  
CONNECTICUT  
STATE UNIVERSITY**



APRIL 24, 2026

**Schedule at a Glance**

Time	Student Center Meeting Rooms	Student Center Theatre	Betty Tipton Room	
8:30 - 9:00	Registration and Breakfast – Student Center Café			
9:00 - 10:30	Concurrent Sessions		Poster Set Up	
10:30 - 12:00	Concurrent Sessions		Poster Set Up	
12:00 - 12:45	Lunch – Student Center Café			
12:45 - 1:15	President’s Remarks and Awards Ceremony – Student Center Theatre			
1:15 - 2:15	Poster Presentations - Betty Tipton Room			Artwork Display
2:15 - 3:45	Concurrent Sessions		Jazz Performance Student Center Café	Wood Support Center Gallery Opening Reception @ 3 1:00 – 5:00



APRIL 24, 2026

CREATE stands for Celebrating Research Excellence and Artistic Talent at Eastern, and it is the University's annual conference showcasing student research and creative activity. The one-day conference includes talks, professional posters, live music, art exhibits, documentaries, and panel discussions. CREATE displays the vitality of Eastern as Connecticut's premier public liberal arts institution.

With Eastern's undergraduate research showcase now in its 26<sup>th</sup> year, CREATE serves to:

- Showcase excellence across all academic programs
- Reinforce high-impact practices such as mentored research and creative projects
- Increase the percentage of students presenting their research and creative work
- Allow students to demonstrate our liberal arts employability skills – critical thinking, ethical reasoning, creativity, communication, and quantitative literacy
- Raise public awareness of Eastern's uniqueness and the accomplishments of our students
- Contribute to the intellectual richness of our campus community

Thank you for attending CREATE 2026 and congratulations to all of our participating students for their hard work and academic achievements!

*Eastern Connecticut State University engages students from diverse backgrounds in a transformative, liberal arts learning experience that provides knowledge and skills to lead enriching, purposeful lives.*

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## Artwork Abstracts

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### **Overgrown**

Dakota Adams

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

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### **Crowding the Picture Plane — The Space of Excess**

Dakota Adams

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

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### **White on White: White Has Many Faces**

Dakota Adams

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

For this project we were tasked with painting a still life where every object was white. The challenge for the class was to capture the different shades and undertones of white. In my piece, I saw mostly blues in the shadows, and warm tones in the highlights.

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### **Immersive “Starry Night”**

Jazmyn Alvarez

*Faculty Mentor:* Soojin Kim (Art & Art History)

This interactive version of “Starry Night” which is originally painted by Vincent Van Gogh allows the viewer to interact with the artwork. The VR gives a 3D view to the painting. Viewers can also interact with the artwork by initiating an action to parts of the painting.

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### **Overgrown**

Roman Azzolino

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

An illustration intertwining the unruliness of nature to the human figure.

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### **Nova Levante**

AnnaLee Baker

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

Seasonal Landscape Exploration — Capturing Atmosphere and Color

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### **Still Life (Pattern)**

Keenan Blackington

*Faculty Mentor:* Lora Lee (Art & Art History)

Hand painted Acrylic still life's of various items: blueberries, a watch, an Altoids Tin, an 8 ball, a bottle, and a lock on a fence. A colorful pattern is interwoven next to the still life's. The pattern changes diagonally challenging the vertical alignment of the piece.

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### **Teakettle and Gourds Still Life**

Lindsey Cashman

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

This piece focuses on the composition and arrangement, as well as the relationships between the colors on the canvas. I created this still life painting using a limited color pallet, including only Alizarin Crimson, Yellow Ochre, Burnt Sienna, Titanium White, and Ivory Black. This pallet helps to create harmony throughout the piece, as well as the ability to really focus in on the different textures and how they contrast each other.

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### **My Life Stuck In One Square Foot**

Elise Clark

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

This piece is a diorama of a bedroom that reflects my struggles with depression and ADHD, which lead to being unable to keep my room neat and clean. Because of this, clothes and dirty dishes are scattered throughout. The bed on the ceiling was a decision made partway through the construction that is meant to cause confusion and make the room less welcoming.

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### **Roman Impressions: A Plein Air Collection**

Maura Cyr

*Faculty Mentor:* Robert Greene (Art & Art History)

Executed during a month-long residency in Rome, these artworks navigate the intersection of historical site and abstract interpretation. Utilizing plein air watercolor and graphite drawing, the project focused on translating firsthand observation into a language of form and color. These works do not merely document Rome's iconic landmarks; they investigate the tension between physical presence and perceptual abstraction. Developed through investigative artistic research and technical refinement, the series highlights a disciplined application of color theory and fluid brushwork. These highlighted pieces demonstrate a deepened mastery of watercolor and graphite mediums and a nuanced understanding of the environmental art-making process.

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## **Campfire Stories (From GASH Issue #2)**

Derek Denis and Drew Denis

*Faculty Mentor:* Thomas Drew (Art & Art History)

This work was created in ART 331 Picture Book Illustration. The scene depicts a group of men telling stories about the mysterious character of GASH, the main character of the story. The work was created with pencils and inks, later scanned to be digitally colored with the intent of distributing the comic book through the website Kickstarter.

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## **Lost and Found**

Kadie Dutton

*Faculty Mentor:* Robert Greene (Art & Art History)

This sculpture is a hand-welded crow constructed almost entirely from repurposed silverware, with knives forming layered wings that extend outward in a dramatic, mid-motion pose. The body is assembled from spoons and other utensils adding to the texture of the piece. Positioned over a cast-iron pan filled with assorted objects, the crow appears to be landing and guarding its treasures. The prompt for this sculpture was “stone and steel” and we were instructed to use both metal and stone elements in our pieces. To contrast the mighty crow, a small shiny stone sits in its beak. The piece explores themes of reclamation and transformation, turning trash into treasure. Crows are extremely intelligent and resourceful creatures, known for their curiosity as they observe their environment for items that stand out or serve a purpose. This sculpture reflects this quality in crows and transforms it into a piece that uses forgotten materials, turning them into expressive art. By combining reflective metal surfaces with an organic form, the sculpture invites viewers to reconsider the value of discarded materials and the potential for beauty and meaning through reconstruction.

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## **On The Hill**

Lynn Frazier

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

This landscape painting presents an abstract interpretation of a quiet barn resting on a hill in my town, created during a landscape art class. Inspired by the beauty of the hillside view, it reflects a sense of calm, solitude, and connection to nature which is important to me.

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## **Closing Up Lunchtime**

Keva Kaur

*Faculty Mentor:* Lora Lee (Art & Art History)

This digital painting reflects a state of mind. When plans get made with those who lost touch—they stop showing up, forgetting easily, and losing sight of the work we put in. After waiting for so long we learn when the best time is to finally pack up.

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## **Indigestion**

Lauren Kennedy

*Faculty Mentor:* Robert Greene (Art & Art History)

I created this life - if not a bit larger than life - size bear out of cardboard as both a challenge and a redemption. I wanted to push my own limits by going larger than any other sculpture I have done before. Developing my skills to do better than the first life-size bear I made for an installation earlier in the year was also a goal I strived to achieve with this sculpture.

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## **Life After Death**

Lauren Kennedy

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

This piece was created in response to the prompt "the passage of time" for a class project. It tells a fantastical story about a bear's improperly taxidermized head hung on a wall. And as time goes on, it slowly deteriorates and goes back to nature by providing a home for some mice.

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## **Chair Still Life**

Jenna Michaud

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

This is a painting of a cup and a chair still life we studied in class using techniques to exaggerate the colors in the white objects.

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## **Refined Elegance**

Julia Moulin

*Faculty Mentor:* Robert Greene (Art & Art History)

Refined elegance is a 16x8x6 mixed media sculpture made of soap stone and steel/metal components to explore the female figure. Through intensive stone carving and sanding, I was able to create a multi-textured rendering of a female pelvis in a contrapposto position. The harsh, deep grooves from the chisels juxtaposed with the soft, polished portions of the belly display the true nature of femininity. The spine portion is constructed of old wheel barrings and copper, twisted to portray the anatomy of the backbone. The incorporation of the metal chain intertwined in the vertebrae and effortlessly off the hips, blends the grace and beauty throughout the piece.

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## **Devilish Cherub's: Red Velvet Frosted Oat Cereal w/ Marshmallows**

Josephine Palmer

*Faculty Mentor:* Soojin Kim (Art & Art History)

This artwork was completed for Packaging Design (ART 330) in the Fall 2025 semester. My classmates and I were each asked to create an original box concept with a holiday theme. Mine was inspired by the aesthetics of Valentine's Day; heavy on the pink and red color scheme with Cupid

motifs. I decided to come up with my own Lucky Charms™-inspired breakfast cereal. This was not only for the fun of drawing a mascot, but also because I loved reading everything on cereal boxes growing up. Whether for the illustrations, nutrition facts, or the little puzzle games on the backside... It remains familiar and nostalgic. Professor Kim introduced us to the process of making dielines with bleeds and cutting lines, as they do in the mass production packaging world. We even got to fold our printed dielines into their proper box forms. It was certainly a fun project, but it also taught me the trials and errors of translating digital layouts into physical objects. I drew the box art in Procreate, but I relied on Adobe Illustrator and Photoshop for labels, dieline formatting, and logo typography.

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## **Seasonal Landscape**

Julio Pere

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

Seasonal Landscape Exploration — Capturing Atmosphere and Color

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## **From the Womb**

Yazmin Pereyra

*Faculty Mentor:* Robert Greene (Art & Art History)

This piece represents my experience being diagnosed with Type 1 Diabetes (T1D), a chronic illness caused by genetics or otherwise unknown origins, and how it is often a "hidden disease." The prompt for this project was to create a three-dimensional artwork out of non-art-related material, while having the material somehow connect to the content. I made a hollow fetus solely from glued juice boxes, the idea being to show the excessive amounts of sugar I have to go through every day as a diabetic to keep my blood glucose level. People with T1D can be diagnosed from when they are a baby all the way into their later years of life, but I thought it would be most effective to make my work in the image of an unborn child. On the fetus's arm it carries a glucose sensor, and on its thigh an insulin pump site with tubing that intertwines with the fetus's umbilical cord, both of which are created from the straws of the juice boxes. The fetus looks otherwise normal, showing that it would be difficult for someone who does not know of the disease to understand the underlying struggles diabetic people, especially children, have to face.

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## **Fall Feeling**

Julio Perez

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

This painting captures the quiet warmth of an autumn day. An inviting wooden bench rests in the foreground, suggesting a moment of pause and opportunity to sit, reflect, and absorb the fleeting beauty of the season.

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## **Lantern Still Life**

Keara Ward

*Faculty Mentor:* Afarin Rahmanifar (Art & Art History)

This is a painting of a still life we studied in class. The objects were arranged, and we were tasked with choosing an angle that we thought would be a successful composition. I challenged myself by exaggerating the color palette.

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## Oral Presentation Abstracts

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### **The Effects of *Diadema antillarum* on the Recovery of Coral Reefs in the Caribbean**

Camille Attle

*Faculty Mentor:* Joshua Idjadi (Biology)

The recovery of Caribbean coral from bleaching and disease can be influenced by herbivores who remove algae, providing space for corals to settle. On overfished Jamaican reefs, the primary herbivore is the long-spined sea urchin, *Diadema antillarum* which experienced a die-off in the 1980s and 2020s. We investigated how increasing urchin presence affects macroalgal cover across three Jamaican reef sites along the west coast. Using 0.25m<sup>2</sup> quadrats, we conducted a quadrat survey to compare percent cover of macroalgae, coral, invertebrates, and bare substratum between areas with and without urchins. Sites with higher urchin densities exhibited lower macroalgal cover and increased availability of settlement substrata for corals. This may promote future coral growth as it is known that macroalgae inhibit coral settlement through space preemption, shading, and chemical interference, while urchin grazing promotes crustose coralline algae which facilitates larval settlement. Other work on Jamaican reefs has demonstrated that reductions in macroalgal cover, can coincide with substantial increases in coral cover and recovery. Our findings support a top-down control mechanism in which *Diadema* grazing mediates benthic community structure, improving conditions for coral recruitment and survivorship. These results highlight the critical role of herbivorous urchins in reversing algal dominance and suggest that their recovery may provide hope for coral recovery in degraded Caribbean systems.

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### **Jazz in Japan: Cultural Exchange, Identity, & Anime**

Joshua Aziz

*Faculty Mentor:* Okon Hwang (Music)

Jazz in Japan began as an imported Western genre but quickly evolved into a distinct cultural practice shaped by postwar history, listening cultures, and transnational exchange. This project examines how Japanese animation (anime) reimagines jazz not only as a soundtrack, but as a narrative and cultural tool that expresses identity and hybridity. Focusing on *Cowboy Bebop* (1998) and *Kids on the Slope* (2012), this study explores how jazz functions differently across media contexts while maintaining its expressive core.

Drawing on scholarship in musicology and media studies, the project situates jazz within Japan's broader cultural landscape, where musicians and audiences have long negotiated ideas of authenticity and adaptation. Methodologically, this research combines textual and musical analysis, examining how sound, visual style, and narrative structure interact. *Cowboy Bebop* uses jazz through stylized editing and genre blending to construct atmosphere and character identity, while *Kids on the Slope* presents jazz as a lived, performative experience that shapes relationships and community.

Ultimately, this project demonstrates that anime transforms jazz into a flexible, transnational language, offering new insight into cultural exchange and the global circulation of musical traditions.

## **Financial Literacy in Parents: A Parent's Effect on Their Child's Future and College Education**

Ashlee Banda

*Faculty Mentor:* Pamela Days-Luketich (Economics & Finance)

This project studies the affect a parent's financial literacy has on their child's future and college education by researching studies and surveys performed on children and adolescents of various ages. Financial literacy and education courses are not widely provided in school systems in the United States with only 22.7% of high-school students having guaranteed access to personal finance classes. As a result, 81% of high-school students report having to receive their financial knowledge from their parents or guardians. Aside from financial education, parents play a vital role in deciding how their child will prepare for college and their level of success. On average, parents who endured financial struggles or hardships in childhood can cover 23% of a college's annual tuition compared to 34% for parents who reported no disadvantages. Background, race, and culture also play a role in financial literacy as habits may be formed due to beliefs. Overall, results indicate the issue stems from lack of financial education in schools with the solution being implementing more programs and courses in professional school settings. Programs should target all age groups beginning in earlier ages as studies show habits and positive relationships with finances are shaped from an early age.

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## **The Shrinking Spectrum: Four Decades of Narrowing Representations of Giftedness on Television**

Emily Bartoshevich

*Faculty Mentor:* Allison Speicher (English)

From *Head of the Class* (1986-1991) to *Malcolm in the Middle* (2000-2006) and *Young Sheldon* (2017-2024), school-based comedies have always had a prominent role in television. While all of these shows take place in schools, their similarities extend further; each features characters who exhibit strong traits of giftedness. As long as there have been school-based comedies, high-achieving, intelligent students have been a staple archetype. While high-achieving and gifted are two distinct categories, they frequently overlap on screen and in real life. Although school sitcoms have been widely studied, few studies focus specifically on shows that feature characters requiring differentiation. As the landscape of sitcoms has changed, the range of personalities among gifted characters has plummeted. There is a strong link between the introduction of *The Big Bang Theory* and a decline in diversity among this niche group of characters. Since the show premiered in 2007, the majority of gifted characters fit within one stereotype. The following presentation uses comparative analysis to examine this decline in representation and its impacts on images of teachers and administrators. In doing so, it highlights how the narrowed portrayals of giftedness shape the perception of identified students and the educators responsible for their success.

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## **Mega-Events and Their Economic Effects**

Ava Basak, Brady Richardson, Rasheen Grant, Erik Huffman, Ethan Pancoast

*Faculty Mentor:* Steve M. Muchiri (Economics & Finance)

Mega-events such as the FIFA World Cup and the Olympic Games are often promoted as catalysts for economic growth, urban development, and global city rebranding. However, their impacts are far more complex and multidimensional. This poster examines both the potential benefits and unintended economic consequences associated with hosting mega-events. On one hand, host cities may experience infrastructure expansion, increased tourism, and enhanced international visibility. On the other hand, these events frequently impose significant financial issues, including long-term public debt, high maintenance costs, and the inefficient allocation of resources. The analysis also explores key economic concepts such as opportunity cost, the crowding-out effect, where local businesses and consumers are displaced due to rising prices and congestion, and the “winner’s curse,” in which cities overbid and overpromise in pursuit of hosting rights. By drawing on real-world examples and current global events, this poster aims to provide a balanced understanding of whether mega-events generate sustainable economic value or create lasting financial strain for host cities.

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## **Aubrey Beardsley’s Cracked Looking Glass Closet**

AJ Beaugard

*Faculty Mentor:* Maeve Doyle (Art & Art History)

How can we talk about the lived queer experiences of disabled people who live in repressive societies, particularly in Victorian England which was rife with eugenicist and anti-queer laws? Victorian artist and writer Aubrey Beardsley was diagnosed with tuberculosis at age seven, making him subject to laws restricting activities for consumptives. As a consumptive and a queer person, Beardsley was part of two classes legally forbidden from expressing their love in public or private. Still, Beardsley moved in queer circles: his art illustrates the writing of Edgar Allan Poe and Oscar Wilde, and his writing graces the pages of the scandalous *The Yellow Book*. Beardsley presented himself as a dandy, as grotesque, and as a pervert. This helped keep him closeted, fight stereotypes of consumptives, and flag his true identity to those in the know. Through his art, we can see how he used these three aspects of his life to craft his self-imposed glass closet.

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## **Impact of Child Health Status on Parent-Child Relationships**

Olivia Bourque

*Faculty mentor:* Caitlin Vasquez-O'Brien (Psychological Science)

Children with health complications may have more relational difficulties with parents. In an observational longitudinal study, child health and BMI were relatively stable across time and both high BMI and worse health predicted less warmth and more control from their parents. Worse child health also predicted more parent-adolescent conflict, and higher BMIs were linked to more conflict and a lower-quality relationship. Poor child health status may contribute to adverse parental behaviors and a future worse parent-child relationship.

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## **Multi-Hyphenate Authorship in Film and Theatre**

Zolei Arí Burgos

*Faculty Mentor:* Alycia Bright-Holland (Communication, Film, & Theatre)

As a multidisciplinary theatre artist, filmmaker, and actor, my work is shaped by a multi-hyphenate approach to authorship that blends performance, directing, writing, and visual storytelling. Drawing from experience in rehearsals, props and design, actor-focused directing, and independent filmmaking, I move between mediums to explore how each form offers different tools for building character-driven, emotionally grounded work. This approach highlights how cross-disciplinary fluency can expand creative possibilities and challenge traditional production structures.

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## **Eastern CT State U Campus Connect App: Promoting Campus Engagement**

Henry Bustell, Nico Agresti, Anna Cox

*Faculty Mentor:* Niki Kunene (Accounting & Business Information Systems)

Attendance for campus events is generally low at Eastern, especially among commuters. We believe this is because students are not typically aware of what events are happening and when. We propose an app that allows students to easily view upcoming events on campus. We surveyed Eastern students to gauge interest in such an app and its design features. The data collected provided us with a better understanding of what the campus community is looking for. Based on this, we decided a key feature will be that events on the app will be classified by event-type, such as ...residential hall, department/program, student club events, or Campus Activity Board (CAB) events. Students will be able to set up their default resident hall or department to receive specific event-type notifications which will include event location and start-time. To reduce frivolous postings, designated students and faculty/staff will have access to post upcoming events. App users will be able to comment on events which will give real-time insights that strengthen the application's intended objective, event promotion. Our survey questioned the purpose of event attendance, as well as if better awareness of events would translate to better turnout. The overwhelming majority would attend more events with better awareness. Our measure of success will be the completion of an application that will resolve the issue of low campus event attendance.

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## **Staging Confinement: Directing No Exit for a Modern Audience**

Zoe Calhoun

*Faculty Mentor:* David Pellegrini (Communication, Film, & Theatre)

This presentation explores my directorial approach to No Exit, focusing on how psychological tension, spatial confinement, and interpersonal dynamics shape the audience's experience. Rather than portraying hell as a physical space of torture, this production emphasizes the emotional and relational torment that emerges between the three characters. Through intentional staging, actor movement, and pacing, I examine how stillness, proximity, and eye contact can heighten discomfort and reveal shifting power dynamics.

My concept centers on creating an environment that feels both inescapable and unstable, where the room itself reflects the characters' internal unrest. Design elements, including lighting and set structure, work to reinforce a sense of pressure and unease, suggesting that the characters are trapped not only with each other, but within themselves. Additionally, I discuss the rehearsal process

and how I guided actors in developing layered performances that balance realism with heightened tension. By focusing on subtext and emotional rhythm, this approach aims to make the existential themes of the play accessible and immediate for a contemporary audience. Ultimately, this production seeks to immerse viewers in the unsettling realization that the greatest source of suffering lies in human connection itself.

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### **The Gayageum: Reflecting Traditional Korea**

Christina Cherniske

*Faculty Mentor:* Okon Hwang (Music)

The gayageum is a twelve string Korean zither created during the Three Kingdoms period (57 BC – 668 AD). It was invented by King Kasil of the Gaya Kingdom, who took inspiration from the Guzheng, the Chinese zither. The gayageum provides a window into Korea's past, its culture, and the people's ideologies. By examining its role in the music of the aristocracy and common folk, we can create a diverse picture of traditional Korea. Furthermore, the gayageum was not left behind as Korea developed into the country it is today. It became Korea's national instrument and is still performed in new and old ways, preserving its legacy and expanding its musical versatility.

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### **The Permanence of Racism and the Practice of Racial Courage**

Kairi Cobb

*Faculty Mentor:* Karl Stocker (Political Science, Philosophy, & Geography)

This presentation examines Jacqueline Scott's concepts of racial nihilism and racial courage, building on Derrick Bell's claim that racism in America is permanent. Racial nihilism refers to the hopelessness that arises when a person of color confronts the permanence of racism and feels that meaningful change is impossible. Racial courage is Scott's response: accepting the reality of racism without collapsing into despair and choosing to create meaning, identity, and community anyway. By connecting these ideas to modern examples of racism's evolving forms, I will argue that resisting racial nihilism is a continuous practice and that racial courage is necessary for creating hope and healthier self-identities.

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### **Divided Against Oneself: The Biracial Experience in the American South**

Elisabeth Craig

*Faculty Mentor:* Stacey Close (History)

During slavery, biracial people faced unique prejudices based on the one drop rule: wherever you went, your black ancestry would follow you, and more often than not you would be confined to slavery. A mixed person's existence was typically the result of a white master sexually abusing a black female slave. Mixed women would carry on this position by being sold as concubines. The men were typically confined to the fields and treated accordingly with the rest of the slaves. Using the accounts of famous individuals such as Frederick Douglass, my research assesses the mixed experience in the antebellum south and define the specific disadvantages they had in segregated American society.

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## **Culturing of Polypore Species for Mycelial Bio-Block Materials**

Derek Davis

*Faculty Mentor:* Jonathan Hulvey (Biology)

Mycelium-based bio-blocks are an emerging sustainable alternative to traditional synthetic materials, offering a biodegradable and renewable option for construction and design. This project will investigate the growth and mechanical properties of bio-blocks produced using *Trametes versicolor*, a polypore fungus known for its dense hyphal networks and strong binding capabilities, as well as other polypore species that have not been investigated as options. Cultures will be derived from a wild specimen collected at the ECSU Arboretum and grown under the stable conditions of a laminar flow hood to avoid contamination. These plates of the samples will then be transferred into grain spawn to increase the growth of hyphae for the formation of bio-blocks. The resulting bio-blocks, molded into 500 ml beakers, will undergo compression testing to evaluate mechanical performance. By examining how environmental conditions and fungal interactions influence material strength, this study aims to advance the development of living, biodegradable composites with optimized growth efficiency and durability.

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## **Dissolving Boundaries: Psychological Breakdown Via Audience Participation in Dionysus in '69**

Ivy Davis

*Faculty Mentor:* David Pellegrini (Communication, Film, & Theatre)

This presentation examines *Dionysus in '69*, a landmark experimental theater piece from 1970 that challenged traditional boundaries between performer and audience. Drawing on reader-response theory, the analysis shifts between a critical perspective, and a conjectural audience member's viewpoint, to explore how psychological dysfunction can be observed and created, not only by observation, but participation as well. Rather than simply depicting the dysfunctional society, the performance actively portrays it through improvisation, and a group experience. In his adaptation of *The Bacchae*, Schechner transformed Euripides's Greek tragedy into a modern social experiment that dissolves individual identity. Key scenes, such as the opening ritual, and the ecstasy scene, demonstrate how performers and audience members become part of a shared, trance-like environment. The film, one of the first by noteworthy director Brian dePalma, uses split-screen to further reinforce this idea, symbolizing divided identity and the tensions between individual self-control and group influence.

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## **Hartford: Rising Complaints with Older Housing**

Kaliya Dawkins

*Faculty Mentor:* Alex Citurs (Accounting & Business Information Systems)

This study examines the association between neighborhood housing structure ages and the volume of housing related 311 non-emergency city service requests in Hartford, Connecticut. Analysis will be done using neighborhood level data on the proportion of housing units built before 1940 and six categories of 311 complaints: Exterior Garbage/Debris, Rodent Complaints, Housing Code Issues, Overgrown Vegetation, Trash/Recycling Pickup, and Trash/Recycling Violations to evaluate whether older housing stock corresponds with increased complaint activity. Descriptive statistics

and visual analytics, including scatter plots and neighborhood comparisons, reveal a clear positive relationship: neighborhoods with higher percentages of pre 1940 housing consistently report greater numbers of housing related complaints. Neighborhoods such as Frog Hollow, Northeast, Barry Square, and Upper Albany exhibit both substantial concentrations of older housing and elevated complaint totals. Complaint type distributions further show that Exterior Garbage/Debris is the most prevalent issue in the majority of neighborhoods, indicating persistent exterior maintenance challenges associated with the aging structures. When isolating complaints specifically linked to pre 1940 units, the pattern remains consistent, reinforcing the observed association. Overall, the findings suggest that the age of the housing stock is a significant factor related to the frequency and nature of housing related 311 complaints across Hartford neighborhoods.

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### **Development of a Course Planning Tool and Syllabus Generator**

Jessica Day, Audrey Evelina Windrow, Cameron Senna, & Sencere Rabel

*Faculty Mentors:* Garrett M. Dancik (Computer Science), Courtney Brocius (Political Science, Philosophy, & Geography), Lora Lee (Art & Art History)

We present the design and implementation of a Course Planning Tool developed for faculty at Eastern Connecticut State University. The project goal is to automate syllabus generation and assist professors when designing a course. Effective syllabus planning is important in academia, as it plays a critical role in ensuring student success within the classroom. We first developed a Figma prototype of the tool, and created graphics for the site. We then developed the front-end in React, JavaScript, and TypeScript, and a JavaScript Object Notation (JSON) rendering engine in order to dynamically generate pages from JSON files. This architecture promotes modular feature extension while keeping scalability and maintainability for future development. We developed the backend using Python/Flask and use Google Firestore to store course information. An API call to the backend uses the docx Python module along with a template syllabus in order to generate the syllabus for the current course. The development approach enables the tool to be adopted at other institutions as well. Our presentation will demonstrate the features that we have implemented, as well as highlight challenges when developing this tool. A preliminary version of the tool is available from: <https://courseplanningtool2.pages.dev/>.

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### **Sustainability During Move-Out at ECSU: Behaviors and Perceptions of On-Campus Residents**

Amanda Tozatto Edinil De Farias, Katelyn Gottier

*Faculty Mentor:* Sukeshini Grandhi (Business Administration)

Moving out of residence halls at the end of the academic year often creates a large number of unwanted items, such as furniture, clothing, appliances, and dorm supplies as students no longer need or cannot take home. On many college campuses, these items end up in dumpsters, even though they're still usable, contributing to unnecessary waste and environmental harm. Previous research shows that factors such as convenience, awareness, and access to sustainability resources strongly influence whether students choose to donate or throw away usable items, this study aims to explore whether these patterns also exist at Eastern and identify ways to better support sustainable move-out behaviors on campus. We use a mixed-methods approach including interviews, observations, and surveys to collect data from a small sample of students living in Eastern residence

halls. We will present insights on students' reported move-out experiences, their disposal decisions, and awareness of sustainability programs at Eastern. We believe that our findings will benefit in providing evidence-based recommendations to create a more sustainable and efficient move-out process in Eastern residence halls and support future campus sustainability initiatives.

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### **Attacking MOVE: From Distortion to Destruction**

Paul Friedmann

*Faculty Mentor:* Scott Moore (History)

This presentation examines the events surrounding the 1985 MOVE bombing. Following years of tension between the Black Liberation group MOVE and the Philadelphia police, the conflict erupted on Osage Avenue in spring 1985. On May 13, police fired over 10,000 rounds of ammunition and deployed explosives on the Africa family home, killing 11 people and destroying over 60 homes. Marking the only aerial bombing of civilians by police in U.S. history, the event left both the community and nation shaken and divided. While widely condemned as unconscionable and irresponsible, authorities failed to seek justice or bring any criminal indictments against those responsible. This case reflects a long history of media misrepresentation and violent suppression of Black liberation movements. The ideology and activities of MOVE were systematically misrepresented in official records and contemporary media, distortions that legitimized violent suppression of the group and culminated in the deadly 1985 police bombing in Philadelphia.

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### **Healthcare Field Guidelines: A Structured Pathway to Medical School, Physician Assistant, and Physical Therapy Programs.**

Mariangel Duran Galvis

*Faculty Mentor:* Sarah Walters (Health Sciences & Nursing)

Pursuing a career in healthcare requires extensive academic preparation, clinical exposure, and strategic planning; however, many undergraduate students face confusion due to the complexity of admission requirements for medical, physician assistant (PA), and physical therapy (PT) programs. This research aims to analyze and compare the admission requirements, experiential expectations, and personal competencies required across these three healthcare pathways. Information was synthesized from reputable organizations, including the Association of American Medical Colleges, the American Academy of Physician Associates, and the American Physical Therapy Association. Findings indicate that although each pathway differs in training structure and duration, all programs emphasize strong academic performance, standardized test scores, and meaningful clinical experience. In addition, admissions committees evaluate applicants holistically, placing significant value on leadership, communication, empathy, and teamwork. This study also identifies major barriers faced by students, including limited access to mentorship, financial constraints, and inequities affecting undocumented students. To address these challenges, the project proposes a structured, student-friendly guideline that outlines academic planning, clinical experience recommendations, and application strategies. The goal of this resource is to simplify the healthcare admissions process, improve student preparedness, and promote equitable access to healthcare education. Ultimately, I chose to complete this research because I wanted to support and guide students at Eastern who feel lost and don't have clear guidance due to the fact that Eastern currently does not offer any pre-med advisors. I wanted to become the change and take the initiative.

## **The Degree Dilemma**

Danna Guerrero, Adam Borry, Jack Gustafson

*Faculty Mentor:* Niki Kunene (Accounting & Business Information Systems)

Each year, many students arrive at Eastern with uncertainty about their academic direction. Exploratory students, in particular, rely heavily on the university's resources to help them discover majors and minors that align with their interests, strengths, and career goals. Based on anecdotal evidence, we investigate the claim that existing systems and communication are insufficient and do not accurately convey the majors/minors for what they are. We surveyed students, faculty, and alumni as well from admissions acceptance student data to discover and understand the shortcomings of Eastern's information system for upcoming students. The data may allow us to identify the gap. Improving how Eastern guides students early in their degree journey can help future ECSU students achieve not only academic success but long-term satisfaction in their chosen fields.

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## **Capoeira, Feijoada, and Samba: An Analysis of the African Impact on Brazilian Cultural Identity**

Ana Lara Guimaraes Pinheiro

*Faculty Mentor:* Concepcion Saenz-Cambra (History)

Since the illegalization of slavery within Brazil in 1888, Brazil has flaunted itself as a country with a racial democracy. Especially, since Brazil is known as one of the most ethnically and racially diverse countries in the world. Largely due to the slave trade that occurred when Brazilian land was first colonized, however, Brazil's Black population has largely stayed the same. As much as it may be ignored or swept under the rug, racism is as prominent of an issue within Brazil as it is in any other country, both in modern times as well as when slavery was first made illegal. In consideration to the fact that capoeira and samba were both made illegal shortly after slavery was abolished in Brazil during the spring of 1888. The reasoning behind that legal decision was simple, both samba and capoeira were seen as "too African." However, both are now celebrated internationally and on the national level as part of Brazil's identity and culture. Therefore, in order to fully analyze how the enslaved Africans have largely impacted modern day Brazilian culture and Brazil's general cultural identity, the origins, goals, and legacy of capoeira, feijoada, and samba will carefully examined.

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## **Inclusive Fashion Design: Developing Adaptive Garments for Individuals with Limited Mobility**

Annette Gutierrez

*Faculty Mentor:* Anya Sokolovskaya (Communication, Film, & Theatre)

This independent study examines functional and adaptive clothing design, focusing on how garments can better support individuals with medical or mobility-related needs. It analyzes how design decisions—such as fabric selection, construction methods, and closure systems—can improve accessibility, comfort, and independence for those who encounter barriers in conventional clothing. Combining research, design analysis, and creative experimentation, the project adopts a user-centered and inclusive approach. It develops adaptive clothing concepts that address practical requirements while maintaining style, dignity, and individuality. The study also considers the broader

implications of inclusive fashion, arguing that thoughtful garment design can enhance self-confidence and social participation for individuals with diverse abilities. Presented as both research and design practice, this work positions clothing as simultaneously functional and expressive, contributing to ongoing discussions in inclusive fashion and establishing a foundation for future research and application.

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### **Discovery of Scorpion Group 1 bacteria in the venom microbiome of the Eastern Swollenstinger Scorpion, *Anuroctonus phaiodactylus***

Abby Heidorn

*Faculty Mentors:* Barbara Murdoch, Matthew Graham (Biology)

Animal venoms are composed of a complex mixture of compounds with unique biological functions. Interestingly, protein components of venoms have shown potential clinical and pharmacological applications in a variety of areas, including the production of anti-cancer and antifungal medications. Despite the wealth of knowledge regarding venom proteins, scorpion venom has been presumed to be sterile and devoid of bacteria. Contrary to this belief, recent research in our lab found bacteria in scorpion venom, leading to a larger study characterizing the bacterial communities present in the venom of *Anuroctonus phaiodactylus*, the swollenstinger scorpion. Using Nanopore sequencing, we analyzed venom DNA for amplicons from the 16S rRNA gene. Unexpectedly, we found haplotypes of the Scorpion Group 1 (SG1) lineage in our venom samples. This finding contradicts the prevailing belief that SG1 is unique to the scorpion family of Vaejovidae. Given that the haplotypes are highly divergent from those recovered in vaejovids, our discovery of SG1 in Anuroctonidae could mean that SG1 has had a long-term, stable association with this host lineage.

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### **Puerto Rican Independence, an ever evolving history**

Nova Hernandez

*Faculty Mentor:* Christine Garcia (English)

The struggle for Puerto Rican independence goes back to at least 1860 under Spanish rule, however the much longer and more recent struggles are still occurring in our modern day within the United States. I plan to go over the influential people who orchestrated the movement, the modern people who keep it alive, and the inciting incident that made this all occur. I wish to enlighten people on how independence is still something the Puerto Rican people are fighting for and why that's Important.

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### **Impact of Referee Calls in Men's Basketball in the NCAA**

Skylar Hofmann, Patrick Lynch, Camron Kelemen, Cedrick Similien

*Faculty Mentor:* Steve Muchiri (Economics & Finance)

This presentation examines the unfair role of referees in NCAA basketball and the economic impacts their lack of accountability can cause. In NCAA men's basketball, it is not uncommon for referees to make questionable or incorrect calls, especially in high pressure moments. These can be missed fouls, quick technicals, or late-game decisions that end up determining who wins. The

outcome of these calls is usually final, often deciding game outcomes. This is a significant problem because there is real money and economic impacts tied to each game result. When a team wins, especially in a major tournament like March Madness, the impact goes beyond the final score. Success can generate greater attention, increase revenue, and create momentum that will help strengthen the program. The outcome of a single game could send ripple effects throughout the team, school, and broader community around it. Referees play an active role in these experiences, and a referee call can shift momentum or decide the game. These impactful referee calls become large topics of discussion after a game; however, referees are not expected to attend press conferences to explain their decisions in the same way that coaches and players are required to. Coaches and players face scrutiny and pressure from the media and deal with game outcomes, whereas referees lack accountability even though their decisions have just as much impact. Lack of accountability impacts how fans view the sport and if it begins to feel like outcomes are decided with no explanation, it harms trust in the sport. Distrust of the sport which affects viewership and ultimately revenue. We will discuss these economic impacts and hope to educate the audience on the competitive and economic weight that referee calls hold in the NCAA.

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### **Network Community Detection for Comparing NBA and Euroleague Players**

Sam Hurlburt

*Faculty Mentor:* Megan Heenehan (Mathematical Sciences)

This talk presents a network science approach to optimizing U.S. National Basketball Team roster construction in response to the team's declining international dominance. Weighted networks of National Basketball Association (NBA) and Euroleague players were constructed using similarity across four statistical measures (known as the Four Factors) of basketball player success. Through an iterative link removal process with the Louvain algorithm, community detection revealed distinct player archetypes in each league. By aligning community structures across leagues, a recommended starting five for the U.S. is proposed that prioritizes defensive capability and statistical compatibility with FIBA Euroleague-style play over star-driven isolation basketball. The findings demonstrate how network-based community detection can inform internationally competitive roster construction

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### **How Does the Return on Investment of a College Degree Vary by Institutional Type and Accumulated Debt?**

Nicolas Iannucci

*Faculty Mentor:* Maryanne Clifford (Economics & Finance)

College education has risen in cost significantly in the past few decades while the returns from these institutions have barely grown. This study examines how the return on investment of a college degree may vary by institution and accumulated debt. This topic will be studied using data from college scorecard, IPEDS, and NACE with data from the year 2023. It will be modeling projected earnings discounted for inflation and comparing the ultimate returns against other schools and majors to determine which schools out and underperform. Results suggest that the cost of the institution and the location of the institution are the greatest factors in determining ROI. Also, ROI varies heavily by major and larger schools outperformed with STEM majors whereas smaller schools outperformed with humanities majors. These findings highlight the importance of choosing a school

within one's budget and being particular about what school one goes to based on their major and the relative location of the institution.

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### **The Illusion of Justice”: Expanding on Rawls' Theory of Justice Through a Feminist Perspective**

Carolyn Kehayias

*Faculty Mentor:* Karl Stocker (Political Science, Philosophy, & Geography)

This research paper examines John Rawls theory of justice through feminist critiques, focusing on what will be called the “illusion of justice.” Rawls argues that a fair and just society can be created if people choose principles from an “original position,” where they do not know their place in society, which is meant to ensure equality and fairness. However, I argue that this framework can create a form of formal justice while overlooking deeper inequalities, especially those related to gender, that remain hidden beneath the surface. Using ideas from feminist thinkers such as Ann Cudd and Marion Smiley, I show how choices that seem free are often influenced by unfair conditions, such as the gender wage gap. Additionally, using Carol Gilligan's ethics of care, I highlight Rawls' neglect of relationships and caregiving as made necessary by the conditions of the "original position". However, rather than rejecting Rawls, I argue his framework should be expanded to better account for how social structures shape real opportunity and choice.

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### **A Multivariate Longitudinal Analysis of 30-day Readmission of Coronary Artery Bypass Graft Surgery Patients in Nationwide Readmissions Database**

Lilyann Kenefick

*Faculty Mentor:* Fatma Pakdil (Business Administration)

Length of stay (LOS) and 30-day readmission following coronary artery bypass graft (CABG) surgery are key indicators of patient outcomes. Due to varies in literature findings, there remains a need for a comprehensive analysis of these indicators and their confounding variables across the United States. This study aimed to identify the predictors of LOS and 30-day readmission among CABG patients in the United States between 2018-2020 by examining the relationships between these health outcomes and its covariates. Using data between 2018-2020 from the Nationwide Readmissions Database (NRD), 175,342 CABG patients were analyzed. Multivariate linear regression was utilized to analyze the relationship between LOS and its covariates, while multivariate logistic regression assessed factors associated with 30-day readmission. Covariates included total charges, age, sex, time of admission, discharge disposition, admission type, insurance type, income quartile, year of procedure, and Charlson Comorbidity Index (CCI). The multivariate analyses found that factors such as higher LOS, total charges, and CCI, are associated with higher 30-day readmission risk, while higher age and household income were associated with lower risk. Additionally, routine discharge, private insurance, and males were associated with lower odds of 30-day readmission. As for LOS, lower total charges and private insurance were statistically significant predictors of lower LOS. These findings highlight the influence of clinical, demographic, and socioeconomic factors on CABG outcomes and underscore the need for interventions that mitigate inequities, improve discharge planning and enhance hospital efficiency to improve patient outcomes.

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## **Love as Syzygy**

Austin King

*Faculty Mentor:* Karl Stocker (Political Science, Philosophy, & Geography)

Love is an observable phenomenon in human experience that appears in differentiated forms as Diotima describes to Socrates in Symposium. Eros is a desire for unification and is egoistic, a pursuit of that which is rationally and irrationally attainable. Agape is a giving of the self, 'for the sake of the other.' The reduction of the ego reveals a unity between subject and object. Expressions of this unity can be found by reframing the relations in existence. Instances of this unity can be found in material existence, the tangible, and the abstract, the cognitive, derivations of the unity recognized and constructed by human reason. The work of this essay is to reveal that there is a relation, supported by reason, between what is thought and what is experienced. I will introduce Sophia as the channel or mechanism that reveals this relation and establish a justification towards the good which transcends the finiteness of a single life. In doing so I will refer primarily to the work of Vladimir Solovyov who described love as syzygetic, interconnected. To construct this argument, I have included and connected philosophical, theological, and mathematical concepts.

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## **The Cost of Liberation: The Contradictions of Independence in Postcolonial French West Africa**

Fanta Konate

*Faculty Mentor:* Stacey Close (History)

This presentation examines how colonial governance in French West Africa shaped the political foundations of post-independence states. Focusing on regional patterns, with case references to Mali, Senegal, and Burkina Faso, it argues that French colonial rule did not simply precede independence but actively structured the possibilities and limitations of early state-building. Through policies of centralized administration, economic extraction, and imposed territorial boundaries, colonial authorities disrupted preexisting political systems while failing to establish resilient, locally grounded institutions. As a result, newly independent states inherited fragile governance structures, uneven economic systems, and internal divisions that complicated efforts to build stable and unified nations. By analyzing key historiographical debates and both primary and secondary sources, this presentation reframes post-independence political challenges not as isolated failures, but as outcomes deeply rooted in colonial systems. It highlights how the transition to independence occurred within institutional frameworks that constrained political autonomy from the outset. Ultimately, this research emphasizes the importance of understanding colonial legacies as active forces in shaping modern governance, offering a more nuanced perspective on political instability and development in the region.

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## **Themes in Academic AI Policies**

Rylee LeClair

*Faculty Mentor:* Sukeshini Grandhi (Business Administration)

The availability of Generative AI and large language models such as ChatGPT has significantly impacted higher education. A new challenge for instructors is figuring out how to design policies that effectively communicate ethical AI use in their courses. While some professors explicitly

prohibit AI use, others debate which uses of AI are appropriate in an academic setting. To address this problem, we performed a qualitative thematic analysis on 204 AI policies across 175 institutions to uncover recurring components of academic course AI policies, revealing several common themes. Using hierarchical clustering analysis, we identified specific components that tend to group together in policies. We will report on the identified theme clusters and discuss the implications of our findings for educators to develop effective AI use policies.

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### **Exploring Lyme Disease and the Environmental Factors that Impacts its Spread**

Rylee LeClair

*Faculty Mentor:* Meredith Metcalf (Environmental Earth Science)

Lyme Disease is a tickborne disease that is spread by blacklegged ticks carrying the bacterium *Borrelia burgdorferi* in the Northeastern United States. Numerous environmental factors such as elevation, temperature, forest area and composition, and the competency of host animals within an ecosystem can influence the disease's spread. A geographic information system was used to analyze the spatial distribution of Lyme Disease case rates, as well as determine the significance of and spatial relationships between the above variables and rates of the disease. Deer density, average temperature, deciduous forest cover, shrub cover, minimum elevation, and maximum elevation were determined to be significant variables within the study area.

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### **Compliance to Authority Stabilizes the Relationship Between Self-Regulation and Behavior Problems**

Abigail M. Locke

*Faculty mentor:* Caitlin Vasquez-O'Brien (Psychological Science)

Children who obey directives even when asked to do something they know is wrong are showing compliance rather than morality. We hypothesized that higher child compliance would moderate the link between temperament and behavior problems. In a sample of 290 children, observationally measured compliance counteracted the effect of negative reactivity on behavior problems. Measuring compliance may be advisable when investigating how a child's internal state translates into outward behavior.

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### **Art in Slavery: How Black Women Stayed Creative Under Enslavement, inspired by Alice Walker's, "In Search of Our Mothers' Garden"**

Jillian Martin

*Faculty Mentor:* Kenneth McNeil (English)

Until recently, art created by the enslaved in the United States was overlooked or considered to be nonexistent, when in reality, it took shape in various nontraditional art forms, like cooking, singing, dancing, playing instruments, quilting, weaving, woodworking, pottery and much more. Alice Walker's "In Search of Our Mothers' Garden," describes these nontraditional artistic expressions, saying how these pieces were almost completely anonymous, and the only way she knows about this art was thanks to her mother passing down her form of creativity, her garden, to Walker. I discuss Walker's writing and how Black women were able to stay creative and express themselves during

enslavement, as well as the effort and strides that are being made today to track down the artists. I analyze the ways in which art by enslaved people is displayed in museums, and how it is being repatriated and returned to the rightful heirs of those who created it years ago. The art created during enslavement tells stories of expression, resistance, and influence, and opens up broader conversations on how those who were silenced continued to create things that bloomed and thrived.

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### **Lighting Design for Live Theatre: Exposing Invisible Labor**

Jillian Martin

*Faculty Mentor:* Timothy Golebiewski (Communication, Film, Theatre)

This project examines the process of light designing for the play *Wonder of the World* by David Lindsay-Abaire as a way to create a broader conversation about the invisible labor of technical theatre. The research I completed over the past two years demonstrates that technical theatre and designer roles are highly labor-intensive fields essential to successful performances, yet these positions—and the people who perform them—are often overlooked. Using the process of light designing a realized stage production, this project demonstrates the complexity, depth, and creativity involved in a single design field for a show, challenging the existing narrative of technical theatre being invisible. Each step of this process is detailed and documented in my paper and will be highlighted in my presentation, from textual analysis to research, paperwork, collaboration, failures and successes, and results. Together, these experiences help show how dynamic and production-specific lighting is designed and created for shows, allowing me to synthesize scholarly research completed prior to the show with hands-on research gained while actively working on the show.

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### **The Invention of Culture: From the Dance Masters to the Gaelic League**

Maeve McCollam

*Faculty Mentor:* Scott Moore (History)

This paper aims to explore the invention of the modern Irish culture, following the development of the eighteenth-century Dance Masters through the late nineteenth century Gaelic League. It will illustrate the creation of what are considered the foundations of Irish culture, establishing the purposeful invention in the modern era rather than traditional roots. This paper will first examine the traditional folk dancing of Ireland, and the outgrowth into the Dance Masters, the rural, traveling dance teachers. The Dance Masters adapted and formalized the style of traditional Irish folk dancing and were highly respected by the Irish people. It will explore their overall impact, noting how this style of dance more accurately represents Irish tradition. This paper will then examine the establishment of the Gaelic League and their impact on modern Irish culture. It will examine the way in which the League promoted and altered traditions to fit a narrative of a non-Anglo Saxon Irish culture, motivated by modern Irish nationalism. Overall, this paper will emphasize the amalgamation which led to the modern culture understood to be Irish, particularly following the threads of the Dance Masters through to modern Irish dancing.

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## **Innocence Exploited: The Unknown Dangers of Child Influencing.**

Allison McElfresh

*Faculty Mentor:* Allison Speicher (English)

Children have been exploited through media for many years, starting in the early 1900's with the rise of Hollywood child stars. Due to an increase in access to social media, children are now exploited through popular platforms, most commonly by their parents, who sometimes earn millions of dollars in the process. Most viewers see this content as innocent due to a lack of knowledge and context; however, this exploitation of children in the media is highly competitive and damaging to child development. Examining a variety of scholarly articles and media analyses, as well as analyzing young influencers and tracing where they are now, I document the concern of damaging a child's digital footprint and exposing them to the public gaze at a young age. Due to the lack of protection from social media platforms involving who can view content of children, the absence of legal protections, and the lack of education surrounding long-term impacts on children, the accessibility of social media content to and about minors should be heavily reconsidered by society. When left unaddressed, human exploitation thrives ; considering the meteoric rise of influencers within recent years, child exploitation through social media demands our attention.

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## **How Digital Environments Undermine Rawlsian Justice: Post-Truth, Political Polarization, and Public Opinion**

Elaina Meccariello

*Faculty Mentor:* Karl Stocker (Political Science, Philosophy, & Geography)

Contemporary digital information systems and environments initially appear to have the potential to foster the epistemic conditions necessary for Rawlsian reflective equilibrium. They could provide insights into people's lives and allow people to connect across societies, supporting the general perspective among people that would grant the possibility to achieve Rawls' vision of justice. However, rather than supporting these epistemic conditions, these systems fundamentally undermine them. Drawing on examinations of digital algorithms, ideological polarization, the erosion of objective facts, and an inability to adopt the perspective of others, this paper depicts how these systems fragment public reasoning and truth, ultimately destabilizing the epistemic conditions Rawls presupposes. Furthermore, this paper examines the increasing inability among individuals to adopt a shared moral standpoint that makes reflective equilibrium possible.

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## **Math Learning Difficulties in Primary Grades and Effective Intervention Strategies**

Allison Michalski, Haleigh Thibodeau

*Faculty Mentor:* Sudha Swaminathan (Education)

The goal of our study was to examine the math learning difficulties of primary grade children. Specifically, our two objectives were to identify the math difficulties of students and to determine supportive teaching strategies. Previous research has analyzed developmental math and specific learning disorders regarding math, but there is minimal research about what falls in between: math difficulties. This study collected survey data from elementary school teachers and interventionists (n=42), gathering quantitative and qualitative data on difficulties and interventions. The survey included 8 demographic questions, 23 Likert scale questions on math behaviors, 3 multiple response

questions, and 5 open ended questions. Specifically, the questions pertained to frequency of difficulties within math behaviors, access to training, and strategies to support math skills. Math difficulties were categorized by 1) number sense and computation, 2) geometry and measurement, 3) patterns, algebra and data analysis, and 4) general math behaviors. Findings indicated that number sense and computation difficulties were the most common, followed by difficulties with patterns, algebra and data analysis. Teachers reported that they lacked formal training in identifying and supporting math difficulties. Teachers felt they had a lack of time, resources, staff, and space to provide support to students who struggle with math while also staying on pace with curriculum. Teachers recognized that online programs may not be sufficient in remediating the difficulty and may only be beneficial for progress monitoring. Future research needs to identify effective training and strategies for supporting students with math difficulties. Further, online programs should be developed that not only help with progress monitoring but can also act as an intervention to promote math skills.

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### **Navigating Nowhere: The Problems with Eastern's New eWeb**

Jason Mitchell, Patrick Lynch, Nicholas LaBelle, Connor Huether

*Faculty Mentor:* Niki Kunene (Accounting & Business Information Systems)

Eastern's all-encompassing information portal (eWeb) was changed last semester. Since then, anecdotally, we have heard complaints among students with registration, scheduling, and the general user-interface of the new eWeb. Students, us included, have been vocal about how the changes to eWeb seem to be prioritizing modern web design over usability and functionality for the students, and that it was created from an administrative perspective and not a student one. The eWeb should be catered towards the needs of students. We surveyed Eastern students about the usability of eWeb from its key stakeholders and users: students. The most common complaints include the schedule being small and unhelpful, registration not providing the most important information first, important information being hidden behind multiple clicks, and many students want the home interface to be more customizable to their wants and needs. If Information technologies are supposed to enable and support human endeavors, then the new eWeb is unsuccessful.

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### **Eastern Gym Dashboard**

Jacob Morales, Allison Kazmier, Joseph Barlovic

*Faculty Mentor:* Niki Kunene (Accounting & Business Information Systems)

This project focuses on creating a simple, centralized digital dashboard that shows important information about the Eastern gym, including hours, occupancy, and facility availability. Right now, students often feel frustrated because they don't know how busy the gym is or if spaces are available, which can stop them from going. The dashboard would solve this by giving clear, real-time or estimated information in one place. Data for the project would come from student surveys and gym usage records to see if better information would increase attendance and satisfaction. While there are some risks, like limited live data or overcrowding during less busy times, the goal is to improve planning, reduce frustration, and help students use campus fitness resources more effectively.

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## **The Kids Are All White: Childhood, Race, Mormonism and the Precedents of Child Exploitation in the Digital Age**

Madeleine Orwick

*Faculty Mentor:* Allison Speicher (English)

This paper historicizes contemporary critiques of online child influencing in order to expose their structural limitations. Beginning in the mid-nineteenth century, it traces the emergence of industrial capitalism, modern childhood, and Mormonism as interdependent formations shaped by intersecting racial and economic hierarchies. Turning to the present, it will examine how digital surveillance intensifies the subsequent logic that requires children to perform in a manner that sustains the hierarchies that exploit them, in turn rendering exploitation both hyper-visible and culturally desirable. What emerges is a continuation of the profitability that accompanies uncritical alignment with exploitative structures, sustained by critiques that target individuals instead of the systems that make such exploitation inevitable.

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## **Learning by the Blade: A Study of Fencing in 19th Century German Culture**

Duncan Page

*Faculty Mentor:* Scott Moore (History)

This paper will discuss the connections between the emerging sport of fencing and several foundational elements of German culture throughout the 1800s, illustrating how the sport helped lay the groundwork for the growth of ideas of nationalism, masculinity, and aristocracy. Fencing, as a sport that also connects to the German educational system, provides an intersectional point for each of these three major components of nineteenth century German culture. This makes it a unique lens through which German history can be viewed. These issues will be examined in three sections, each focusing on how fencing interacted with one of the cultural pillars of nineteenth century Germany described above. Through these sections, I describe how fencing connects each topic to each other in myriad ways as well as lends a generational reinforcement to each element within German society as a whole, especially due to the influence of fencing fraternities. While the growth of each of these three elements of German culture in the nineteenth century has been discussed widely before, doing so through the lens of the sport of fencing provides a new perspective, showing that the sport was integral to the development of each of the three pillars of culture.

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## **World Cup Impact On The United States**

Alyssa Paquette, Ryan Finlay, Edgar Paredes, Lucas Tamsin

*Faculty Mentor:* Steve Muchiri (Economics & Finance)

This presentation examines the potential economic and community impact of hosting the 2026 FIFA World Cup in the United States. While mega sporting events are often promoted as drivers of economic growth, job creation, and tourism expansion, they also carry significant financial and social costs for host nations and local governments. We examine how hosting World Cup matches across major U.S. cities could affect revenue through increased tourism, local business activity, and infrastructure investment, as well as the potential costs associated with public spending, temporary employment, and increased demand on housing, transportation, and public services. In addition, the presentation will consider how hosting such a large-scale event may influence U.S. communities

through both short-term economic opportunities and long-term financial responsibilities. Using examples from previous FIFA World Cup host countries, the discussion will highlight both the promises made prior to hosting and the economic realities that emerged afterward based on historical data. We hope the audience will gain a clearer understanding of whether hosting the FIFA World Cup in the United States represents lasting economic benefits or primarily short-term economic stimulation for host communities.

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### **Womanhood and the Search for One's Cultural Identity in Gloria Anzaldua's Borderlands/La Frontera: The New Mestiza and Cristina Garcia's Dreaming in Cuban**

Sulema Perez-Pagan

*Faculty Mentor:* Kenneth McNeil (English)

Rejecting gender expectations and redefining one's idea of womanhood and cultural identity takes courage and an understanding that a journey of this magnitude will not be easy. In this presentation, I examine this journey in Gloria Anzaldua's autobiography *Borderlands/La Frontera: The New Mestiza* and Cristina Garcia's novel *Dreaming in Cuban*. I explore themes of womanhood and cultural identity through Anzaldua's confrontation with her intersecting realities and Garcia's generational tale of one Cuban family's reckoning with their sense of purpose and belonging. In bridging together their unique experiences as women, I argue these works show how breaking free from traditional roles and societal expectations is not a fault but a virtue, one that must be embraced, for one to truly find oneself. From Anzaldua's life on the borderlands of Texas and Mexico—where she comes face-to-face with strict cultural expectations—to Garcia's fictional Cuban family—caught between Cuba, America, and each other—the overlapping of their identities and cultures defines them as women and as writers. Together, their similar, yet vastly different experiences, form feminist notions that challenge social and cultural norms. They provide future feminist thinkers and women on similar journeys with the words to better understand their existence in this world, as well as the courage to embark on their own journey of self-discovery.

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### **Hanbok Reimagined: The Evolution of Korean Tradition**

Mitchell Peterson

*Faculty Mentor:* Okon Hwang (Music)

Hanbok, Korea's traditional garment, embodies over two thousand years of cultural evolution. Originating as practical clothing among the nomadic peoples of the Eurasian Steppes, Hanbok transformed into a sophisticated social language during the Joseon Dynasty, where color, fabric, and silhouette communicated class, gender, and identity. Western influence and Japanese occupation disrupted its role as everyday dress, yet Hanbok endured. Reinvented by modern designers and propelled onto the global stage through K-pop artists like BTS and BLACKPINK. This presentation examines how Hanbok's evolution reflects broader tensions between tradition and modernization, arguing that cultural heritage survives not by resisting change, but by adapting to each new generation.

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## **Are you Satisfied with your Ride? Visualizing Campus Shuttle Satisfaction**

Kelly Pruss, Kaliya Dawkins, Rylee LeClair

*Faculty Mentor:* Niki Kunene (Accounting & Business Information Systems)

As Eastern students, we find that the current shuttle service times, the app, and number of buses are not adequate to suit our needs. Not everyone's schedule allows them to use the off-campus shuttle during its operating hours, causing issues for students who do not have alternate forms of transportation. More specifically, this affects first year students, students who do not have a car on campus, athletes, and south residents. We surveyed students to understand their views about the shuttle service, learn why they use the shuttle, and identify solutions. By identifying the most prominent issues with the Eastern shuttle system, we are looking to have student concerns acknowledged by the campus police department and administration to implement supportive solution(s).

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## **Characterization of 4-Mercaptopyridine (4-Mpy) Aggregates in Aqueous Solution**

Neema Rock

*Faculty Mentor:* Syed Islam (Physical Sciences)

This study investigates the spectroscopic characteristics of 4-mercaptopyridine (4-Mpy) molecular aggregates formed in aqueous solution. Due to their low solubility in water, 4-Mpy molecules undergo solution-driven aggregation, which results in a blue shift in their absorption maximum and enhanced fluorescence compared to their monomeric form in methanol. This spectral behavior aligns with the predictions of the molecular exciton model and indicates the formation of H-type aggregates through intermolecular hydrogen bonding and  $\pi$ - $\pi$  stacking interactions. Raman spectroscopy further confirms aggregation by revealing two newly enhanced low-frequency bands at 155 and 220  $\text{cm}^{-1}$ , corresponding to intermolecular vibrational modes. These observations are consistent with the Aggregation-Enhanced Raman Scattering (AERS) theory, which attributes the enhancements to increased polarizability and excitonic coupling within the aggregates. In addition to low-frequency features, high-frequency Raman bands associated with the monomeric form also show selective enhancement, attributed to Herzberg-Teller vibrational coupling. The result in our study indicates that 4-Mpy molecules in water self-assemble into H-type aggregates, possibly in the form of helical chain conformations.

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## **When Parents Give Themselves Grace: Self-Compassion Moderating Child Frustration and Behavior Problems**

Lauren Roth

*Faculty Mentor:* Caitlin Vasquez-O'Brien (Psychological Science)

Previous research links child frustration to child behavioral outcomes (e.g., Deater-Deckard et al., 2007) but rarely considers parental self-compassion. Self-compassion in parenting has been found to increase parental mindfulness while decreasing parental depression, stress, and anxiety (Jefferson et al., 2020), all factors that are known to impact child outcomes (Olfson et al., 2003). Parents higher in self-compassion may be less prone to self-blame, even when parenting goals are not met, which may enable them to return to these goals at a later point in time (Duncan et al., 2009). This may allow them to better support their children's regulation as compared to other parents. We hypothesized

that parental self-compassion would moderate the link between child frustration and child behavior problems. Using parent-reported data from a longitudinal study with 145 families, we found a significant interaction: high parental self-compassion buffered the longitudinal effect of child frustration on later child behavior problems. So, when parents were higher in self-compassion, child frustration was no longer associated with later child behavior problems. Findings implicate parental self-compassion as a resilience factor for child frustration. Additionally, they suggest that early intervention surrounding child behavioral problems should be family-focused rather than exclusively child-focused.

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### **Journey of an Immigrant: Nunzio Rottino**

Skylar Rottino

*Faculty Mentor:* Barbara Tucker (History)

In the Twentieth Century, an Italian immigrant by the name of Nunzio Rottino, became a vocal activist in American politics. Rottino migrated from Sicily in 1921 and worked as a barber in New Jersey. Because he was not naturalized until 1928, his early life in America is not well documented. However, records show that on November 14, 1924, he was arrested in Hoboken, New Jersey on the false accusation of arson. Research has revealed Rottino's arrest due to societal biases against Italians, specifically Sicilian immigrants. After this event, there was a significant increase in his involvement in organizations for Italian societies, barber societies, and local political groups. Rottino represents the cultural displacement many migrants have felt, and the resilience that was required for them to fully acclimate to a new society.

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### **The Competitive Balance of Sports: Salary Caps & Luxury Caps Across Leagues**

Matthew Sanford, Jack Hawes, Isaiah Jackson, Bryce Chatman, Jaden Reynolds

*Faculty Mentor:* Steven Muchiri (Economics & Finance)

This presentation examines how salary caps and luxury tax systems influence competitive balance across major professional sports leagues, specifically the National Football League (NFL), National Hockey League (NHL), National Basketball Association (NBA), and Major League Baseball (MLB). Competitive balance is a central economic concept in sports because fan interest often depends on uncertainty of outcomes and the perception that all teams have a realistic chance to succeed. By comparing the NFL and NHL's hard salary cap, the NBA's soft cap and luxury tax structure, and MLB's luxury-tax based system without a formal salary cap, this presentation explores how different financial regulations shape team-building strategies, league parity, and consumer engagement. The discussion will also evaluate whether these systems truly prevent wealthier franchises from dominating small market competition or simply create different forms of competitive advantage. Ultimately, this presentation aims to help the audience better understand how these financial regulations shape fairness, team success, and fan experience across the "Big 4" professional sports leagues.

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## **Quick Dict, A Fast AI-Powered Lookup Extension**

Alexander Saranich

*Faculty Mentor:* Troy Marrotte (Accounting & Business Information Systems)

Googling nowadays is inconvenient. It adds overhead and is a distraction from tasks. AI excels at explaining in a simple manner but struggles with generating exact answers quickly. Traditional db queries are consistent, however are not robust to invalid inputs (spelling errors) like LLMs. To solve this problem, I will be creating Quick Dict, the bridge between stringent dictionaries and capricious AI designed to get your answer as quick as possible. The presentation will have the following plan: 1. Introduction to QuickDict; 2. The inspiration; 3. Use cases; 4. How it works; 5. Demonstration; 6. Conclusion; 7. Questions.

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## **LAPS: Lot Availability Parking System for ECSU Campus**

Quinn Sawyer, Bryan Bouchard, Yahir Perez Retama

*Faculty Mentor:* Niki Kunene (Accounting & Business Information Systems)

Eastern's parking problem continues to frustrate commuter students because drivers have no reliable way to know which lots have open spaces before they arrive. During busy times, uncertainty leads to circling, heavy traffic, wasted time, and unnecessary stress. As a result, students and staff can arrive on campus on time but still end up late because parking takes longer than it should. It can also push some drivers to park in unauthorized spaces when they feel they have no other option, leading to more ticketing and conflict. Our solution is a real-time parking lot availability app that shows lot-level space availability before drivers choose where to park. Giving commuters quick, useful information in an app makes the process more practical and safer than relying on guesswork. This would help reduce congestion, shorten time-to-park, lower parking violations, and improve the overall campus experience.

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## **AI-Driven Analysis of Diversely Sized Martian Geological Features with Deep Learning**

Quinn Sawyer

*Faculty Mentors:* Sarah Tasneem, Kehan Gao (Computer Science)

The MRO HiRISE (Mars Reconnaissance Orbiter – High Resolution Imaging Science Experiment) instrument provides highly detailed images of the Martian surface. However, their high resolution and wide variation in feature scale pose major obstacles in analyzing them with image-recognition AI. Standard preprocessing techniques erase fine details or leave images too large to process efficiently. This research develops an effective method for detecting specific Martian geological features within HiRISE imagery. I implemented a tiling workflow paired with YOLO-based object detection models, enabling the system to locate features that would be missed using conventional approaches. When evaluating the images, existing ground-truth labels captured a fraction of the actual features. The model's bounding boxes also varied in size and overlapped extensively, especially when features did not fit cleanly within a single box. As a result, traditional metrics like Mean Average Precision proved insufficient for characterizing model performance. To overcome this, I introduced a secondary validation process using image classification models to assess detections beyond what conventional metrics can measure. This dual-layer evaluation framework provides a more meaningful and accurate picture of the model's capabilities. Together, these

contributions support more reliable, scalable analysis of planetary surfaces and open new pathways for future AI-driven exploration.

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### **Hidden Genetic Structure in a Widespread Camel Spider: Insights from COI and RADseq**

Emily N. Senna

*Faculty Mentor:* Matthew Graham (Biology)

*Eremochelis bilobatus* (Eremobatidae) is a widespread North American camel spider whose broad distribution raises the possibility of previously unrecognized phylogeographic structure. Earlier mitochondrial results suggested substantial genetic divergence within *E. bilobatus*, raising the possibility that this nominal species may contain multiple deeply differentiated lineages. To further evaluate this pattern, we are generating cytochrome c oxidase subunit I (COI) sequence data from specimens sampled across the species' range as a mitochondrial framework to complement ongoing RADseq analyses. Using previously extracted genomic DNA, we amplified COI from 58 specimens by polymerase chain reaction (PCR), and the strongest products were selected for Sanger sequencing. These data will be used to assess mitochondrial diversity, identify major haplogroups, and compare preliminary COI patterns with genomic structure inferred from RADseq data. Together, these datasets will help clarify whether *E. bilobatus* represents a single widespread lineage or a complex of historically isolated lineages and will provide new insight into the diversification in North American camel spiders.

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### **Russian Authoritarianism: Different Ideologies, Same Tactics**

Daniel Silvester

*Faculty Mentor:* Scott Moore (History)

From the late nineteenth to the early twentieth century, authoritarian policies were in place across Europe under the old order of monarchs, from Germany to Russia. Russia, under the Tsar, has a divergent ideology later in its authoritarian life cycle, primarily in the form of communist leadership. The Tsar had established the Okhrana to control the opposition to the Tsar, mainly the socialists/communists. Eventually, the Tsar would be overthrown in the culmination of an explosive early communist revolution in 1917, led by Vladimir Lenin. Ironically, while advocating for workers' freedom, Lenin's own regime resorted to old authoritarian tactics to maintain power. Primarily in the form of their own secret police agencies under the Cheka and, later, under the Stalinist regime, the NKVD. No matter what the ideology, if the regime has to live by authoritarian methods, the regime will consistently rely on previously tried and successful tactics like the secret police agencies to maintain a sense of terror on the population.

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### **Creation of an Enhanced Germline-Specific RNAi Strain in *C. elegans***

Anton Smith

*Faculty Mentor:* Amy Groth (Biology)

In order to study the function and expression of the *odd-2* gene in the germline of *C. elegans*, we have been working to create a germline-specific RNA interference (RNAi) strain. DCL569 and WM171 strains were crossed to create a new strain with a *rde-1* loss of function mutation, a

germline-specific sun-1P::rde-1 insertion, and an eri-5 mutation that increases RNAi sensitivity. Genotyping was done via PCR. Primer optimization was successful for rde-1, sun-1P::rde-1, and eri-5 mutant primers. However, after tests using various PCR techniques and combinations of primers to detect the eri-5 wildtype (WT) sequence, the WM171 strain was deemed problematic. Sanger sequencing was then utilized, which confirmed the presence of the eri-5 deletion in the WM171 strain but also revealed WT sequence. This suggests there could be rearrangement that occurred during mutagenesis, unreported balancers, or heterozygosity occurring in the WM171 strain we received. Because the eri-5 mutation could not be confirmed to be homozygous in the new strain, it cannot yet be considered a fully functioning enhanced germline-specific RNAi strain. Future directions include using long read nanopore sequencing and qPCR to check for the presence of eri-5 mutant individuals, which will allow for greater ability to study germline-related genes.

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### **Are Sports Becoming Referee Influenced? How Refs are Deciding Games Over Players**

Chris Stephenson, Khalil Covington, Jacob Brennan, Ryan Hall, Justin Vincent

*Faculty Mentor:* Steven Muchiri (Economics & Finance)

The role of referees in sports has evolved significantly over time, raising concerns about whether games are increasingly being influenced more by officiating than by player performance. This presentation examines how changes in referee interactions, including stricter enforcement and recent rule changes, have altered the flow and outcome of games. It also explores growing fan dissatisfaction with what many perceive as excessive interference, often disrupting momentum and overshadowing athletic skill. Additionally, the presentation analyzes recent rule changes across major sports and how they have contributed to increased officiating involvement. By comparing the impact of referees in leagues such as the NBA, NFL, MLB, and Premier League, this presentation highlights patterns in how officiating can shape results. Finally, it discusses potential solutions, including rule adjustments, improved use of technology, and clearer guidelines, as well as measures already implemented to reduce unnecessary referee influence while preserving competition and player safety.

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### **Fungal Diversity of The Eastern Arboretum & Church Farm**

Deana Tempest Thomas

*Faculty Mentor:* Jonathan Hulvey (Biology)

Fungi are fundamental to ecosystem function and offer an important lens for understanding biodiversity. This presentation examines the fungal diversity of the Eastern Connecticut State University Arboretum and Church Farm through 42 surveys conducted during Fall 2025. Mushroom-forming fungi were documented through field observation, photography, specimen collection, microscopy, taxonomic study, and ITS sequencing of selected collections. The project established a baseline record of fungal diversity across Eastern's outdoor classrooms and centers collaboration, ecological literacy, and close observation. By viewing these landscapes through the lens of fungi, the presentation invites greater awareness of and care for the living communities around us and calls for fungi to be more fully included in our conversations, classrooms, and conservation.

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## **Unrooted from Reality: 9/11 in Children's Literature**

Taylor Thompson

*Faculty Mentor:* Allison Speicher (English)

A single phrase became a cultural mantra after 9/11: “never forget.” However, there are people who cannot forget about 9/11 due to their past and/or current losses. There is also another group who cannot forget for a different reason: they were born after 9/11 and have no recollections of a pre-9/11 world. Children’s literature attempts to fill this gap, although the current aesthetic depictions of 9/11, specifically within picture books, attempt to portray the loss of life and destruction that took place, but often fall short, providing inaccurate and insensitive portrayals of 9/11. For example, the majority of 9/11 picture books tell the story through the anthropomorphism of the survivor tree. While it is an inspiring story, there is no need to personify a tree when there are 9/11 survivors, both civilians and first responders, who can provide a more accurate and humanized portrayal of 9/11. To address these shortcomings, I have crafted my own 9/11 picture book entitled Always Remember.

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## **From Roe to Dobbs: The Evolution of Supreme Court Decisions on Abortion Rights**

Jennifer Tripp

*Faculty Mentor:* Courtney Broschious (Political Science, Philosophy, & Geography)

The United States Supreme Court shapes American society through landmark decisions, particularly on controversial issues like abortion. This study examines the factors behind major shifts in the Court’s abortion rulings, bridging political science and legal scholarship to better understand judicial decision-making. Through qualitative case studies of *Roe v. Wade* (1973), *Planned Parenthood v. Casey* (1992), and *Dobbs v. Jackson* (2022), it analyzes the influence of media coverage, political polarization, public opinion, court composition, and interest groups. The findings offer key insights into the forces shaping abortion decisions and inform future analysis of other salient political cases.

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## **A Comparative Analysis of Web Development Technologies and Their Performance**

Luis Vazquez

*Faculty Mentors:* Sarah Tasneem, Kehan Gao (Computer Science)

The rapid expansion of digital productivity platforms has accelerated the integration of gamification mechanisms to enhance user engagement and retention. While gamification has been widely studied from a design perspective, limited empirical research examines how different full-stack architectures affect the backend performance of gamified web applications. This study addresses this gap by comparing two functionally equivalent applications built with distinct technology stacks. The first application utilized a React.JS frontend, a Node.JS backend, and a MySQL database hosted on Amazon Web Services’ Relational Database Service. The second application was developed using an Angular frontend with a Python FastAPI backend, and a SQLite database. Both implementations incorporated identical gamification features such as progress tracking, and reward mechanisms, and supported structured storage and management of user data. Backend performance was evaluated using Apache JMeter under controlled simulated user loads. Performance metrics include request completion time, throughput, and request size. Results indicated that the FastAPI-based implementation achieved faster average request completion times than the Node.js implementation

within the tested environment. The comparative analysis identified architectural tradeoffs affecting scalability, resource efficiency, and system responsiveness. These findings provide empirical evidence on how backend framework and database selection influence the performance characteristics of gamified web applications.

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### **Why Do Athletes Get Paid So Much?**

Juliannah Xavier, Duane Smigel, Dylan Durocher, Brady Wrona

*Faculty Mentor:* Steven Muchiri (Economics & Finance)

This presentation explains Marginal Revenue Product (MRP) theory and how it relates to athlete salaries. MRP means that people are paid based on how much money they help bring in for their organization. In professional sports, athletes generate revenue through ticket sales, merchandise, sponsorships, and TV deals. Star players bring in more fans and attention, which increases a team's income and leads to higher pay. This presentation will also explain how supply and demand affect salaries. There are only a few elite athletes, but many people want to watch them, which raises their value. The goal is to make MRP easy to understand and show why athletes are paid so highly in a simple and clear way.

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## Panels, Performances, & Screenings

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### Poetry and Storytelling

#### **Eastern Student Poets Read Their Work**

Muriel Stankeviciute, Elise Clark, Stephanie Galaburri, Colby Gonsowski, Kendall Garrity, Ashley Easton

*Faculty Mentor:* Daniel Donaghy (English)

The poetry of these excellent student poets interrogates accepted norms and argues for new, more nuanced ways of looking at the world and for more just ways of living within it. They also write with remarkable insight about family, mental health, and friendships. These poets write with an urgency, vulnerability, bravery, and intelligence that commands attention and respect.

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#### **Storytime: Looking for a Ghost**

Ace Straynj

*Faculty Mentor:* Raouf Mama (English)

"Looking for a Ghost" tells the story of a detective on a mission to track down and execute a former crime Lord. When he finds him, however, he realizes that the man he has been paid to kill has turned into a valuable, beloved member of his community. As he interacts with him and hears the stories the members of the community tell about him, he changes from a seeker of revenge into a sympathetic listener. At the core of this story lies a difficult question: To what extent should a man be punished for something he did in the past, but for which he atoned, however indirectly, afterwards? At the crisis moment in the story, the protagonist leaves it up to the antagonist to answer the question."

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#### **A Celebration of Eastern's Fiction Writers**

Sean Crisci, Helena Dombkowski, William Dube, Ian Harrington, Cory Jennings-DuBois, Vivian Lubinsky, Claus McNeilly, Skylar Mink

*Faculty Mentor:* Christopher Torockio (English)

This group presentation will feature eight talented Eastern fiction writers sharing the short stories and novels they've been working on over the past year. The panel consists of published authors; students headed to graduate school to study creative writing; students who have studied, or will be studying, fiction writing abroad in Florence, Italy; and will feature a broad range of styles, themes, subjects, and voices that reveal all the various complexities of the human condition.

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## **A Celebration of Eastern's Memoir Writers**

### **Sisterhood and Strength: Stories of Us**

Julianna Concepcion

*Faculty Mentor:* Susan DeRosa (English)

This directed research project is a collection of segmented short memoirs that explore girlhood, sisterhood, and reconciliation through the evolving relationship between the narrator and her older sister, Ironeida. Drawing on the narrators' memories and interviews of her family members, the memoir examines their developing bond and the resilience that has allowed both sisters to confront and accept their shared past. Through scenes that balance emotional truth with moments of dark humor, the project considers how family trauma can be revisited without resorting to vengeful or bitter prose, instead prioritizing empathy, forgiveness, and closure. The sisters' relationship is situated within a broader family context shaped by addiction, abuse, instability, and survival, including portrayals of the narrator's mother, a recovered addict whose adolescence was marked by loss; the narrator's father, characterized by inconsistency; and Ironeida's father, whose abusive actions have made him irredeemable. These fragmented narratives examine how storytelling, shared memory, and accountability can foster healing and transform sisterhood into a site of renewed strength and understanding.

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### **Miracle Babies: Identity, Family, and the Mirror of Twinhood in a Dominican-Colombian Home**

Alexandra Ruales Ramirez

*Faculty Mentor:* Susan DeRosa (English)

My directed research project grew out of a question I couldn't stop thinking about: who am I when I'm not being seen as half of a pair—a twin? Growing up as an identical twin in a Dominican-Colombian household, my sister and I were constantly grouped together as “the miracle babies,” a title that felt both loving and limiting. This segmented memoir is composed of vignettes that move through childhood, adolescence, and early adulthood, tracing how the closeness between twin sisters slowly grows apart. Writers like Sandra Cisneros and Camille Gomera-Tavarez helped me think about voice, culture, and what it means to realize selfhood within a tight-knit family. My Dominican-Colombian family values of togetherness and loyalty, shaped by traditions like prayer, expectations around femininity, and a cultural closeness that leaves little room for privacy. These norms quietly dictate how to be a daughter, a woman, and even a twin, making individuality feel like betrayal. The memoir engages that tension as the narrator discovers a version of self that exists outside of “twinhood” without losing sight of how the twin bond endures and shapes identity.

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### **What We Carry: A Memoir on Addiction, Survival, and Identity**

Victoria Reyes

*Faculty Mentor:* Susan DeRosa (English)

My directed research project is a memoir that examines how growing up in an environment shaped by addiction, instability, and emotional contradiction influences identity, relationships, and self-perception. Beginning with early childhood experiences marked by unpredictability, familial tension,

and exposure to substance abuse, the narrative traces how these conditions normalized chaos and blurred the boundaries between love and harm. As the narrator moves from the social hierarchies of private school into the relative freedom of college life, she encounters new forms of belonging and exclusion, revealing how early exposure to addiction continues to shape her relationships, decision-making patterns, and understanding of intimacy. Substance use and risk-taking behaviors emerge not as isolated choices, but as extensions of an environment where instability felt familiar and connection was often intertwined with harm. Through reflection and reconstructed memory, the memoir explores themes of addiction, intimacy, and self-destruction, questioning the extent to which inherited patterns versus individual agency inform one's choices. In doing so, the project challenges conventional addiction and recovery narratives that rely on linear progression or resolution, instead presenting addiction as cyclical, relational, and embedded in one's sense of self.

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### **Prayers For My Inner Peace**

Shannon Carbonell

*Faculty Mentor:* Susan DeRosa (English)

Religion has always been a tricky subject for many people. One that gets forbidden alongside politics at the Thanksgiving table. Rather than hide from it, I chose to embrace my rocky relationship with religion in my memoir: "Prayers For My Inner Peace." Written in the style of a "hermit crab" in the form of prayers, I tackle a multitude of heavy issues related to faith, sexual abuse, and mental health. I utilized the prayers that I've said my entire life to reclaim my sense of self and self-love, and to explore moments and memories of my life as I struggle to find my faith and accept God's love.

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### **Improvisation and Communication in Jazz**

#### **Jazz Performances**

Dylan Schore, Katie MacLean (Ballinger), Ian Harrington, Alex Thornton, Mark Romano, Jason Skoog, Caio De Sousa, Jason Mitchell, Riley Lapham, Joshua Jasiorkowski

*Faculty Mentors:* Anthony Cornicello, Frederick "Rick" O'Neal (Music)

Two student directors lead an 8–10-member jazz combo in a live performance. These two students chose the material, lead band rehearsals, educated player on jazz standards; song structure, improvisation and on-stage communication.

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### **Eastern Student Filmmakers**

#### **Eaten Away**

Bruce Quito

*Faculty Mentor:* Brian Day (Communication, Film, & Theatre)

Eaten Away is a music video based off of the song Walking in My Shoes by Depeche Mode. In the video we explore the idea of narcissism and how things are not always as they seem. This video touches on the subject of one person's side of the story vs the full picture.

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### **A Wand-erful History**

Trinity Ginther

*Faculty Mentor:* Brian Day (Communication, Film, & Theatre)

Stafford Connecticut is full of hidden history. Tucked away on the back end of Main Street, lies OrchardWorks, a wand making business full of magic. Not only is there magic in the handmade wooden wands but also in the building itself. Join us as we discover the lost history of this beautiful building!

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### **My Boy**

Adam Frati, Sophie Hanlon

*Faculty Mentor:* Brian Day (Communication, Film, & Theatre)

This project is a music video to the song My Boy by Billie Eilish that was made for an in-class assignment. We went the horror route and had a lot of fun coming up with effective and creative shots for a story about a murderer.

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### **Heartburn**

Kat Torres, Evena Desther

*Faculty Mentor:* Brian Day (Communication, Film, & Theatre)

Our music video, titled 'Heartburn,' depicts an individual lose himself to scorned, obsessive love. From reminiscing the cherished moments into the transitional descent of melancholic gloom, our music video portrays heartbreak, at its worst pinnacle.

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### **“I Love You So” music Video**

Sean Jolly

*Faculty Mentor:* Reginald Flood (Communication, Film, & Theatre)

The presentation would consist mainly of a screening of a film project that I co-directed and acted in, which is a music Video for the song “I Love you So” by the Walter’s. The video is a little under 3 minutes long, so I can personally introduce the film and give comments on its making if needed for time.

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## Poster Abstracts

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### **The Relation of Natural Stimuli Exposure with Mindfulness and Memory Recall**

Helena Agüero

*Faculty Mentor:* Phyllis Lee (Psychological Science)

This study examined the relationship between nature exposure, mindfulness and memory recall to better understand how to cope with mind wandering when learning. This between-group experiment had a total sample of 37 undergraduate students; 16 being randomly assigned to the nature condition and 21 randomly assigned to the non-nature condition. In the nature condition, participants had to read a nature-related passage (“Trip to the Beach”), and in the non-nature condition they read a non-nature related passage (“Engagement Party”). Participants were tested on mindfulness levels after reading the passage and then were tested on memory recall using a self-made questionnaire based on the passage. Lastly, an independent t-test was run for each hypothesis to examine any significant group differences. It was hypothesized that participants in the nature condition would have significantly higher mindfulness levels than the control group. It was also hypothesized that participants in the nature condition would have significantly higher memory recall scores than the control group. There were no significant group differences for hypothesis one, however, the results did support hypothesis two, participants in the nature condition did have higher levels of memory recall than the control group. Due to limitations such as using a non-reliable measure of memory recall and a too indirect form of nature exposure, results could potentially also be attributed to error. Despite this, having found significant results calls for future research with a more controlled environment to better understand how nature exposure can have an effect on memory recall through mindfulness to improve academic performance.

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### **Investigation of Heat and Physical Scarification on *Gymnocladus chinensis* (Chinese coffeetree)**

Chidera Aligwara

*Faculty Mentor:* Bryan Connolly (Biology)

*Gymnocladus chinensis*, or Chinese coffeetree, alternatively known as a soap tree due to producing a soap-adjacent compound used to wash clothes, is a deciduous, small tree native to China. In this study, the seed’s potential for germination when subjected to either heat or physical scarification is contrasted with an earlier study subjecting the *Gymnocladus dioicus* or Kentucky coffeetree seed to heat and physical scarification. As the Kentucky coffeetree is alike in appearance and texture, apart from having a darker coloration, it is assumed that the Chinese coffeetree is also under megafaunal seed dispersal syndrome, referring to a group of traits such as: the toxicity of the seed when ingested by non-megafaunal species; their large over-bearing fruit; and the tendency to prefer or outright require scarification in order to germinate. Consequently, the Chinese coffeetree is an

ecological anachronism due to coevolving with megafauna and retaining those favorably selected traits long after they had gone extinct. Three experimental groups were present, consisting of 30 replicates for a total of 90 seeds; each replicate had 3 seeds in a pot. No control group was used as the Kentucky coffeetree's control group saw little germination; thus, this was extrapolated to the Chinese coffeetree.

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### **Early Science Behaviors of Toddlers**

Safiyya Asghar, Hanaa Asghar

*Faculty Mentor:* Sudha Swaminathan (Education)

Our poster describes toddlers' (18-36 months) early science behaviors which can be precursors of future scientific development. The data was collected by observing video archives from the Center for Early Childhood Education (CECE) of toddlers enrolled in the Child and Family Development Resource Center (CFDRC). While observing the children, it was found that their behaviors aligned more closely to the Cognition learning progressions of the Connecticut Early Learning Development Standards (ELDS) rather than the Science learning progressions. Examples of observed learning progressions include a child demonstrating awareness that when they pack sand in a cup, it takes the shape of the cup when dumped out (early signs of cause and effect). Another child showed signs of regulation of impulses while waiting for their turn for an activity. Lastly a child demonstrated their use of their working memory while washing her hands. During the simple but multi-step process of washing hands, they retained the final step (throwing trash out) in their working memory long enough to complete it. These behaviors as well as many others will be presented on our poster. They help demonstrate the potential and early processes of toddlers to start thinking and exploring the world through a scientific lens.

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### **Mental Health in the Reserve Officers' Training Corps (ROTC) Program: How Does the ROTC Program Prepare and Support Male Graduates' Mental Health for Service?**

Erik Bade

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Mental health in the Reserve Officer Training Corps (ROTC) program is a highly sensitive and underexplored area of research. This study aims to examine how it is handled and how the mental health of those involved in the program is supported. There are major gaps in prior research on this topic, and the limited research on the ROTC program is extremely outdated. In-depth semi-structured interviews were conducted with three male ROTC graduates. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes. Some of the major findings of this study were that ROTC members are bonded by shared experiences, which foster camaraderie and a sense of community. Another finding was the intense stress they face in the program and the heavy pressure they experience. An implication of the findings is that participants in the program help and support one another when the program lags behind in official support.

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## **Local Protections, National Polarization: Young Connecticut Women’s Perceptions of Abortion in a Nationally Divided Context**

Fallon Bailey

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Young women in Connecticut have the rare experience of residing in a state where abortion is legally accessible, despite increasing restrictions across the United States. Understanding their perceptions of abortion and abortion debates is critical because young women are current and future voters whose attitudes will shape laws and policies affecting future abortion access. Previous research has examined the influence of religion, stigma, and the legal environment on women’s abortion attitudes, but has not fully explored how these factors shape the perspectives of young women living in a state where abortion remains accessible. In-depth, semi-structured interviews were conducted with three young women (ages 18 to 21) living in Connecticut. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes. Three primary themes arose from this project: 1) strong emphasis on bodily autonomy, 2) complex emotional responses shaped by moral beliefs, and 3) varied perspectives on the future of abortion access both nationally and within Connecticut. These findings highlight how young women in legally protective environments understand and emotionally engage with abortion and its surrounding debates, giving insight into how women’s attitudes may vary within a shifting legal environment.

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## **On (NOT) Growing Up: Maturation and Cyclicity in Musicals Adapted from Children’s and Young Adult Literature**

Gabriella Beams

*Faculty Mentor:* Allison Speicher (English)

Although scholarship on fairy-tale revision remains extensive, musical theatre adaptations of children’s and young adult literature for adult audiences have received little sustained attention. Drawing on adaptation theory and the structural properties of the musical form, this paper addresses that gap by analyzing works such as *Into the Woods*, *Matilda the Musical*, *The Outsiders*, and *Tuck Everlasting*. By centering adaptation as creative repetition and foregrounding the impact of reprises and stage conventions, this paper argues that musicals do more than retell childhood stories for a new audience—they represent the passage into adulthood as neither linear nor permanent, thus making the stage into a site of perpetual coming-of-age.

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## **SA7K Human Kidney Proximal Tubule Cell Line as an In Vitro Model for Gentamicin Induced Kidney Injury Molecule-1 Gene Expression**

Olivia Benson

*Faculty Mentor:* Amy Bataille (Health Sciences & Nursing)

Gentamicin, an aminoglycoside antibiotic widely used to treat severe bacterial infections, is known to cause nephrotoxicity, particularly in neonates and pediatric patients. Early detection of gentamicin-induced kidney injury is limited by the low sensitivity and specificity of traditional biomarkers such as serum creatinine and blood urea nitrogen. Kidney Injury Molecule-1 (KIM-1) has emerged as a promising early biomarker for proximal tubule damage,

yet its expression in response to gentamicin exposure has not been evaluated in the SA7K human renal proximal tubule epithelial cell line. This study aimed to assess the suitability of SA7K cells as an in vitro model for investigating KIM-1 gene expression following gentamicin exposure. SA7K cells were exposed to 0  $\mu$ M (Control), 2  $\mu$ M, and 20  $\mu$ M concentrations of gentamicin for 6 and 24 hours. RNA was isolated, reverse transcribed, and analyzed for KIM-1 gene expression using quantitative PCR, with  $\beta$ -actin serving as the housekeeping gene. Results showed a trend toward increased KIM-1 expression in response to gentamicin exposure. However, high variation among samples led to a lack of statistical significance ( $p = 0.135$  for 6 hours,  $p = 0.488$  for 24 hours). Findings support investigation into the SA7K model's potential for advancing early detection of nephrotoxicity.

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### **SoundByte: Developing an In-Depth Marketing Plan and Materials for a Private Business**

Kyle Berson

*Faculty Mentor:* Jehoon Jeon (Business Administration)

The global music industry has experienced significant transformation over the past decade, driven largely by the rise of digital streaming services and social media. These developments have enabled artists to pursue success independently of major record labels. Although industry trends show the decision to remain independent is becoming more popular, indie artists face inequitable access to industry resources compared to their label-signed peers. Despite this industry-wide trend, independent artists continue to face substantial barriers, such as financial hardship, and inequitable access to professional services and industry networks. SoundByte is a concept social networking and two-sided project marketplace platform designed to democratize access to industry resources, facilitate professional networking, and support collaborative music creation. SoundByte: Developing a Marketing Plan and Materials for a Private Business, examines the business' marketing function and fully develops a research-driven marketing plan. The plan is developed using in-depth industry and competitor research, and by applying content learned in Eastern Connecticut State University's business administration program in an authentic, competitive setting. This presentation establishes a cohesive brand identity, strategic target markets and product positioning, and conducts rigorous internal and external analysis of the strengths and weaknesses of the business concept, competitors, and the music industry at large. The findings and outcomes of this research will benefit the sustainable development of SoundByte, and provide valuable insights applicable to the global music industry at large, with the goal of supporting indie talent at local, regional, and global levels.

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### **The Barriers to Black Women's Safety at Predominantly White Institutions: A Deep Dive into the Many Traumas Facing Black Women**

Anazia Bess

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Black persons tend to be faced with discrimination and persecution at higher rates compared to non-black persons and black students at predominantly white institutions face high rates of structural barriers as well. This research project focuses on the struggles specific to black women at PWIs. Previous research on black students at PWIs typically focuses on black males, with some studies claiming that black males face harsher and more severe barriers at PWIs, while studies done on black women state otherwise. This project is conducted through semi-structured, in-depth

interviews with 3 black women ranging from ages 19-22, who attend a predominantly white university. The frameworks of intersectionality, critical race theory (CRT), womanism, and black feminist thought theory (BFTT) are utilized to understand how they cope with the traumas and harms they may experience due to their skin color and gender. Three interrelated themes tend to be reoccurring: (1) Participants felt hyperaware of their skin color and note that it is highly noticeable when they are one of the only, if not only the black student in class, (2) Participants all seemed to be friends with only black and students of color on campus, and (3) Participants tend to only feel as if they fit in through groups involving cultural identity or others of the same or similar culture. The limitations and directions for future research are discussed as well.

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## **The Influence of Celebrity Endorsements on Social Media and College Students' Online Purchasing Decisions**

Samantha Blandford

*Faculty Mentor:* Jehoon Jeon (Business Administration)

Social media is a dominant platform for product discovery among Generation Z, particularly through celebrity and influencer endorsements. This study looks at how these endorsements influence the online purchasing decisions of college students at Eastern Connecticut State University. The research investigates how trustworthiness, expertise, authenticity, and relatability shape consumer perceptions and behaviors while utilizing Source Credibility Theory and the Meaning Transfer Model. This study used public data measuring the participants' social media usage, influencer perceptions, and purchasing patterns. Results show that nearly all participants use social media daily, with TikTok and Instagram being the primary platforms for endorsements. Trustworthiness and expertise were ranked as the most influential characteristics. Most respondents follow influencers and have made at least one purchase based on an endorsement. Overall, findings suggest that credibility, authenticity, and relatability significantly influence purchasing behavior, highlighting the persuasive impact of influencer marketing on Generation Z consumers.

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## **Description of *Aphonopelma hendrixsoni* sp. nov.: a new tarantula species from Mulegé, Baja California Sur, Mexico**

Hazel Bostick

*Faculty Mentor:* Matthew Graham (Biology)

A new species of tarantula, *Aphonopelma hendrixsoni* sp. nov., is described using an integrative approach that combines molecular and morphological analyses. The genus *Aphonopelma* contains a wide diversity of tarantula species distributed across North America, yet additional undescribed species likely remain in understudied, biogeographically dynamic regions such as the Baja California Peninsula. In this study, we built upon previous phylogenetic work analyzing cytochrome c oxidase I (COI) sequence data from specimens collected in Baja California Sur, including Mulegé and nearby regions, along with approximately 2,000 publicly available sequences from GenBank. Earlier analyses suggested that the Mulegé population formed a distinct evolutionary lineage within *Aphonopelma*, supporting the hypothesis that it represents a previously undescribed species. Our results support this hypothesis, as diagnostic morphological characters also distinguish this lineage as a new species. Phylogenetic and locality data indicate that *A. hendrixsoni* sp. nov. may be endemic to the Mulegé region. The specific epithet honors arachnologist Brent Hendrixson for his contributions to the

systematics of Aphonopelma. These findings highlight the remarkable arachnid diversity of the Baja California Peninsula, a region shaped by a complex geological history, and underscore the value of integrative approaches for revealing hidden evolutionary structure in overlooked systems.

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### **Techniques for Improving Patient Compliance to Medical Advice**

Olivia Bourque

*Faculty Mentor:* Paul Canavan (Health Sciences & Nursing)

Introduction: Patient compliance describes how well patients follow guidelines from their medical professionals. Compliance is crucial to the success of treatment plans, prevention measures, and overall health outcomes. Statement of the Problem: Noncompliance is a significant and ongoing public health issue which must be analyzed to initiate compliance improvement measures. Purpose & Methods: The purpose of this study was to identify determinants of patient noncompliance and develop evidence-based solutions for each determinant to improve patient compliance. Recent meta-analyses studies demonstrated key themes followed by qualitative and quantitative studies to analyze primary research. Results: Noncompliance by patients primarily stems from lack of education and results in treatment of misuse or neglect. Studies also show that the more complex a treatment plan is, the less likely it is to be followed. Dissatisfaction from patients is linked to poor provider communication and systemic or administrative inconveniences associated with seeking care. Cost of care is also an issue causing patient uncertainty and direct barriers to pursuing and maintaining care plans. Conclusion/Practical Application: Proposed factors of improvement are cost of services, patient dissatisfaction, and patient misunderstanding. Patients must be educated on the impact of compliance and potential negative effects of non-compliance.

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### **Social Media and Branding: Investigating the Interaction Between Leadership Content and Instagram Engagement**

Savannah Buisson

*Faculty Mentor:* Gregory Kane (Business Administration)

This project explores the relationship between leadership-focused content and social media branding by developing and analyzing an Instagram account. The primary objective was to investigate how different forms of leadership messaging - such as quotes, short-form videos, and carousel posts - impact audience engagement and perception. Content was strategically designed to be both educational and accessible, with an emphasis on “stealth teaching,” where leadership concepts are communicated without appearing overtly instructional. Throughout the project, various content styles were tested, including aspirational narratives, reflective messaging, and more direct, thought-provoking statements. The account focused on key leadership themes such as influence, empowerment, accountability, and organizational culture. Engagement patterns were observed to determine which formats and messaging styles were most effective in capturing attention and encouraging interaction. The findings highlight the importance of clarity, relatability, and emotional connection in digital leadership communication. This project demonstrates how social media platforms, particularly Instagram, can be used as effective tools to build a leadership brand while educating and engaging a broader audience.

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## **Communities & Crime: Predicting Assault**

Henry Bustell, Emily Meagher

*Faculty Mentor:* Chantal Larose (Mathematical Sciences)

Our research analyzes a large dataset detailing community- and crime-related variables such as population, percent of the population of a certain race, and number of crimes within the community. Our research question is: Which factors in a community increase assault rate? Analytical methods used include exploratory data analysis, neural network classification, and hierarchical and k-means clustering. Neural networks identify trends in assault rate while clustering group similar records in the data for the multiple cities. Key findings from our research are that communities with smaller household size tend to have higher assault rates, and that certain variables, such as per capita income, do not meaningfully impact assaults. The results indicate that most communities have a low assault rate, but the few that do have a higher rate elevate the average, leaving few cities to predict high assault rates for.

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## **The Impact of Police Body worn Cameras (BWCs) regarding trust and Perception of Accountability within African American Communities**

Jaelyn Butler

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

The use of police body worn cameras has significantly increased in the United States as a method of increasing transparency and accountability in the criminal justice system. However, significant uncertainties still exist regarding whether these cameras increase trust, especially for African Americans. This qualitative study examines how African Americans perceive body worn cameras and if they enhance officer accountability and trust. Data were gathered by conducting three interviews with African Americans who discussed their personal opinions and interactions with law enforcement. The interviews were recorded and then examined using a grounded theory technique, which incorporated line by line coding to find major patterns and common themes. The interview revealed several major themes, including accountability and transparency, trust, fear, and police conduct, and systemic problems, including the lack of training regarding police officers. Some of the individuals who participated mentioned that body worn cameras could potentially hold officers more accountable and make interactions a little easier, However, some expressed continuing anxiety and nervousness, indicating that officers actions are more important than the presence of a camera. Additionally, these respondents also brought up wider systemic challenges, such as poor police training and procedures, which may limit the value of these body worn cameras. Overall, the data reveal that, while body worn cameras can help with accountability, they are not good enough on their own to increase trust within African American communities. Actual transformation will most certainly require more effective training, policy changes, and stronger connections regarding police and the citizens they are responsible for protecting.

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## **Top Agar Method to Screen Fungi for the Production of Antibiotics**

Ethan Campbell

*Faculty Mentor:* Jonathan Hulvey (Biology)

Antibiotic resistance is a growing problem worldwide, and there is a need for new sources of antibiotics. Fungi are known to produce valuable antibiotics, and previous research has shown that the mushroom species *Hydnum repandum* (Hedgehog mushroom) and *Hypomyces chryospermus* (Bolete Mold) both produce antimicrobial compounds. Cultures of *Hydnum repandum* and *Hypomyces chryospermus*, cultured from fresh fruiting bodies collected from Eastern Connecticut State University campus arboretum in Fall of 2025, were grown on potato dextrose agar (PDA) for 5 – 10 days. Top agar assays with various bacterial species were used to test for zones of inhibition resulting from antimicrobial metabolites secreted from mycelia. Additional experiments were performed with *Hydnum repandum* to influence the production of antibacterial metabolites, by amending the PDA agar with various nitrogen sources. Results suggest that both fungi produce antibiotic compounds inhibiting bacterial growth of a variety of Gram-positive and Gram-negative bacteria which were not tested in previous studies. Future experiments will screen the fungal isolates against additional bacteria.

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## **“Hookers”, “Whores”, and “Ladies of the Night”: A Rhetorical Exploration of Voice in Conversations of Female Prostitutes**

Jennifer Canavan

*Faculty Mentor:* Steve Ferruci (English)

In its investigation of what 1970s advocacy for decriminalizing prostitution looked like in the US, this project explores the time’s culturally significant discussions of women in sex work and the rhetoric used by media to approach these topics. Through archival resources, including newspapers, scholarly articles, interviews, and footage, past cultural and rhetorical representations of women in prostitution are closely analyzed. Within these representations, the project investigates whose voices are presented and whose are left out entirely. The project does so not only through textual analysis, but through the careful selection and arrangement of archival documents, key excerpts, and other materials, guiding viewers to notice patterns of visibility and silence across the display. Overall, this narrative and archival exploration serves to observe how rhetoric can shape historical narratives in ways that are not always inclusive to intersectional identities or true to lived experiences.

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## **“It Helps, but It Feels Wrong”: Stay-at-Home Mothers’ Complex Experiences of Screen Time as a Functional Parenting Strategy and a Source of Parental Guilt**

Antonia Carminati

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

With the rise in technology in our society, children are being exposed to digital devices at much earlier ages. Screens have been incorporated into many aspects of daily life and routines. This increase in screen time for children has prompted ongoing discourse on the benefits and harms of using these devices during early childhood. Previous research has shown that many children are introduced to digital devices between the ages of one and three, and excessive exposure to screen

time may influence behavioral patterns, social-emotional development, and other critical aspects of early childhood development. The current study utilizes in-depth, semi-structured, 30-minute interviews with three stay-at-home mothers to explore parental perspectives and practices surrounding children's screen time. Findings from this analysis revealed three prominent themes: (1) parental guilt associated with screen time practices, (2) the use of screen time as a tool to manage responsibilities around the house, and (3) parental observations of problematic behaviors potentially linked to excessive screen exposure. These findings highlight the complexities of allowing screen time as a stay-at-home-parent, specifically mothers, and the guilt that often follows due to societal expectations.

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### **The Efficacy of Aqueous Smoke on Wild Indigo Propagation**

Owen Cascario

*Faculty Mentor:* Bryan Connolly (Biology)

*Baptisia tinctoria* or wild indigo is a nitrogen fixing legume native to North America. It is common in disturbed barrens and open wood lands. *B. tinctoria* is an essential host plant for the rare Frosted Elfin butterfly, making its successful propagation a priority for conservation. Propagation of this species from seed can be difficult due to its tough seed coat that generally requires mechanical scarification to allow for imbibition and germination. Scarification and water uptake alone may not maximize germination potential. In fire disturbed habitats chemical signals specifically smoke derived karrikins mimic a plant hormone called strigolactone that triggers the release of gibberellic acid potentially increasing the speed and success of germination. This study evaluated whether an aqueous smoke solution alongside physical scarification could enhance the germination percentage of *B. tinctoria*. Seeds were manually clipped and treated with a variety of different smoke solution concentrations (1%, 10%, 20%, and 100%) alongside a water control. Preliminary results indicated that the higher concentrations of smoke solution had a clear inhibitory effect on germination, lower concentrations were tolerated. Further investigation with larger sample size is required to identify the optimal concentration to enhance germination.

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### **A Qualitative Study of how the Rise of Digital Play has Redefined Educators' View of their Role in the Classroom**

Payton Cathell

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

The introduction of digital technologies incorporated into play in early childhood education is changing the ways educators view their role. Previous research has shown the positive and negative effects of enabling the use of technology in the classroom and how it affects teachers, students, and families differently. In depth, semi-structured interviews were conducted with two preschool teachers and one kindergarten teacher. Three key themes that emerged from the data collected are the teacher's role in practices, the role of family, and the authority and conflict surrounding digital play. These findings show that using digital play in early childhood classrooms is more complex than it might seem, and teachers must balance their roles, work with families, and manage conflicts around technology use. This research helps provide a better understanding of how educators handle digital tools in their classrooms and highlights the need for thoughtful and flexible approaches when incorporating them into play.

## **Does Chlorinated Water Interfere with the Beneficial Effects of Worms Castings on Cannabis Growth?**

Devon Cavanaugh, Jibril Davis

*Faculty Mentor:* Bryan Connolly (Biology)

Worm castings (vermicompost) are commonly used as a soil amendment to enhance plant growth. The diverse microbial communities in this amendment are thought to be responsible for the beneficial effects by improving nutrients availability. Tap water in towns and cities is typically chlorinated to eliminate human pathogens. Here we test if chlorine suppresses microbial communities present in worm castings and limits their improvement of plant growth. To test this, a study using 32 pots containing Cannabidiol (CBD) Cannabis plants was conducted. All the pots were fed with worm castings, 16 of which were watered with chlorine free reverse osmosis water, and 16 were watered with chlorinated tap water for 14 weeks. Plant growth measured as height was observed and recorded weekly. Final measurements, including the plant biomass and flower yields were collected at maturity. Data was analyzed using a t-test to differentiate between the effects of chlorinated and reverse osmosis water.

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## **Evaluating the Impact of Class Imbalance on AI-Based CNN Performance in Image Classification**

Dylan Chamberlin

*Faculty Mentor:* Kehan Gao (Computer Science)

Convolutional Neural Networks (CNNs) have driven major advances in AI-based image classification. Despite these successes, real-world datasets are often imbalanced, and large disparities in class representation can lead to biased learning, reduced generalization, and poor performance on minority classes. This research examines how four widely used CNN architectures, namely DenseNet, InceptionResNetV2, MobileNetV2, and ResNet152V2 perform when trained on balanced and imbalanced image datasets. The goal is to understand how class distribution influences key performance metrics, including accuracy, precision, recall, and F1 scores. Particular attention is given to DenseNet, whose densely connected structure promotes feature reuse and efficient gradient flow, raising the question of whether these advantages persist when the data exhibit significant class imbalance. Multiple image datasets of varying complexity and domain, including medical diagnosis, planetary surface imagery, and general object recognition, were evaluated using five-fold cross-validation and statistical analysis to compare model performance under different imbalance conditions. By examining the extent to which dataset imbalance affects classification outcomes, this study aims to inform model selection and training strategies for researchers and practitioners who rely on AI-based technologies in situations where obtaining balanced datasets is difficult or impossible.

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## **Differentiation of Evolutionary Divergence from Incomplete Lineage Sorting in the Phylogeography of California Dune Scorpions (*Smeringurus mesaensis*)**

Travis Chambers

*Faculty Mentor:* Matthew Graham (Biology)

*Smeringurus mesaensis*, the California dune scorpion, occurs in sandy habitats across the Mojave and Sonoran deserts. Previous analyses of the mitochondrial gene cytochrome c oxidase I (COI) from 20 sites in California and Arizona suggested strong phylogeographic structure, with populations grouped into nine geographically coherent clades. Similar regional patterns have been found in other desert organisms, suggesting that historical landscape change may have shaped diversification in this system and left hidden evolutionary structure beneath an otherwise simple desert surface. However, because mitochondrial DNA represents only a single maternally inherited marker, these patterns could also reflect incomplete lineage sorting rather than true population divergence. To test this, we amplified and sequenced the nuclear gene histone H3 (H3) from *S. mesaensis* samples representing the major COI lineages. By comparing mitochondrial and nuclear patterns, we evaluate whether the previously inferred geographic structure is supported by independent genetic evidence. This study helps determine whether genetic breaks in *S. mesaensis* reflect real evolutionary divergence across desert regions or the lingering signature of ancestral variation.

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## **Fantasy or Front? Realities of Recent First Time Mothers Pregnancy, Childbirth, and Early Motherhood Experiences in the United States**

Jenna Connelly

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Asking recent first-time moms about their pregnancy, childbirth, and motherhood experiences in the United States. Connelly (2026) Fantasy or Front? Realities of Recent First Time Mothers Pregnancy, Childbirth, and Early Motherhood Experiences in the United States. Pregnancy and childbirth can be a vulnerable period for women, particularly first-time mothers. Prior research has shown that pregnancy and childbirth can be risky and women often report not feeling heard or supported by healthcare professionals or their employers. This project draws on experiences of three women who have given birth to their first child within the last five years. The focus of this research is: 1) Experience with the healthcare system, 2) Experience with employment, 3) Experience with supports given to aid with mental, emotional, and physical needs. These findings are aimed to improve the experience of first-time mothers within the healthcare system, with employment, and their mental, emotional, and physical states while going through pregnancy and childbirth (especially for the first time).

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## **Exploring the Association Between Student Involvement and Sense of Belonging among 105 Eastern Undergraduates**

Matthew Coutinho, Kaleigh Perea, Amaya Valentin

*Faculty Mentor:* Sarah Nightingale (Sociology, Anthropology, Criminology, & Social Work)

The sense of belonging is a vital human need that significantly impacts students' academic performance, self-worth, social well-being, and mental health. College students who feel connected

to their campus communities are more likely to participate in activities, form meaningful relationships, and experience lower levels of overall stress. This study investigates the association between student involvement and sense of belonging among 105 undergraduates at Eastern Connecticut State University. By employing a quantitative approach, this research examines how participation in both academic and extracurricular activities contributes to students' perceptions of belonging. The study advances prior research on student engagement and belonging and aims to inform social work practice by showing strategies for fostering inclusive campus environments.

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## **Enhancing Small Business Social Media Strategies with Generative AI: A Case Study of Nova North Media**

Sean Crisci

*Faculty Mentor:* Jehoon Jeon (Business Administration)

Small businesses are easily overwhelmed in the age of artificial intelligence (AI) and social media. They must balance authentic content but also be more efficient than ever to stay competitive. AI is being used in all parts of marketing, but during my research, I have identified how it can be used without taking unethical shortcuts and instead create higher quality content that still has a human touch. In content creation, the process begins by developing an idea for a campaign through conversation with the business owner as well as understanding the product. Then, AI can be implemented. For a women-led clothing company themed around mindfulness, an example prompt may ask for several static and shortform pieces of content themed around a feminist approach to *The Odyssey*, by Homer. It is crucial to understand all components of the prompt to be able to spot fallacies and incorrect information. I have found that through making AI strategies clear to the owner, as well as anyone else working on the campaign, more efficient levels of content can be created while promoting deeper thinking. Small businesses can learn to use these strategies, as generative AI is available for free to the public.

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## **Evaluating Large Language Models for Phishing Email Identification**

Regan Cunningham

*Faculty Mentor:* Garrett Dancik (Computer Science)

Phishing attacks continue to be one of the most common and damaging forms of social engineering, due to the fact that it exploits a human's vulnerability to obtain sensitive information. As large language models (LLMs) become increasingly integrated into an average user's daily life, their untapped potential to assist a user in identifying malicious emails is significant. This study evaluates the effectiveness of three popular LLMs. OpenAI's ChatGPT-4, Google's Gemini 1.5 Flash, and Microsoft's Copilot with GPT-4, in classifying phishing and non-phishing emails. Using a pre-written prompt, each model was tested with fifty emails, split between twenty-five phishing and twenty-five non-phishing emails, taken from two different data sets. Accuracy bar charts and confusion matrices were used to measure the LLMs' performance. Results show that Gemini achieved 100% accuracy, ChatGPT achieved 94% accuracy, and Copilot achieved 92% accuracy. These findings show that popular LLMs can effectively detect phishing emails and can be used by everyday users as an acceptable and reliable tool.

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## **Beyond the Rainbow Flag: Barriers to Providing LGBTQ+ Affirming Care Faced by Healthcare Professionals**

Sydney Dameron

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Access to LGBTQ+ affirming healthcare remains inconsistent despite increasing social awareness and advocacy. While previous research has primarily focused on barriers faced by LGBTQ+ patients, less attention has been given to the challenges healthcare providers encounter when attempting to deliver affirming care. This qualitative study explores the barriers healthcare professionals face when providing care to LGBTQ+ individuals and examines how providers define affirming care in practice. Data was collected through semi-structured interviews with three healthcare professionals at different stages of their careers. Interviews were transcribed and analyzed using line-by-line coding to identify recurring themes. Five major themes emerged from the analysis: motivations for entering healthcare, definitions of affirming care, gaps in education and provider preparedness, societal and generational attitudes, and structural barriers such as insurance policies and legislation. Participants consistently reported limited formal education on LGBTQ+ health topics during their training and described needing to pursue additional learning independently. Providers also identified challenges related to discriminatory policies, insurance coverage limitations, and social stigma that can affect patient care. These findings highlight the need for improved educational training, accessible clinical guidelines, and policy reforms that support both providers and patients. Addressing these barriers may improve the quality, accessibility, and consistency of affirming healthcare for LGBTQ+ communities.

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## **Exploring Factors That Increase Sexual Violence on College Campuses During the Red Zone**

Madison Dashnaw

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Sexual violence on college campuses is a persistent problem that affects many students and shapes the climate of higher education. Some previous research on factors that influence sexual violence on college campuses has found that sexual violence is closely tied to how students understand consent, while other studies identify key situational and social risk factors involved. This project draws on semi-structured, in-depth interviews with three female college students. It uses a feminist intersectional theoretical framework to consider how marginalized group status might result in different experiences with sexual violence on college campuses. Two interrelated themes are addressed: (1) how the feeling of loneliness and self-isolation can pressure someone to engage in risky social situations, even if they feel uncomfortable; and (2) how institutional responses to sexual violence, particularly regarding reporting processes and support systems, are lacking in support for students. Understanding what specific factors contribute the most to sexual violence during the “Red Zone” (a period of time early in the fall semester when the risk for sexual violence is elevated) is important for developing effective prevention efforts, support systems, and institutional policies that can reduce harm and promote safer, more equitable campus environments.

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## **Flora Catalog of ECSU Mansfield Athletic Complex**

Eli Davies

*Faculty Mentor:* Bryan Connolly (Biology)

The objective of this study is to obtain a detailed and organized catalog of flora from the wooded area near Eaton Pond and the Mansfield Athletic complex. Very few biological projects have been done near Eaton Pond, making it an unknown habitat with unknown flora and fauna. Our goal is to map out Eastern's property using online mapping and create a detailed log of all flora found in this area. It's important to keep a detailed list of flora to ensure environmental stability in the area, while helping to keep this area protected and thriving. This was done by physically going out into the field and identifying species using iNaturalist, self-identification using books, online resources, and knowledge from Dr. Connolly. All data was recorded by taking multiple pictures, then uploading them to iNaturalist in order to categorize and organize all identifications. Surveys were completed weekly, with data recorded in both an Excel sheet and on iNaturalist. Once research is complete, all plant species will be presented as our findings.

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## **Victorian Anthropocentrism in *My Playmate***

Jessica Day

*Faculty Mentor:* Maeve Doyle (Art & Art History)

“Victorian Anthropocentrism in My Playmate” explores the complex narrative behind the 1874 hand-colored lithograph, *My Playmate*, by Irish lithographer Thomas Kelley. I explore this by examining the definitions and implications of anthropocentrism, completing a visual analysis of Kelly's piece, and bringing in multiple related historical contexts of the Victorian era, including religion, innocence, purity, industrialization, and consumption. This combined research supports the argument that *My Playmate*'s central figures, a young girl and her pet sheep, are intended to be read as having a complex human-animal relationship characterized by both companionship and ownership. This multilayered depiction displays how *My Playmate* serves as a work of art which inspires its audience to more deeply consider their views on animals and the human treatment of animals. As such, the piece acts as a springboard for future conversations about the true impact of anthropocentric values and their long-term consequences on both animals and humans as well as their ultimate relationship to one another.

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## **Revolutionary Connecticut: The War on Home Soil**

Steven Decsy

*Faculty Mentor:* Caitlin Carenen (History)

A poster exploring Connecticut's unique experience during the American Revolution and the largely forgotten military engagements fought on home soil. The focal point of the poster will be a map of battles and important locations accompanied by descriptions of each. The project will further explore, through a general overview section, how the nature of fighting in Connecticut differed. Connecticut largely experiencing raid warfare, involving large numbers of the state's own loyalist “refugees.” These loyalists had fled Connecticut and joined the British forces in attacking their former neighbors, in many regards making Connecticut's war a civil war. Much of the state's wartime story also revolves around Connecticut's own Benedict Arnold. It would be in Connecticut

that Arnold gained great acclaim during the Battle of Ridgefield and four years later returned as an infamous traitor during the burning of New London. This project will specifically feature the Danbury Raid/Battle of Ridgefield (1777), Greenwich Raid (1779), Gen. Tryon's July Raids (1779), Raid on Middlesex Parish (1781), and the Battle of Groton Heights/Raid on New London (1781). The poster will also feature other important wartime locations, such as Trumbull's War Office, Old Newgate Prison, Gen. Putnam's Winter Camp 1778-79, and the Salisbury Cannon Foundry.

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### **Are We More Than Institutional Promises: How Do Experiences of Social Inclusion and Exclusion Affect Black Students' Sense of Social Belonging at Predominantly White Institutions?**

Maeva Desir

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

In higher education, social belonging is often viewed as an individual issue rather than something shaped by institutional structures and the campus environment. Previous research has not fully examined the way predominantly white institutional settings (PWIs) impact experiences of inclusion and exclusion that interfere with social belonging for black students. This research examines the impact of social inclusion and exclusion on black students' sense of belonging in a predominantly white academic setting using qualitative interviews with three individuals who identify as black who have attended a PWI. The ultimate purpose of this study is to gain an understanding of how black students interpret their social experiences within PWI academic settings, as well as how those experiences affect their mental, emotional, and identity development. Based on these findings, five key themes have been identified. First, racial microaggressions are a contributing factor to exclusion. Second, participants made a distinction between performative support and actual support from their PWI. Third, the importance of community and establishing oneself as a black student is critical for developing a sense of belonging. Fourth, participants acknowledged primarily choosing to attend a PWI for financial reasons and experienced belonging differently as a result. Identity was then identified as the fifth theme when participants reflected their experiences of inclusive or exclusive social interactions. This research argues that the sense of belonging for black students depends on access to inclusive spaces on campus, peer and staff interactions, and genuine institutional support towards diversity.

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### **Cultivation of Oyster Mushrooms on Invasive Plant Biomass from *Phragmites australis***

Alexander Diaz

*Faculty Mentor:* Jonathan Hulvey (Biology)

The oyster mushroom, *Pleurotus ostreatus*, is a common wood decaying fungus found in forests, and is also considered a choice edible mushroom worldwide. Oyster mushrooms are frequently cultivated on mushroom farms and are consistently high yielding if given proper substrate and growing conditions. Alternative lignocellulose-based substrates, such as waste materials from industrial agriculture, have been tested for their suitability as a substrate for oyster mushroom farming. Another source of alternative mushroom substrates could be invasive plant biomass. The common reed (*Phragmites australis*) is an invasive grass found in wetlands across the New England and its lignocellulose composition holds potential for oyster mushroom cultivation. Comparisons of substrate were done by growing *P. ostreatus* in hemp waste, reed grass, and wheat straw as a control,

as well as 1:1 mixtures of hemp and reed grass with wheat straw. Time ranges for growth, fruiting body measurements, total yield and biological efficiency will be measured, and findings will influence further experiments with common reed and additional alternative substrates.

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### **Operational Analysis of the Crocs Corporation**

Abigail Dreyer, Kallie Rosenzweig, Emily Zegarzewski

*Faculty Mentor:* Fatma Pakdil (Business Administration)

This project presents an operations management analysis of Crocs, Inc., conducted as part of the OSC 260 Operations Management course during the Spring 2026 semester. Using an operations-focused framework, the study examines key dimensions including operational processes, market positioning, product design and technology, supply chain and physical distribution, quality management, and competitive dynamics. Crocs, Inc. has established a strong position in the global casual footwear market by emphasizing comfort, affordability, and operational efficiency. Crocs is driven by the integration of simple, standardized product design with highly scalable production and distribution systems. The company leverages a global network of outsourced manufacturing partners, enabling cost minimization while maintaining operational flexibility and responsiveness to demand fluctuations. The firm employs a multi-channel distribution strategy servicing customers in more than 85 countries while maintaining control over customer experience and brand consistency. Its centralized warehousing and reliance on global logistics networks support high-volume distribution, although it introduces risks related to supply chain disruptions and transportation costs. The use of injection molding technology and proprietary Croslite™ material enables efficient, large-scale manufacturing, contributing to economies of scale and strong profit margins. Product differentiation is further enhanced through customization options such as Jibbitz™ accessories and strategic collaborations, supporting continued relevance in a dynamic market environment. Despite intense competition from major footwear brands, the company has developed a distinctive market position centered on comfort and lifestyle rather than performance athletics. While challenges remain, including dependence on global suppliers and evolving consumer preferences, its operational capabilities, strong brand identity, and expanding direct-to-consumer model position for sustained growth.

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### **Investigating Genetic Diversity of *Massospora cicadina* Collected from the Double Brood Emergence of 2024**

Emily Dunlea

*Faculty Mentor:* Jonathan Hulvey (Biology)

*Massospora cicadina* is an entomopathogenic fungus of the phylum Zygomycota that infects periodic cicadas in Eastern North America. Currently, *M. cicadina* is labelled as a single species that infects several different cicadas from the genus *Magicicada*. However, many parasitic fungi are highly host-specific. Therefore, it is possible that *M. cicadina* has undergone speciation due to co-evolution with its *Magicicada* host. The goal of our research is to expand upon previous *M. cicadina* findings using additional samples collected during the 2024 double brood emergence. DNA from two target genes will be extracted, sequenced, and analyzed for relatedness using phylogenetic analysis. The two loci of interest are beta-tubulin and alpha-elongation factor (EFL), as they showed divergence of *M. cicadina* isolates in a previous study (Macias et al in 2020). Genetic diversity of samples will be

assessed for differentiation by the brood from which they were sampled. Spores from the samples will also be characterized and compared for differentiation. Results for this study are hypothesized to be consistent with previous research. Assuming co-evolution of host and pathogen, it is hypothesized that *M. cicadina* found in Brood XIX will have diverged genetically from *M. cicadina* found in Brood XIII.

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### **I Can Read All by Myself, I Can Read Without your Help: Analysis of Contemporary Early Reader Books**

Savannah Duursema

*Faculty Mentor:* Allison Speicher (English)

Learning to read is a crucial time in childhood because literacy is the basis for all future learning. Early readers incorporate simple sentences, plot, and images to craft a text that a child can read independently which provides their first opportunity to take in a story without an adult co-reader skewing meaning. Literature scholars, however, have rarely studied these texts, labeling them as stepping-stones to more sophisticated literature. I challenge this oversimplified view, drawing upon a well-vetted sample of early readers. My analysis reveals four major implicit societal assumptions targeted at our young literates: 1) Social skills must be taught, 2) children relate and learn best from animal characters 3) children lack time awareness and a sense of realism, and 4) children don't want to (learn to) read. Early reader books hold immense power over the young minds that internalize their messages, so they cannot be ignored by scholars anymore.

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### **Industry Convergence or Persistent Divergence? Business Practices In The Global Wine Industry**

Vianney Escobedo Herrera

*Faculty Mentor:* Emiliano Villanueva (Business Administration)

Globalization, technological advancement, and the diffusion of international standards are often expected to drive convergence in firm behavior. The wine industry offers a unique context to examine these dynamics, combining strong global integration with deeply rooted regional identities. This tension is reflected in the historical distinction between "Old World" producers (e.g., France, Italy, Spain) and "New World" producers (e.g., Chile, Argentina, South Africa). This study reviews existing literature to analyze the drivers of convergence and divergence in the wine industry, focusing on business practices, production methods, and technological adoption. It explores how these factors influence quality-differentiated export strategies and whether globally integrated firms adopt similar practices regardless of origin. Findings suggest that firms simultaneously converge in management and production techniques while preserving distinctive regional characteristics. This highlights a complex interplay between global pressures and local traditions. The study contributes to a broader understanding of how cultural, technological, and strategic factors shape firm behavior, emphasizing the importance of sector-specific analyses in identifying patterns of both harmonization and differentiation in global industries.

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## **Theoretical & Practical Investigation of 1950's Hourglass Silhouette in Fashion History**

Leigha Fernandes

*Faculty Mentor:* Anya Sokolovskaya (Communication, Flim, & Theatre)

This research investigates the cyclical evolution of fashion trends and body ideals, focusing on the reemergence of the 1950s hourglass silhouette in contemporary fashion. Popularized by Christian Dior in 1947, the “New Look” emphasized rounded shoulders, a defined bust, a cinched waist, and full hips, producing a highly structured feminine form. The study examines how this silhouette was historically constructed through the interaction of garments, undergarments, and styling conventions. Particular attention is given to the role of corsetry, padding, and coordinated accessories in shaping the body’s appearance according to mid-twentieth-century aesthetic ideals. By situating these techniques within a broader historical and cultural framework, the project highlights how fashion constructs and reconstructs the body across time. It argues that the persistence of the hourglass silhouette reflects not only stylistic revival but also the enduring influence of structured shaping practices in defining femininity in both historical and contemporary contexts.

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## **Developing a Model for Predicting Success in Statistics**

Jaycelyn Forbes

*Faculty Mentor:* Stan Kolek (Psychological Science)

No matter the student, instructor, teaching methods, or materials, there are always those who fall behind in statistics courses in the social and behavioral sciences. The high rates of anxiety that students report while taking statistics are testament to the urgency of this problem, and the solution may involve a preventative approach that focuses on an abundance of factors. An extensive literature review has revealed several variables that independently contribute to academic success in statistics courses, including instructor influence, classroom engagement, statistics anxiety, statistics self-efficacy, textbook usage, plans for future use (expectancy value) and math disposition. These studies explore how each variable is predictive of success on its own, but there is a lack of research that explores how these variables work together. A future investigation, planned for Fall '26 or Spring '27, will explore this relationship by surveying current and recent students of Behavioral Science Statistics (PSY 227). In this presentation, I will introduce variables that predict success in statistics, explain how I expect these variables to interact, and propose a plan to use multiple linear regression in building a model that predicts academic success in social and behavioral statistics.

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## **Measuring the Effects of Mammoth P and Chlorinated Water on Cow Pea (*Vigna unguiculata*) Plant Growth**

Marjorie Fournier

*Faculty Mentor:* Bryan Connolly (Biology)

*Vigna unguiculata*, or Cowpea, is a nutritious crop known for its heat and drought tolerance. Cowpeas are mostly grown in dry environments throughout the world, in places such as Latin America, Africa, and South Asia. In addition to typical nutrients like iron and protein, this species also has seeds high in bioactive compounds called polyphenols that are beneficial to human health. Mammoth P is a bacterial growth stimulant developed to mobilize phosphorus and micronutrients

in water and soil systems, which is used in other plant species such as *Cannabis sativa* to enhance growth. In *Cannabis*, chlorinated water has been demonstrated to interfere with the positive growth effects of Mammoth P. This experiment was done to test if Mammoth P stimulated growth in cowpeas and also to examine if chlorinated water inhibits the action of the stimulant with this species. It is hypothesized that Mammoth P alone will stimulate the growth of cowpea plants and that chlorinated water will inhibit the positive effects of Mammoth P in this species. This study was conducted over four weeks in the Eastern Greenhouse with ten potted plants in each of the three groups. Plants were watered with the following: Mammoth P with Reverse Osmosis Water, Mammoth P with Chlorinated Tap Water, and Chlorinated Tap Water. Plant Growth will be measured as plant height, stem diameter, and weight. At the end of the study, an ANOVA will be used to statistically analyze the data to determine differences in plant growth within the control treatments.

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### **The 21st Century: Rhetorics of Greenwashing and the Eco-Friendly Movement**

Natasha Frisch

*Faculty Mentor:* Susan DeRosa (English)

As sustainability claims become more common in everyday branding, the rhetoric of greenwashing increasingly influences how the public shops, votes, and views environmental issues. As a rhetoric and composition concentration in the English department, I blended my passions for English, communication, and sustainable energy into a comprehensive directed research project on greenwashing. Greenwashing occurs when companies deceptively brand themselves, products, or policies as “sustainable” to appear more environmentally friendly than they are, misleading consumers and directing money toward unethical brands. After I noticed how easily I fell victim to eco-labeling and vague sustainability claims, I decided the rhetorics of greenwashing was a prevalent problem that was not talked about enough, so I created a website that helps others avoid the same trap. My project rhetorically examines what greenwashing is, the history of the eco-friendly movement, and the rhetorical strategies companies use and why they are effective. Then, I move toward a positive future: highlighting the strategies of environmental activists and independent certification groups who expose misleading sustainability narratives through social media, research, and public policy. By presenting my research through an interactive platform, I aim to help consumers build counternarratives and make more informed choices toward a sustainable future.

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### **Parents Just Don’t Understand: An Analysis of the Familial Relationships and Childhood Experiences of Multiracial Adults in America**

Emily Galiette

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Multiracial children of interracial parents experience race, racialization, and culture in a unique way compared to their mono-racial peers. Previous research on cultural experiences of minority individuals has excluded or not explicitly considered the perspectives of those from multiple racial, ethnic, or cultural backgrounds while research on multiracial individuals has tended to focus on their parents’ experiences. In-depth, semi-structured interviews were conducted with three adult multiracial individuals who grew up in the United States. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes.

Primary findings addressed in the interviews include: (1) the impact of school environment on personal identity and sense of self; (2) how the integration of cultures within the home provides a foundation for continued cultural connection as an adult; (3) feelings of loss of one cultural identity when not as heavily integrated in the home; and (4) the value of a community of others who share in the cultures of the multiracial person. These findings highlight a need for increased awareness and socio-cultural understanding both for multiracial persons themselves and their mono-racial peers.

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### **Three Sisters - Lighting Over Chekov**

Zavier Garcia

*Faculty Mentor:* Timothy Golebiewski (Communication, Film, & Theatre)

Lighting design is a process that takes several months before reaching the first tech rehearsal. There is extensive dramaturgical research involved in bringing the playwright's visual ambience in line with the director's vision. Additionally, the process involves electrical work, light programming cues, and establishing the environment and emotion for audiences. For my senior capstone project in Theatre and Performance Media, I was the production light designer for the Communication, Film, and Theatre department's spring production of "Three Sisters" by Anton Chekhov. My poster presentation will outline my creative and technical process while collaborating with my faculty advisor and the production set designer, Timothy K. Golebiewski. Lighting design is an incredible and specific process that requires lots of understanding of visual imagery and what that conveys.

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### **Screening Soil Bacteria for Selective Inhibition of Staphylococcus aureus**

Kendra Ghansah

*Faculty Mentor:* Jonathan Hulvey (Biology)

The bacterium *Staphylococcus aureus* is an opportunistic pathogen that has been associated with atopic eczema in numerous studies, while a related commensal bacterium, *S. hominis*, from the skin microbiome has been shown to offer protection against opportunistic pathogens like *S. aureus*. Our study is aimed to identify bacteria from soil that are producing antimicrobial compounds which selectively inhibit *S. aureus*, while sparing *S. hominis*. We conducted spread/patch plate assays using *Bacillus* isolate from soil, cultured as part of the Tiny Earth program, to screen for differential inhibition against *S. aureus* and *S. hominis*. So far, we have identified a *Bacillus* species, with 16S DNA sequence similarity to *B. altitudinis* and *B. xiamenensis*, which appears to selectively inhibit *S. aureus* (but not *S. hominis*). Ongoing work focuses on screening additional soil bacteria isolated as part of the Tiny Earth program at Eastern. DNA sequencing and biochemical tests will be used to characterize additional isolates that display selective inhibition of *S. aureus*.

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### **Influences on Transgender Individuals Lacking a Sense of Community**

Neo Gomes

*Faculty Mentor:* Chantal Larose (Mathematical Sciences)

The following research seeks to analyze what characteristics contribute to transgender individuals lacking a sense of community. The influences on community belonging are important to discover

since social connection is correlated with individuals living healthier and longer lives. To discover these characteristics, we run hierarchical clustering on 138 transgender individuals from the 2016 to 2018 TransPop survey. We sort the members of these two clusters by their sense of community or lack thereof; from there, we use the p-values from Kruskal-Wallis and Chi-Squared tests to analyze differences between the characteristics of the two clusters. We identify the characteristics with the highest values of significance, where the p-values are 0.001 or less. The 13 highly significant characteristics between the two clusters can be categorized into three groups: demographic related, negative experiences, and mental health. These findings imply lacking a sense of community have gone through traumatic experiences or believe that they cannot socially present as their chosen gender.

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### **Growth Under Oppression in an Annexed Land: How do Chicano Students Gain and Utilize their Social and Cultural Capital to Succeed in College?**

Estrella Gomez

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Every student faces many challenges when trying to achieve their education. Chicano students are no different, but they are faced with a unique set of challenges due to their history with the U.S. education system. They are also part of a rapidly growing Hispanic population. Chicano students face lower graduation rates from 4-year colleges compared to their peers. Previous research on Chicano/Mexican American education examines cultural influence on the educational experience. Chicano students have experienced marginalization and exclusion in the classroom, partially due to these differences. There have been strides made to lessen these sentiments, but they still remain to this day. The U.S. education system relies on some amount of parental knowledge about how schools function. This leaves Chicano students further behind because their parents are less likely to have had personal experience navigating this system. In-depth semi-structured interviews were conducted with three first-generation Chicano students who graduated from a 4-year university. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes. These students drew from many different resources to navigate their educational experiences, often relying heavily on resources provided by their schools, even if the school is lacking. Once in college, Chicano students reported needing to learn a new set of skills and struggling to navigate obtaining them. This shows that Chicano students need more direct support from schools, at every level, in order to have higher educational success rates.

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### **Scrolling Into Stress: the Impact of Social Media on the Mental Health of College Students**

Brooke Guimont

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

This study examines the relationship between social media use and the mental health of college students, with a focus on Generation Z. As social media has become deeply embedded in students' daily lives, concerns have been discovered regarding its influence on anxiety, depression, and self esteem. This research highlights key mechanisms such as social comparison, fear of missing out (FoMo), and excessive screen time as contributors to negative mental health outcomes. At the same time, social media can provide meaningful benefits, including social connection, perceived support, and increased mental health awareness. Using a qualitative research design, this study includes casual,

but structured interviews with college students who actively use social media. A sample method ensures representation across academic years and majors. Other areas of focus include social comparison, perceived social support, which will provide a deeper understanding of both the potential harms and benefits. Research suggests that while social media can cause stress, bring out insecurity and cause emotional exhaustion, it also serves as an important tool for maintaining relationships and fostering community. Ultimately, the impact of social media is not inherently positive or negative but depends on patterns of use. This study emphasizes the importance of mindful engagement to promote healthier mental well-being among college students. The paper shows that social media is not completely good or bad it depends on how it is used. Learning to use social media in a healthy and balanced way can help college students avoid negative effects while still benefiting from the connections it provides.

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### **Effects of Antiseptic and Natural Mouthwashes on Streptococcus Biofilm Formation**

Zaine S. Gutierrez-Valenzuela, Benjamin K. Cairone

*Faculty Mentor:* James M. Brooks (Health Sciences & Nursing)

Biofilms are aggregates of microorganisms attached to surfaces that form a protective environment, enhancing their survival. In the oral cavity, biofilms exist as dental plaque and microbial communities on tissues, contributing to antibiotic resistance and infectious disease. Previous work on this project assessed the short-term effects of mouthwash on the human saliva microbiota and cultured twenty-two microbes capable of forming biofilms. In this study, three of these bacterial isolates were selected based on their antibiotic resistance profiles and virulence factors. Polymerase chain reaction (PCR), gel electrophoresis, 16S rRNA gene sequencing, and BLAST analysis were used to identify the isolates as *Streptococcus thermophilus*, *Streptococcus oralis*, and *Streptococcus australis*. Plate assays were performed to determine whether antiseptic and natural mouthwashes could disrupt preformed biofilms or inhibit biofilm formation. Results showed that neither mouthwash disrupted preformed biofilms; however, both were effective at preventing biofilm formation, with the antiseptic mouthwash demonstrating a stronger inhibitory effect. Further research is needed to determine whether these findings extend to other groups of microorganisms within the human oral microbiome.

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### **Breaking It Down: An Evaluation Case Study of Community-Based Organizations' Implementation Models for Gun Violence Prevention in Adolescents**

Cassidy Irwin

*Faculty Mentor:* Sara Newman Carroll (Health Sciences & Nursing)

Since 2020, gun-related homicides, suicides, and accidents have been the leading cause of death for youth aged 1-17. This statistic is only likely to worsen without significant intervention at the community level. Roca, a community-based organization with grant funding from the Connecticut Department of Public Health, is helping to reduce gun violence through their 4-step intervention model implemented through programs for young people in urban environments, with emphasis placed on young parents and youth with gang affiliations. The purpose of this research is to analyze how community-based organizations, such as Roca, implement intervention models to reduce the factors that lead adolescents to engage in gun violence, especially in urban area gangs. This qualitative thematic analysis was run through software such as Zotero. Another output of this

research is a conceptual model that depicts a rudimentary "formula" of an intervention model that includes the evidence-backed attributes that have contributed to success in Roca's case study. However, every community has varying levels of risk factors for gun violence, so there will never be a one-size-fits-all solution. Therefore, this conceptual model serves as a formula that other community-based organizations can modify to create an intervention model tailored to their area's unique risk factors.

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### **My Role for the ECSU Swim Team!**

Sophia Johnson

*Faculty Mentor:* Gregory Kane (Business Administration)

Over the course of the academic year, my role with the ECSU Swim Team evolved significantly, reflecting both personal growth and increased responsibility. I began as the team's social media coordinator, where I was responsible for traveling to away meets, supporting team coverage, and capturing visual content of swimmers during competitions as well as team activities outside the pool. As the semester progressed, I demonstrated the ability to take on a larger role and I transitioned into the team manager. In this role, I contributed to team communications by creating newsletters to support upcoming social media content and team engagement. These newsletters highlighted important aspects of the student-athlete experience, including campus housing options for incoming freshmen, team events they do, and both in-pool and out-of-pool accomplishments of swimmers. This experience showcases the development of my communication, leadership, and organizational skills while contributing to the visibility and community of the ECSU Swim Team.

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### **Unsung Heroes: The Roles and Contributions of Women of Color during the Civil War and Reconstruction Period**

Sawyer Joslin

*Faculty Mentor:* Stacey Close (History)

This project sets out to examine the oftentimes overlooked roles and contributions of women of color during the Civil War and Reconstruction Period. In my paper, I argue that women of color were a central, pivotal force in transforming the political and social spheres in the United States during an essential moment in our history, yet do not receive the credit they should for making our country what it is today. Using a combination of historical accounts and modern-day research, I will investigate how intersectionality and oppression affected these women firsthand and the sacrifices they made for a better America. In my paper, I will cover largely four main topics: roles of women, notable names, abolitionism, and early feminism. This will be done by discussing specific roles of women of color in the Civil War such as nurses, teachers, and soldiers, highlighting notable women such as Susie King Taylor, Rachel Knight, and Matilda Joslyn Gage, discussing women of color who did profound abolition work, and lastly, highlighting the work of early feminists of color. The goal of this paper is to challenge the previously dominant historical narrative of women during this timeframe and emphasize the importance of intersectionality in historical narratives.

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## **The Relation between Self-Regulation and Impulsivity in First-Generation and Continuing Generation Students**

Julia Kaczynski

*Faculty Mentor:* Jenna Scisco (Psychological Science)

Compared to continuing-generation college students (CGCS), first-generation college students (FGCS) frequently arrive at college with fewer academic resources and more stress, which may influence their impulsivity and self-control. This study investigated the link between impulsivity and self-regulation and whether college generation status was related to these factors. Forty-four undergraduate students answered questions about their generation status, self-regulation (Short-Self Regulation Questionnaire), and impulsivity (TRUE-Multidimensional Impulsivity Scale). As hypothesized, self-regulation was significantly related to impulsivity,  $r(42) = -0.72$ ,  $p < .001$ , 95% CI [-.84, -.53]. However, FGCS ( $M = 110.5$ ,  $SD = 27.23$ ) did not have significantly lower levels of impulsivity compared to CGCS ( $M = 103.05$ ,  $SD = 28.97$ ),  $t(42) = 0.87$ ,  $p = 0.19$ , 95% CI [-9.78, 24.68],  $d = 0.26$ . Furthermore, FGCS ( $M = 103.06$ ,  $SD = 16.39$ ) did not have significantly higher levels of self-regulation compared to CGCS ( $M = 106.44$ ,  $SD = 12.31$ ),  $t(42) = -0.78$ ,  $p = 0.22$ , 95% CI [-12.12, 5.36],  $d = -0.24$ . These findings demonstrate the link between self-regulation and impulsivity but suggest that generation status might not play a role.

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## **Survival on Trial: A Comparative Analysis of Survivor Defendants in Texas & New York and the Case for a National Domestic Violence Survivors Justice Act Framework**

Elizabeth Kollegger

*Faculty Mentor:* Rachel Pesta (Sociology, Anthropology, Criminology, & Social Work)

Women who survive prolonged intimate partner violence are often criminalized when they use lethal force against their abusers, and their legal outcomes vary significantly depending on jurisdiction. This study examines how differences in legal frameworks shape sentencing outcomes by conducting a comparative analysis of ten cases, five from both Texas and New York, involving adult women who killed abusive partners. All cases include documented evidence of abuse and have reached the trial or sentencing stage. The analysis focuses on the treatment of abuse evidence, legal strategies such as self-defense or plea agreements, sentencing outcomes, and the availability of post-conviction relief. Findings indicate that traditional self-defense and stand-your-ground doctrines in Texas frequently fail to account for the realities of ongoing abuse, resulting in lengthy, fixed prison sentences when claims are rejected. In contrast, New York's Domestic Violence Survivors Justice Act (DVSJA) allows courts to consider abuse as a significant contributing factor at sentencing and during post-conviction review, leading to substantial sentence reductions. These differences highlight how legal structure, rather than case facts alone, shapes outcomes for survivor-defendants. The study underscores the role of survivor criminalization, gendered credibility, sentencing disparities, and federalism in producing unequal justice, and argues for the development of a national survivor-centered sentencing framework.

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## **Decoding DV Reporting: Personal, Social, and Systematic Influences**

Melissa Korakis

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Domestic violence is a widespread issue that remains significantly underreported. Understanding why survivors choose not to disclose abuse is critical to improving support systems and interventions. Previous research has examined the key factors influencing domestic violence reporting and has identified fear as a primary barrier. This project draws on in-depth interviews with three individuals who are employed by a non-profit organization that works with domestic violence survivors. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes. Three major themes that strongly influence survivors' decisions to report domestic violence are fear of retaliation, financial dependency, and distrust of institutions. Survivors consistently weigh personal safety, economic stability, and potential institutional responses before disclosing abuse. These findings suggest that current reporting systems may inadvertently place survivors at greater risk, highlighting the need for policies and practices that prioritize safety and autonomy. The study's significance lies in its emphasis on survivor-centered approaches, which can rebuild trust in formal support systems and reduce barriers to reporting. By addressing both systemic and interpersonal factors, practitioners and policymakers can develop more effective interventions that empower survivors, enhance access to resources, and ultimately improve outcomes for individuals and families affected by domestic violence.

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## **An Unexpected Barrier: Examining Options for Domestic Violence Survivors with Companion Animals**

Katherine Kubarych

*Faculty Mentor:* Megan Stanton (Sociology, Anthropology, Criminology, & Social Work)

Survivors of intimate partner violence often face barriers to exiting abuse due to the presence of companion animals. 50% of survivors reported staying in an abusive relationship out of reluctance to part with a pet. Abusive dynamics frequently involve threats or acts of violence towards pets, and the majority of domestic violence shelters only accept service animals. Despite the efforts of non-profits such as the Red Rover Project and the passage of the Pets And Women's Safety Act (PAWS) to provide affordable pet care options, survivors in eastern Connecticut continue to struggle. Boarding services are few and far between, making access difficult for those who do not own vehicles. Additionally, while some boarding prices are within limit for Red Rover to cover expenses, some exceed the price cap, further limiting options. It is imperative to expand efforts to increase the number of pet-friendly shelters, increase funding for boarding services and advocacy organizations, and expand education for domestic violence service providers. My poster will summarize the academic literature on domestic violence and companion animals, map the pet services currently available to survivors in Windham County, and make policy and practice recommendations based on my findings.

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## **Exploring the Possibility of Immune Evasion by Commensal Bacteria in the Brain**

Gledis Levenishti, Isabelle McClelland

*Faculty Mentor:* Kurt Lucin (Biology)

The collection of microorganisms that live in and on our bodies is known as the microbiome. While the microbiome has been extensively studied at various body sites, including the skin and gut, little is known about the brain since it has traditionally been considered a “sterile environment”. However, recent studies suggest that the brain might actually harbor bacterial communities. The role of these bacteria in the brain and how they avoid destruction by resident immune cells, called microglia, remains unclear. Here we establish a method for detecting microglial activation in the presence of factors secreted by bacteria. Specifically, human microglial cells (HMC3 cells) were cultured with factors secreted by the bacterial pathogen *Escherichia coli* (E. Coli). Microglia were then provided 5µm latex beads to determine their ability to “eat” (i.e., phagocytose) the beads. HMC3 cells demonstrated a marked ability to eat beads in the presence of secreted E. Coli factors. Importantly, secreted E. Coli factors did not appear to affect the health of the HMC3 cells, as detected by viability dyes. These results lay the foundation for future studies which will test whether “harmless” bacteria cultured from the brain inhibit microglial function as a means for avoiding destruction.

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## **Aging and Heat Vulnerability: Emergency Medical Service Utilization During Extreme Heat Events in Connecticut**

Megan Loflin

*Faculty Mentor:* Sarah Walters (Health Sciences & Nursing)

Background: Rising global temperatures pose growing risks to human health, increasing the strain on healthcare systems. In Connecticut, the combination of aging infrastructure, socioeconomic inequities, and limited adaptation capacity amplify vulnerability to heat-related impacts. Methods: Emergency Medical Service (EMS) call data from the National Emergency Medical Information Services (NEMSIS) database was linked with Local Climatological Data (LCD) from the National Oceanic and Atmospheric Administration (NOAA) for the summer months (May-September) from 2021-2025. Negative binomial regression models were used to examine the association between daily heat events and EMS calls for Heat-Related Illness (HRI) in Connecticut. Models controlled for demographic covariates including age group, sex, and urbanicity to account for population-level differences in vulnerability and exposure. Results: Days classified as heat events were associated with significantly higher HRI-related EMS calls. Across all counties, the incidence rate of HRI calls was approximately 7.3% higher on heat-event days compared to non-heat days. A greater proportion of calls among adults aged 17-64 was associated with a modest but statistically significant increase in HRI call rates. When data were aggregated state-wide, heat-event days were associated with a 30% higher rate of HRI calls, revealing broader population-level effects that may be observed in county-level analyses. Conclusion: Heat-event days were significantly associated with increased rates of EMS calls for HRI in Connecticut between 2021-2025. Adults aged 17-64 and older adults (65+) experienced heightened vulnerability during extreme heat. These findings underscore the need for targeted, data-driven heat response planning and public health interventions to protect at-risk populations as climate-related heat events intensify.

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## **Optimizing Computer Lab Course Scheduling Through Student Preference Analysis and Capacity Utilization**

Jake Martin, Christopher Stephenson, Molly Hinrichs, Ana Jimenez Gomez

*Faculty Mentor:* Niki Kunene (Accounting & Business Information Systems)

Students often face challenges when registering for required lab-based courses due to scheduling conflicts, including overlapping class times and commitments such as athletics or work. This study analyzes registrar data from eWeb alongside survey responses from students in BIS, Business Administration, and Computer Science to identify gaps in lab course availability. Specifically, we examine class times, number of sections, lab capacity, and student preferences for course scheduling. Survey results indicate a clear mismatch between preferred class times and current lab offerings. Many lab sections scheduled outside preferred times are under-enrolled, while high-demand time slots lack sufficient capacity. This imbalance limits student access to required courses and may delay academic progress. To address this issue, we propose increasing lab availability during peak demand times. One potential solution is repurposing Webb 410 into multiple temporary lab spaces using dividers, allowing the room to function as two to four smaller lab classrooms. This approach would better utilize existing resources while maintaining Eastern's commitment to small class sizes and personalized learning. By aligning course offerings more closely with student preferences and optimizing current facilities, the university can improve access to required lab courses and enhance the overall student experience.

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## **Bringing No Exit to Life: Lighting Design for Live Theatre**

Jillian Martin

*Faculty Mentor:* Timothy Golebiewski (Communication, Film, & Theatre)

Light designing for a live stage show is a multistep process that involves research, running software, operating and programming technology, as well as creating cues and beautiful shots on stage. Last semester, I was the light designer and master electrician for our fully student-directed and designed show, No Exit. In this role, I collaborated with the student director to adapt a previous show, a comedy, to fit this show, an existentialist drama that takes place in hell. My poster will showcase the process of light design for theatre and include several photos from the final looks onstage, as well as how I was able to adapt it from a previous light plot. The lighting design process is complicated and meticulous and involves communicating with the audience to focus their attention on certain areas, create realistic environments on stage, and help tell the story. When done right, it can have excellent results. I will highlight my work, goals, and steps of lighting design and explain how I was able to create the unique world of No Exit on stage.

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## **Bringing The Burrow to Life: Lighting Design for Live Theatre**

Jillian Martin

*Faculty Mentor:* Timothy Golebiewski (Communication, Film, & Theatre)

Light designing for a live show is a multi-step process that involves research, running software, operating and programming technology, as well as creating cues and beautiful shots on stage. This semester, I was the light designer for the Spring musical, The Burrow. In this role, I researched lighting influences and collaborated with the director and lighting specialist to create a light plot,

hang, circuit and focus the lighting instruments, and design cues for the show. As an original musical, this show was more complex and involved than previous shows I have designed, so my poster will showcase not just the process of light design and include photos from the looks onstage but also demonstrate how lighting a musical differs from lighting a play. The lighting design process is complicated and meticulous and involves communicating with the audience to focus their attention on certain areas, create realistic environments on stage, and help tell the story. When done right, it can have excellent results. I will highlight my work, goals, and steps of lighting design and explain how I executed them to create the final looks on stage that brought *The Burrow* to life.

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### **Mental Health and Resettlement Experiences, with a Focus on Immigrant College Students in the United States**

Maombi Mbombo

*Faculty Mentor:* Dr. Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

My topic focuses on immigrant college students in the United States and how the current anti-immigrant political climate can negatively affect their mental health and resettlement experiences. I chose this topic because I am a refugee/immigrant myself, and I've experienced the mental and emotional challenges that come with adjusting to new environments, which made me want to explore this issue more. Previous research has shown that immigrant students experience challenges such as language barriers, discrimination, and struggles with belonging, but it does not always fully capture their personal experiences. This study uses in-depth, semi-structured interviews with three immigrant college students, and the data is analyzed using coding, memo-ing, and a synthesis matrix to identify key themes. The findings show that immigrant students go through a lot of stress when adjusting to a new country, including language barriers, school pressure, and cultural expectations. Many feel stuck between cultures, which affects their identity and sense of belonging. Family responsibilities and pressure to succeed also impact their mental health. Overall, these findings highlight the need for better mental health support and more inclusive environments on college campuses to help immigrant students feel supported, understood, and like they truly belong.

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### **An Experiment Manipulating the Effects of Autonomy on Recreational Reading Levels in College Students**

Michael McKoy

*Faculty Mentor:* Caitlin Vasquez-O'Brien (Psychological Science)

Students report a lower level of reading enthusiasm as they grow up, which translates to fewer students choosing to read recreationally. The concept of autonomy focuses on the idea that people have the choice to pursue their own actions, and whenever professors assign reading without providing a choice on a topic, students are less inclined to read it altogether. Studies have shown a positive correlation between choosing what books they read and reading comprehension. All of these findings argue that there is a link between autonomy and reading motivation from preschool to high school, but little to no research has looked at college students. In the current study, 61 college students were recruited to assess if there was a link between these variables. It was hypothesized that autonomy directly influences the motivation to read; specifically, increased autonomy will result in more motivation to read, that autonomy will be a stronger predictor for motivation to read in people with higher reading levels than those with lower reading levels, and that

autonomy is a stronger predictor of motivation to read in women than in men. An independent t-test and two 2x2 ANOVAs were used, respectively.

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### **Effect of Water Temperature on Pigeon pea (*Canjanus cajans*) Seeds before Germination, Leading to Stem Growth**

Madison Meagher, Yaini Porfil-Sainthilaire

*Faculty Mentor:* Byran Connolly (Biology)

During fall 2025, I interviewed 4 individuals, selected by the Director, who each benefitted from Project HOPE's resources. I transcribed and shaped these interviews into profiles that emphasize their stories as individuals as well as demonstrate the assistance they received from Project HOPE. I summarized central ideas and themes that reflected Project HOPE's supportive mission, such as the organization's ability to provide individuals with resources as well as encouragement. The collective profiles in the form of an informational brochure will represent Project HOPE's identity, work and success to the larger community.

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### **Promoting Sustainable Development Goals through Children's Literature**

Didismay Barbara Yedra Mena

*Faculty Mentor:* Sudha Swaminathan (Education)

UNESCO's Education 2030 Framework provides us with 17 Sustainable Development Goals (SDGs) for addressing complex global issues. The goals may be categorized into 3 main areas: People, Prosperity, and Planet. This poster presents ways for educators to introduce the SDGs to children through literature and extension activities. Using children's literature breaks down the complexity of the SDGs into accessible and enjoyable experiences. Including the SDGs in early education is important, especially for children, because they facilitate empathy and understanding, as well as offer practical ways to experience and help the world around us.

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### **Childhood Temperament and Adolescent Screen Time: Lasting Interaction of Reactivity and Persistence**

Gianella Miano

*Faculty Mentor:* Caitlin Vasquez-O'Brien (Psychological Science)

Temperament (specifically negative reactivity and persistence) shape children's emotional and behavioral regulation. Using longitudinal data from 145 family triads, we examined how temperament predicted adolescent screen time. A significant interaction indicated that children high on negative reactivity and persistence had the lowest screen time in adolescence, whereas children low in negative reactivity and high on persistence had the highest screen time in adolescence. Results highlight the importance of goodness-of-fit considerations when developing screen use interventions.

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## **Testing the Germination Rate of Seed Scarification Methods in *Lespedeza capitata***

Samantha Molzon, Rebecca Sweeney

*Faculty Mentor:* Bryan Connolly (Biology)

Round-headed bush clover, *Lespedeza capitata*, is a drought-tolerant wildflower native to North America, known for its importance to pollinators, medicinal uses, and ability to fix nitrogen. *Lespedeza capitata* also requires mechanical scarification of its seeds before germination can occur. In this study, we tested which scarification method produces the largest and greatest quantity of germinates. Our treatments consisted of exposing seeds to a bath of muriatic acid for 15, 30, and 45 minutes, a physical scarification positive control where we cut the end of the seeds, and an unmanipulated control. Each treatment consisted of 10 replicates. After being exposed to their assigned treatments, the seeds were then placed in Eastern's greenhouse and grown under identical conditions for 5 weeks. The size and quantity of germinates for each treatment were then compared using an ANOVA to determine the best method of scarification for round-headed bush clover.

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## **The One Where Everything Is Absurd: How Absurd Humor Contributes to the Comedy in the Sitcom *Friends***

Chelsea Newton

*Faculty Mentor:* Miriam Chirico (English)

Consisting of two hundred thirty-six episodes that spanned over ten seasons, *Friends* the sitcom first aired in 1994 and concluded in 2004. The comedic actions of the characters are what the show is known for, so I pondered the question of what kind of humor is present in the show and why viewers enjoy it. As someone who kept revisiting certain episodes that made me laugh, I wanted to investigate exactly what was drawing my attention. I noticed common patterns over the course of many episodes consisting of incongruity, absurdity, and the violation of Gricean maxims. I also noticed quirky character types that match the definitions of tried-and-true comedic characters typically found in sitcoms, according to Felix Clay. I combined these ideas on humor, absurdism, social rules, and comedy to analyze the humor in *Friends*. The extreme relatability of the characters, in addition to the wildly absurd scenarios they find themselves in, resulted in an extremely popular show.

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## **Constructive Or Destructive: The Impact of First-Generation College Student Identity**

Esmeralda Cruz Ortiz

*Faculty Mentor:* Care Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Being a first-generation college student (FGCS) can feel like playing a game where everyone else was given the rulebook, except you. This study explores the challenges FGCS face while navigating college life without the built-in guidance that many of their peers rely on. Research indicates that only 24% of students who identify as first-generation graduate from a four-year institution, compared to 59% of continuing-generation students. In fact, non-first-generation students are more than twice as likely to earn their bachelor's degree. Because FGCS make up a smaller portion of the student body, there is often limited research and fewer resources dedicated to supporting their academic success. By conducting in-depth, semi-structured interviews with three FGCS, I was able to identify recurring patterns in the FGCS experiences. These included financial challenges, the

pressure to succeed not only for oneself but for one's family, and the difficulty of finding one's footing in unfamiliar academic and social spaces. While they disclose the difficulties of their journey and how it can be overwhelming at times, even leading the thoughts of dropping out, they emphasize the pride they hold being "the first". Ultimately, this study emphasizes the importance of support systems, representation, and the need for more resources to help aid a smooth transition from high school to college.

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### **Optimizing Rate of Return to Play for Individuals Post ACL Reconstruction (ACLR): The Role of Psychology and Fear of Reinjury in Adherence to Rehabilitation**

Noah Page

*Faculty Mentor:* Paul Canavan (Health Sciences & Nursing)

**Introduction:** The anterior cruciate ligament (ACL) is a knee ligament that is injured in sports that involve quick cutting movements. In the U.S.A., 100,000 ACL sprains occur to individuals every year, often requiring surgery and rehabilitation to facilitate return to play. **Statement of the Problem:** Poor outcomes of rehabilitation can be due to low adherence to rehabilitation. Presently there is a lack of literature related to the etiological factors related to adherence for individuals that have had ACLR surgery. **Purpose:** The purpose of the study is to identify factors that influence rehabilitation adherence that can be most effective at increasing the rate of return to play for athletes. **Methods:** A literature review was conducted using the databases CINAHL, SPORTDiscus, and PubMed. **Keywords used included** ACL reconstruction, fear of reinjury, psychological factors, adherence, compliance, return to sport, and ACL rehabilitation from the 2002-2025 period. **Results:** The review showed that interventions such as goal setting, a strong patient-clinician relationship, and guided imagery were associated with improvements in adherence to rehabilitation. **Conclusion/Practical Application:** These findings suggest that incorporating psychological interventions in clinical practice for individuals postoperative ACL surgery may improve adherence and increase athletes rate of return to play for their desired sport.

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### **Bilateral Hip Range of Motion in Division III Baseball Athletes: Identifying Strengths/Weaknesses and Range of Motion to Help Optimize Muscular Function**

Madison Pajak

*Faculty Mentor:* Paul Canavan (Health Sciences & Nursing)

**Introduction:** Hip range of motion (ROM) in baseball athletes is vital to sport performance by transferring forces from the lower extremity to the upper body. Major hip joint stress occurs with baseball skills such as hitting, fielding, and throwing. **Purpose:** The purpose of the study was to examine hip range of motion and strength differences to determine any significant deficits. **Methods:** 20 NCAA Division III varsity baseball underwent six tests including hip internal and external rotation and hamstring ROM and Hip Internal/External and Abductor/Adductor Strength. **Results/Key Findings:** Hip External Rotation (ER) ROM demonstrated a significant difference in left and right sides, Welch t-tests ( $p=0.042$ ). Prone internal ROM on the right side showed a large effect size between pitchers and non-pitchers ( $p=0.017$ ,  $d=-0.94$ ). Pitchers have higher hip internal range of motion in the prone position. Hip ER ROM on the right side was significantly greater in Prone vs. Seated positions ( $p=0.028$ ,  $d=0.53$ ). **Conclusion/Practical Application:** These findings suggest the presence of ROM and strength imbalances in Division III baseball athletes. There were

significant differences between pitches vs non-pitchers. Implementing standardized hip assessments will help identify individual deficits and guide targeted interventions which may improve sport performance and reduce injury risk.

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### **Fear in the Family: A Longitudinal Study of Siblings and Academic Outcomes**

Kate Paradise

*Faculty Mentor:* Caitlin Vasquez-O'Brien (Psychological Science)

The Yerkes-Dodson law (1908) suggests a quadratic (inverted-U shape) relation between fear and academic performance. We hypothesized that both child and sibling fear responses would predict child academic outcomes quadratically. Using both observed and parent-reported fear, we found that child fear linearly predicted academic outcomes 1.5 and 6.5 years later. We also found a marginal sibling effect between parent-reported fear and academic outcomes in female sibling pairs.

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### **Between Tradition and Modernity: Religious Identity and Practice Among Indian American Women in the Same Family**

Ananya Patel

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Religion is often assumed to be a stable identity within immigrant families, yet few studies have examined how religious practice and meaning can diverge dramatically among individuals who share the same cultural and familial background. Drawing on in-depth qualitative interviews with three Indian American women from one extended Gujarati Hindu family, this research examines how community context, gender expectations, cultural traditions, and life experiences shape divergent forms of religious identity in the diaspora. The purpose of the study was to understand how these women make sense of religion in their everyday lives and why their orientations toward belief, culture, and spirituality differ, despite shared heritage. Through a close comparison of how these women, raised in different geographic and social environments, developed religious identities that range from deeply spiritual commitment to largely cultural or selective participation, five central themes emerged. First, community access proved to be the most influential factor shaping long-term religious engagement with participants living in dense Hindu communities maintaining stronger ritual practices, while those without such access described a gradual distancing from religion. Second, gendered expectations were visible across interviews, with women, particularly mothers, bearing the primary responsibility for sustaining religious traditions, sharing cultural values, and managing household religious labor. Third, participants distinguished between cultural and spiritual religiosity. Fourth, everyday embodied practices such as language use, greetings, and dietary norms demonstrated the subtle but persistent ways that culture and religion continue to shape identity even in the absence of strong devotional belief. Finally, major life events, including migration, family hardship, and personal challenges, served as turning points that either weakened or deepened participants' spiritual connection. Grounded in these findings, this study argues that religiosity in the diaspora is sustained less by theological conviction and more by the availability of communal spaces, cultural infrastructure, and peer reinforcement. The analysis contributes to broader sociological discussions of immigrant identity by showing that shared heritage and family life does not necessarily lead to uniform religious expression; instead, individuals continuously negotiate, reinterpret, or resist religious frameworks depending on their environments and experiences. The study is limited by its

focus on only three Gujarati Hindu women of similar ages, and future research could explore how these patterns vary across gender, region, generation, or within multiracial Indian families. Implications for institutional and policy changes are addressed.

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### **Quantifying Maternal Signatures In Supernormal Common Tern (*Sterna hirundo*) Clutches Using Digital Morphometrics**

Maya Perea

*Faculty Mentor:* Patty Szczys (Environmental Earth Science)

The Common Tern (*Sterna hirundo*) population in Bermuda represents a case study of critically endangered species, characterized by extreme genetic isolation and sex-ratio bias (Nisbet & Wingate, 2011). Between 2006-2007, the population consisted of 8 adults who successfully raised chicks by forming male-female-female trios tending supernormal clutches (mean clutch size 3.0). At the same time, 12-14 females formed various pairings without male partners and laid infertile eggs (mean clutch size 5.5; Nisbet et al., 2010). In such small populations, reproductive anomalies, including the formation of multi-female pairs, provide insight into breeding behavior in extremely vulnerable populations. This study quantified egg phenotypic variability within seven multi-female clutches to determine if individual maternal origins could be identified. Utilizing digital image analysis in ImageJ, five phenotypic variables were quantified: hue, volume, elongation, asymmetry, and spottiness. Methods were adapted from established protocols (Bichet et al., 2021). High variance in egg hue and spottiness was observed in several clutches, suggesting contributions from multiple females. Conversely, the high consistency of shape indices within other clutches obscured maternal origin. This is the first study to egg morphology to identify maternal origin of eggs within tern supernormal clutches and highlights the strengths and limitations of this approach.

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### **The Efficacy of Substance Use Disorder Recovery**

Aaliyah Petion

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Long term recovery from substance use disorder is widely understood as an ongoing process shaped by social, relational, and structural factors. Previous research has shown that relapse is very common and that recovery is influenced by supportive environments, identity transformation, and access to resources. Less attention has been given to how close relationships can affect whether individuals can have long-term, successful recovery outcomes. This study uses in-depth, semi-structured interviews to understand how individuals close to those with substance use disorder, such as peers and family members, may interpret the factors that contribute to sustained recovery. Interviews were transcribed and analyzed using qualitative coding methods, including line-by-line coding. Across the three interviews, three major key findings were found. First, recovery is deeply rooted in the awareness of underlying mental health struggles and the need for help. Second, supportive environments such as non-judgmental relationships, community-based resources, and consistent interpersonal support are essential to sustaining long term recovery. Lastly, recovery is a nonlinear journey and looks different in each individual. Altogether, these findings suggest that long term recovery is not a single outcome but a dynamic, socially contextual process that depends on community-centered approaches to support a sustained recovery.

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## **Terrestrial Carbonates in Middle Devonian Strata of Catskills, Southeastern New York State**

Hunter Piscatelli, James Bragg-Phillips

*Faculty Mentor:* Peter Drzewiecki (Environmental Earth Science)

Ancient soil and lake deposits serve as valuable geological archives, preserving evidence of continental environments and climate. Limestone beds from five outcrops in the Plattekill and Manokill Formations in the eastern Catskills of New York were examined. They are Middle Devonian in age, a period that coincided with the emergence of terrestrial ecosystems and the expansion of forest environments. The limestone beds can be broadly divided into two types. The first type is interpreted to represent a lake environment. Three outcrops have black fine-grained limestone beds (10-25 cm thick) that contain fragments of fish fossils, ostracods, and other skeletal debris. Pyrite occurs locally as 1-2 mm crystals. These beds are continuous across the outcrops in which they occur but vary in thickness. An outcrop along Catskill Creek extends over 500m. The second type of limestone bed shows post-depositional alteration (by soil or river reworking) but may have also originated in a lake environment. These beds are interpreted as having been deposited in shallow lakes on a river floodplain, and some were altered by soil-forming processes and river reworking. They represent unique records that attest to an overall monsoonal climate that promoted the expansion of forest ecosystems in the Devonian.

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## **“The Chicken or the Egg?” How Social Workers and Therapists Navigate Overlapping ADHD and PTSD Symptoms in Children**

Audrey-Anne Pothier

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

ADHD and trauma can present in children with similar symptoms, making an accurate diagnosis more challenging; however, when properly diagnosed, practitioners can utilize a range of treatment options to address comorbid conditions. Previous research indicates a significant overlap between ADHD and trauma-related symptoms in children. Children with undiagnosed ADHD may be more susceptible to adverse experiences in school or caregiving settings, which increases the risk of trauma and further complicates the diagnostic process. In-depth, semi-structured interviews were conducted with a therapist and two school social workers, all of who have varying levels of experience but share a common specialty in working with neurodivergent children. Data were analyzed using line-by-line coding, memoing, and a synthesis matrix to identify key themes. The major findings from this study are summarized in three main points: 1) The interviews confirmed previously collected information from scholars in the field in terms of diagnostic challenges, whether due to demographic factors or overlapping symptoms that make diagnosis more difficult; 2) Treatment approaches are often more similar than not for different diagnoses, particularly outside of medication, and 3) institutional regulations and budget can stand in the way of proper diagnosis and treatment. Practitioners are thus, constrained from helping neurodivergent children.

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## **Miracle Babies: Identity, Family, and the Mirror of Twinhood in a Dominican-Colombian Home**

Alexandra Ruales Ramirez

*Faculty Mentor:* Susan DeRosa (English)

My directed research project grew out of a question I couldn't stop thinking about: who am I when I'm not being seen as half of a pair—a twin? Growing up as an identical twin in a Dominican-Colombian household, my sister and I were constantly grouped together as “the miracle babies,” a title that felt both loving and limiting. This segmented memoir is composed of vignettes that move through childhood, adolescence, and early adulthood, tracing how the closeness between twin sisters slowly grows apart. Writers like Sandra Cisneros and Camille Gomera-Tavarez helped me think about voice, culture, and what it means to realize selfhood within a tight-knit family. My Dominican-Colombian family values of togetherness and loyalty, shaped by traditions like prayer, expectations around femininity, and a cultural closeness that leaves little room for privacy. These norms quietly dictate how to be a daughter, a woman, and even a twin, making individuality feel like betrayal. The memoir engages that tension as the narrator discovers a version of self that exists outside of “twinhood” without losing sight of how the twin bond endures and shapes identity.

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## **Germination Rates of *Baptisia tinctoria* When Scarified Using Various Method**

Kyle Roode

*Faculty Mentor:* Bryan Connolly (Biology)

Yellow Wild Indigo, *Baptisia tinctoria*, is a native member of the Fabaceae found throughout eastern North America. This plant grows in sandy soils. It is thought to be fire dependent. Possibly requiring heat from fire to scarify the seed to initiate germination. Scarification is the process of removing the seed coat allowing water to permeate the seed. This plant is uncommon in Connecticut. It is important for conservation, being a host plant for the endangered Frosted Elfin butterfly, *Callophrys irus*. The purpose of this study was to find effective scarification methods to be used to increase germination of *Baptisia tinctoria*, allowing for more plants for the Frosted Elfin. In addition to fire there are several alternative scarification methods. In this study four scarification methods were used: sanding the seed coat, nicking the seed coat, acid treatment of seeds, and soaking the seeds in hot water. Seeds were allowed to germinate and grow for three weeks. Nicking the seed coat had the best results of all methods used, producing the highest germination rate. Acid had a positive effect, second to nicking. Few seeds germinated from the hot water treatment. No seeds that were sanded germinated. Nicking is the best method of scarification. Nicked seeds are recommended for planting in the field for the best chance of germination. Higher germination rates will lead to more plants for the Frosted Elfin to use and increase the population.

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## **LANCE: Lightweight Autonomous Navigation under Constrained Environments**

Quinn Sawyer

*Faculty Mentor:* Garrett Dancik (Computer Science)

While autonomous vehicle technology shows great promise in reducing accidents through path prediction, these systems are often too computationally expensive for real-time applications on resource-constrained hardware. This project evaluates an autonomous navigation system that utilizes

path prediction against a distance-based baseline. Using a Raspberry Pi-based GoPiGo robot, the system employs an open-vocabulary path prediction model in Python to identify objects and translate them into motion commands. Testing is conducted in a configurable environment featuring both static and dynamic obstacles. The systems are compared based on accident rates and processing latency, alongside an analysis of path prediction accuracy, to demonstrate the viability of predictive navigation on resource-constrained hardware.

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## **Parenting, Patterns, and Partnerships: Examining How Childhood Experiences in Single Parent Households Influence Young Adult Relationship Attitudes, Role Expectations, and Interpersonal Behaviors**

Leilani Sealey

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Single-parent households have a significantly different familial structure than two-parent households which may create different patterns and perspectives in romantic relationships for the young adults who grew up in them. Previous research highlights the challenges in romantic role modeling, and the impact of the same-sex parent vs. opposite sex-parent being in the home. It is also noted that economic disparities within families in single-parent homes affect the desired goals of young adults with those experiences. In depth, semi-structured interviews were conducted with three young adults who were raised with one parent in the home since at least 6 years of age. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes. The two interconnected themes of independence and codependence are analyzed in correlation to relationship behaviors and beliefs from this population. More specifically: (1) how the role modeling of independence in single-parent households influences the belief that independence is strength; and (2) how the experiences of being raised in a single-parent household may lead to anxious and avoidant attachment behaviors or codependence in their young adult relationships. Possible biases and directions for future research are discussed. Single-parent households have a significantly different familial structure when compared to two-parent households. These structural differences create specific behavior patterns and perspectives in romantic relationships for the young adults who grew up in single-parent households. Previous research highlights the fractures in romantic role modeling, and the impact of the same-sex parent vs opposite sex-parent being in the home. It is also noted that economic disparities within families in single-parent homes heavily effects the desired goals of young adults with those experiences. In depth, semi-structured interviews were conducted with three young adults from who were raised with one parent in the home since at most 6 years of age. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes. The two interconnected themes of independence and codependence are analyzed in correlation to relationship behaviors and beliefs from this population. More specifically: (1) how the role modeling of independence in single-parent households influences the belief that independence is strength; and (2) how the experiences of a juvenile in single-parent households fosters anxious and avoidant attachment behaviors towards codependence in their young adult relationships. Possible biases and directions for future research are discussed.

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## **Building HOPE: A Collaboration between Project HOPE and Eastern Connecticut State University Showcasing Community Impact**

Leilani Sealey

*Faculty Mentor:* Miriam Chirico (English)

This project showcases a promotional brochure I created for a non-profit agency in Willimantic, Project HOPE. Executive Director Avery Lenhart partnered with Eastern Connecticut State University to request a promotional brochure to highlight the organization and its community impact. Project HOPE, formerly Windham No Freeze, focuses on providing emergency shelter, support services, and housing help for adults without stable housing. During fall 2025, I interviewed 4 individuals, selected by the Director, who each benefitted from Project HOPE's resources. I transcribed and shaped these interviews into profiles that emphasize their stories as individuals as well as demonstrate the assistance they received from Project HOPE. I summarized central ideas and themes that reflected Project HOPE's supportive mission, such as the organization's ability to provide individuals with resources as well as encouragement. The collective profiles in the form of an informational brochure will represent Project HOPE's identity, work and success to the larger community.

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## **Investigating Germination Techniques of Scarification & Liquid Smoke Concentrations on Wild Senna (*Senna hebecarpa*)**

Emily N. Senna

*Faculty Mentor:* Bryan Connolly (Biology)

Wild senna, *Senna hebecarpa* (Fabaceae), is a large herbaceous perennial considered historic or endangered across New England. Decline is from hydrology changes, development, and forest succession. However, this species is ecologically important to biodiversity and is of special value to bumble bees and clouded sulfur butterfly larvae. Wild senna is self-compatible but requires a pollinator; reproduction is complicated by increasing rarity reducing pollination opportunities, and with inbred plants having lower fecundity and less successful descendants. Therefore, successful germination techniques to maintain large populations are important to survival of this species. Past studies have found that successful seed scarification methods include sandpaper and sulfuric acid. Dormant seeds of other plant taxa outside of *Senna* are known to be stimulated by fire or chemicals in smoke. Liquid smoke, a commercial flavoring product of smoke extracts, was found to break dormancy of rice, *Oryza sativa*, inspiring this study. Due to the ecological importance and declining population of *Senna hebecarpa*, this study aims to investigate if liquid smoke enhances germination and could facilitate establishment of restoration populations. Preliminary results have found high concentrations to be inhibitory, with 1:100 concentration having equivalent germination rates to sandpaper only, but with higher seedling height indicating earlier emergence.

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## **Investigating Morphological and Microbiome Community Differences in the Eastern Oyster (*Crassostrea virginica*) Across a Salinity and Pollution Gradient**

Emily N. Senna, Rebecca Sweeney

*Faculty Mentors:* Matthew Graham, Barbara Murdoch (Biology)

The eastern oyster, *Crassostrea virginica*, is a keystone estuarine species that stabilizes shorelines, improves water quality, and provides habitat for many organisms, while supporting important fisheries and aquaculture. Although this species is notably euryhaline, the mechanisms underlying its tolerance to broad environmental variation remain incompletely understood. This study examined shell morphology across sites spanning a salinity and pollution gradient in eastern Connecticut and included preliminary microbiome data to assess possible site-associated microbial differences. Eight oysters were collected from each of three sites: Stoddard Cove (low salinity), River Park (intermediate salinity and elevated pollution), and Ocean Beach (high salinity and relatively low pollution). After shucking, shell length, width, and depth were measured and analyzed using one-way ANOVAs with Tukey's HSD post hoc tests. DNA was extracted from gut, mantle, gill, and brine samples for Illumina sequencing and preliminary microbiome analysis. Significant morphological differences were detected among sites, with River Park and Ocean Beach differing significantly in length and width. Preliminary microbiome results also suggested site-associated differences in microbial community composition. Together, these findings indicate that local environmental conditions may shape oyster morphology and associated microbial assemblages, providing a foundation for future work on the role of microbiomes in oyster environmental tolerance.

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## **From Access to Achievement: Support Program Experiences of Students with Disabilities in Higher Education**

Sarah Servidio

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

In higher education spaces, students with disabilities (SWD) are often not given the same tools or resources to thrive and succeed as their non-disabled counterparts. Although the ADA requires universities to negotiate reasonable accommodations, students with disabilities remain at high risk for degree incompleteness. This research was two-fold; it sought to find the additional supporting factors students with disabilities rely on or could use (clubs, support groups), and understand how the formal accommodations they receive influence their academic and social well-being. In-depth, semi-structured interviews were conducted with three students with disabilities who attend Eastern Connecticut State University. Line-by-line coding, memoing, and a synthesis matrix were used to analyze data and generate key themes. Participants reported that the strong reputation OAS has and enforces for students on campus was a deciding factor in their choice of university. Furthermore, interest was shown by all three interviewees in implementing a faculty mentorship program and/or introducing a staff training to help professors improve their implementation of students' accommodations. A notable limitation of this study is the sample size and diversity. Subsequent research is necessary to gather students' feedback from different universities to gauge how these ideas may be implemented on a broader scale.

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## **The Effects of Early Speech Intervention in an Early Childhood Education Environment: Does Having a Language or Speech Disorder Challenge Speech Development?**

Isabelle R. Shead

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Teachers are the foundation in ensuring a child is developing successfully; therefore, being able to understand these developmental learning goals is critical. Research on speech intervention and ADHD focuses on the child and their developmental processes and finds that early intervention is important. In depth interviews were conducted with an early childhood teacher, a young adult with ADHD (attention deficit hyperactivity disorder), and a speech pathologist to further explore early intervention from multiple vantage points. The interview transcripts were then coded to identify common themes, including: 1. The importance of communication, whether with the classroom teacher or between staff and family; 2. How goals are set by the interventionists and by teachers as well; and 3. The adaptations that teachers and students use to help children grow and be successful. These findings state that there is a need for early speech intervention in the Early Childhood Education classroom. Children will become successful based on their ability to develop speech and language skills even if they have speech difficulties.

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## **Civic Engagement and Activism Among Young People: What Makes Them Want to Join?**

Vanessa Sotelo

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Despite perceptions that young adults are less politically engaged than in past decades, activism within this population takes many forms. Previous research has found that young people who engage in activism face barriers and risks but are motivated to try to confront and change institutions that have lost their trust, which leads to increased civic engagement. In-depth, semi-structured interviews were conducted with three middle class young adults, ranging in age from 20 to 30 years old, who self-identify as activists. Line-by-line coding, memoing, and a synthesis matrix were utilized to analyze the data and generate key themes. This research identifies the following themes: First, family and educational background play a role in getting involved in activism. Second, the organizations they are primarily engaged with do intersectional work, partnering with other organizations or movements, such as the Black Lives Matter movement, LGBTQ+ rights, Union workers, Civil Liberties, or advocacy for immigrants. The decision to get engaged in intersectional work arises as a response to pivotal moments, or moments of “moral shock” during major events. Finally, despite their varying levels of mistrust in institutions or concerns about the overall state of things, they all maintain hope in seeing others join in similar efforts and gain strength from belonging to a community. This shows that young people have an interest in learning from and sharing with older generations. Future research on digital civic engagement is recommended as part of growing understanding of how young people apply their creativity and vision for the world, they want to live in.

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## **Summer at Luther's**

Andrew Thompson

*Faculty Mentor:* Maeve Doyle (Art & Art History)

Over the previous summer, from May to August of 2025, I assisted fine art photographer Luther Gerlach in his process. I was responsible for being the young hand, doing everything from carrying tripods and cameras to developing large-format film and making contact prints. This internship was the confluence of my early love for photography and my study of history. Luther specializes in the 19th century process known as wet-plate photography, where the light sensitive emulsion is directly poured onto an aluminum sheet or glass plate. Unlike the large-format film that was used as well, this process was alien to me, and learning its quirks and rules gave me a newfound appreciation of those photographers of old, like Alexander Gardner, Matthew Brady, and Roger Fenton. Luther has been a photographer for over forty years and taught at the Getty Institute about historical photographic processes. His expertise on chemistry, glass, light, and developing and printing photographs by hand, is invaluable to understanding the historical importance of photography and its scientific groundbreaking throughout history. For the first time in my life, photography had become not just about taking pictures, but about how a picture is taken and what makes it important.

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## **Broken Mirrors: Defining the Three Types of Memories in Dystopian Literature**

Julia Trainor

*Faculty Mentor:* Allison Speicher (English)

This study focuses on the three types of memory found across dystopian literature from the twentieth century forward: Historical memory is formed around collective cultural experiences and past events. Virtual memory focuses on the use of technology to archive lived experience. Personal memory stems from the individuals' experience. Drawing on texts ranging from Charlotte Perkins Gilman's *Herland* (1915) to recent novels such as *The Circle* (2013) by Dave Eggers, I argue that in dystopian texts the role of memory has shifted over time: in older works the dystopian regimes attempt to erase memory; in newer works, to replace it. Although there has been plenty of research regarding dystopian literature throughout the years, scholarship has centered on limning the characteristics of the genre and applying feminist theory. Directing attention to memory within these texts allows us to appreciate the intertextual relationship between novels past, present, and future. Reading these texts in tandem can inspire us to consider how these fictional societies mirror our own.

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## **Cultural Study of Toy Usage**

Sadie Tscheppe

*Faculty Mentor:* Sudha Swaminathan (Education)

The purpose of this poster presentation is to demonstrate my understanding of the role of toys within diverse cultural groups. I interviewed five participants from different cultural backgrounds about their engagement with toys. During the interviews, I inquired about their favorite toys, the types of play that they engaged in, their social participation, and the value of play in their culture. I learned that even though people come from different cultures and backgrounds, they can share the

same favorite toy or engage in the same type of play. However, it might mean something different to each of them based on their values. Hearing about each person's childhood stories showed me how meaningful toys really are and how they stay with a person throughout their entire life.

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### **A COI-Based Phylogeographic Analysis of *Gammarus mucronatus* along the Northwest Atlantic Coast**

Noel Turner

*Faculty Mentor:* Matthew Graham (Biology)

The amphipod genus *Gammarus* is known for high levels of biodiversity, however, many of the complex genetic relationships that comprise this diversity lack comprehensive analysis. *Gammarus mucronatus* is a shallow-water species endemic to the North American Atlantic seaboard and the Gulf of Mexico. Morphological analyses within the Gulf of Mexico suggest the presence of two cryptic species, and the broader range of *G. mucronatus* encompasses significant biogeographic barriers to dispersal, such as the Labrador Current and Cape Cod. Despite this potential for high genetic divergence, no extensive phylogenetic analysis has been conducted across the Atlantic range. This study utilizes existing and novel cytochrome c oxidase I (COI) barcode data to compare populations from North Carolina to New Brunswick, including new data from Connecticut. We employed phylogenetic methods and haplotype networks to characterize the phylogeographic structure and patterns of genetic diversity across these regions.

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### **The Role of Zoning & Transportation on Access to Healthcare Services**

Ian Vasquez

*Faculty Mentor:* Steve Muchiri (Economics & Finance)

This presentation examines how zoning regulations and transportation access jointly shape individuals' access to healthcare services. While healthcare is a universal need, access to medical services is often unevenly distributed due to structural and spatial factors. Zoning policies influence the built environment, determining land use patterns, population density, and the location of essential services, including healthcare facilities. These policies also play a critical role in shaping transportation systems, which in turn affect mobility and the ability of individuals to reach care. This research explores the relationship between zoning, transportation access, and healthcare accessibility, with particular attention to how limited public transit options and car dependency can create barriers to care. Through a review of existing literature and a comparative or case-based analysis, this study highlights how these interconnected factors contribute to disparities in healthcare access. Ultimately, this project aims to demonstrate how zoning and transportation function as structural barriers to healthcare, disproportionately impacting low-income, elderly, and transit-dependent populations, as well as contributing to broader patterns of socioeconomic and systemic inequality.

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## **The Effects of Academic Stress On College Students**

Kylie Ward

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Academic stress is a rampant issue facing college students across the United States. Though there have been many studies examining this issue, previous research has either solely focused on specific stress mitigation tactics for college students (such as therapy dogs), teaching towards varying learning styles, the ways institutions have previously functioned and how that relates to student stress, or certain indicators that may be used to predict stress in college students. None of these studies have thoroughly addressed the key components of stress in a student's life or how these students cope with this stress in the modern era. To further understand these gaps in research, in-depth semi-structured interviews were conducted with three current college students between the ages of 18-22. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes discovered in this research. Some of the biggest recurring sentiments produced from these interviews included the financial affordability of higher education, balancing responsibilities, and the symptoms of stress and stress mitigation. Using these interviews, this project seeks to further explore these emerging themes and how academic institutions can aid in reducing academic stress in college students.

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## **What Barriers and Supports Do Individuals Who Are Sentenced to Probation Face?**

Marissa Waters

*Faculty Mentor:* Cara Bergstrom-Lynch (Sociology, Anthropology, Criminology, & Social Work)

Individuals on probation navigate both structural barriers and supportive resources. Previous research on the support and barriers of probation is lacking and frequently doesn't focus on the experience of these individuals. Some studies found that the most significant barriers are systemic, while other studies found that individuals' backgrounds were more substantial. This project draws on in-depth, semi-structured interviews that were conducted with two individuals formerly on probation, and one Adult Probation Officer. Line-by-line coding, memoing, and a synthesis matrix were used to analyze the data and generate key themes. Five interrelated themes are addressed: (1) Probation serves as a pro-social support system for mentorship, stability, and treatment; (2) Environment and background are critical influences; (3) Anxiety surrounding re-offending and distrust for the criminal justice system; (4) Systemic barriers related to access to transportation, mental health services, education, and seeking employment; and (5) The need for programs that support the transition from probation to independent living. These findings highlight the need for expanded access to structural resources such as (transportation, mental health services, education, and employment). Additionally, transitional programs for individuals who serve a significant amount of time on probation and rely on it for stability need to be implemented. To address their clients' previous negative experiences with the system, probation officers need to utilize trauma informed care and empathy to build strong relationships with clients.

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## **Effects of a Single Bout of Exercise on Delay Discounting for Food and Monetary Rewards in College Students**

Gabriel Williams

*Faculty Mentor:* Christopher Krebs (Psychological Science)

Delay discounting is the choice between a smaller, more immediate reward and a larger reward received after a predetermined time. Past research has suggested that exercise can decrease money discounting, while increasing food discounting (Koehler et al., 2021; Rasmussen et al., 2024). This study examined effects of a single bout of exercise on food and money-related delay discounting in college undergraduate students attending Eastern Connecticut State University. After an intake appointment, participants were randomly assigned to one of two groups. During the second meeting, Group One exercised at a moderate intensity for 45 minutes whereas Group Two had a 45-minute rest period where participants did not exercise. During the second session, both groups filled out the Monetary Choice Questionnaire (MCQ), the Food Choice Questionnaire (FCQ), and five subjective surveys on their feelings of fullness, hunger, nausea, thirst, and stress at three different time points (pre exercise, immediately after exercise or rest, and 30 minutes post exercise or rest). It was hypothesized that the 45-minute bout of exercise would increase delay discounting for food (i.e., make them more impulsive) and either have no effect or decrease delay discounting for money. These hypotheses were not supported. These findings highlight some potential boundary conditions regarding effects of exercise on delay discounting while adding research to the literature.

Keywords: impulsivity, delay discounting, exercise, money, food

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## STUDENT PRESENTERS

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