



SHOWCASE OF STUDENT RESEARCH & ENGAGEMENT

PLYMOUTH STATE UNIVERSITY



HUB Courtroom | HUB Pawsway | Alumni Green | Silver Center for the Arts | Draper & Maynard Building

**THE SHOWCASE
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WELCOME

to the 15th annual *Showcase of Student Research and Engagement!* This symposium features student projects from a variety of disciplines including the sciences, arts, and humanities. This event is free and open to the public to come and interact with our students and discuss their projects, research, and scholarly achievements.

Plymouth State is proud of its long legacy of engaged teaching and learning, and our new Integrated Cluster model is specifically designed to extend this by emphasizing reciprocal partnerships that benefit students and community. The projects, research, scholarship, and creative works on display demonstrate the power of these partnerships — to improve skills and preparation, to support the region, and give students a space in which to integrate information and skills across multiple disciplines.

We hope that you will enjoy the wide variety of presentations on display today and we hope that you enjoy the interactions with our wonderful students!

Sincerely, the 2026 Showcase Committee



FROM THE PRESIDENT:

The *Showcase of Student Research and Engagement* reflects what defines Plymouth State. Across disciplines, including the arts, humanities, and sciences, our students are asking questions, testing ideas, and applying what they have learned to real-world challenges. This work is grounded in collaboration with faculty, peers, and community partners, and supported by dedicated faculty and mentors. It speaks to the purpose of a Plymouth State education. I invite you to explore these projects, engage with our students, and see firsthand the depth of their curiosity, effort, and achievement.



Donald L. Birx, President

MANY THANKS

to the following, without whom this symposium would not be possible:

- President Donald Birx and Provost Nate Bowditch
- The Showcase Committee
- Special thanks to Pam Anneser, for the extra effort to print out posters and signage
- INBRE – Idea Network for Biomedical Research Excellence (<https://Geiselmed.dartmouth.edu/nhinbre/>)
- The PSU Bookstore
- The Office of Student Life
- Plymouth UPS Store
- The 39+ faculty mentors for your dedication to our students
- And lastly, to the 360+ students who are presenting today. Thanks for your work and dedication!

SCHEDULE OF EVENTS:

2 PM

OPENING REMARKS

Dr. Elisabeth Johnston,
Showcase Planning
Committee

Dr. Nate Bowditch,
Provost & Vice President,
Academic Affairs

Dr. Roxana Wright, 2025
PSU Distinguished Scholar

2:15-4 PM

PRESENTATIONS

Poster and Tabletop Presentations are in the HUB Courtroom located on the second floor

Pop-Up Play Events can be found on Alumni Green directly in front of the HUB and The Pawsway (the HUB's main hallway)

Exhibitions will be held in The Silver Center for the Arts and Draper & Maynard Building

Light Refreshments
Served in the HUB
Courtroom

ACTIVITIES & PERFORMANCES

Art

BACHELOR OF FINE ARTS CAPSTONE EXHIBITION

AUTHORS: Sophia Turer, Thomas Fifield, Eva Chase, Preston Bechard, Rose Dugan-Henriksen, Daniela Duque, Jesse Dupree, Brooke Flanagan, Jamie Fortier, Jake Graf, Meghan Hodge, Ariana Hopewell, Kayla-Rose Howland, Megan Huckle, Kaiden Kelley, Elizabeth Lenihan, Erin Malone, Brandie Markgren, Sydney Moran, Grace O'Shaughnessey, Cheyanne Pero, Sophia Torello, Matthew Tuttle

FACULTY MENTOR: Pamela Anneser

ABSTRACT: The annual Bachelor of Fine Arts capstone exhibition features the work, passion, and educational journey of PSU senior art students. This year our shows present the culmination of 23 student artists' experiences at PSU. The exhibition features student work in graphic design and studio art.

LOCATION: Silver Center for the Arts

Early Childhood Education

POP-UP PLAY EVENT: GAMES WITH RULES

AUTHORS: Kaylee Aldrich, Kyleigh Pierce, Mason Sailer

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Our pop-up play event, Games with Rules, invites college students to engage in structured, social play through familiar tabletop games including Connect 4, Mancala, Uno, and Uno No Mercy. These games encourage turn-taking, strategy, patience, and problemsolving while fostering communication and emotional regulation. By introducing clear rules and shared goals, children practice cooperation, fairness, and decisionmaking in a playful environment. The event emphasizes how rule-based games support early childhood development by strengthening executive functioning and social understanding. Through guided participation and peer interaction, children experience both competition and collaboration, learning that rules create boundaries that make play meaningful. This hands-on showcase demonstrates how educators can use simple, accessible games to promote learning through play in community settings.

LOCATION: Pawsway/Alumni Green

POP-UP PLAY EVENT: MUSICAL CHAIRS

AUTHORS: Katie Segien, Cameron Voelkel, Isabel Mireles-Sparks, Cabot McGlynn

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Musical chairs can be a fun outdoor game that gets people moving and interacting. Players will walk, dance, or even run around a circle of chairs while music plays, enjoying fresh air and open space. When the music stops, everyone quickly tries to find a seat, adding excitement and energy to the game. With each round, a chair is removed, making it more challenging and competitive. Playing musical chairs outside encourages movement, coordination, energy and group fun in an open, active setting.

LOCATION: Pawsway/Alumni Green

POP-UP PLAY EVENT: PLYMOUTH PHYSICAL PLAY PLAYHOUSE

AUTHORS: Kevin Hickey, Mike Hicks, Sophie West, Kylie Thompson

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Come on down to the Plymouth Physical Play Playhouse to get your body active by playing yard games such as Cornhole, Kanjam, Frisbee, and Football. Pick a game and join in! Meet new people and build and promote a healthy lifestyle. In addition to understanding how practicing gross motor skills, children receive vast health benefits from physical activity, including aerobic endurance, muscle growth, strength, coordination, and stimulation of major organs.

LOCATION: Pawsway/Alumni Green

POP-UP PLAY EVENT: ROCK PAINTING

AUTHORS: Elle Norse, Sami Brown, Nicole Dowd, Eveliina Burnim

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: At our table, participants will be encouraged to select a rock out of the basket, and choose paint colors that will help them create their own special masterpiece. Use your imagination! The opportunities are endless! This activity allows participants to engage in an interactive art play experience. During their painting experience, facilitators will share about the benefits of art play for early childhood development.

LOCATION: Pawsway/Alumni Green

POP-UP PLAY EVENT: SENSORY PLAY

AUTHORS: Marina Breton, Lilee Taylor, Fiona Bailey, Grace Harris

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Come Play! We will be sharing a positive play experience focused on sensory play through sensory bins. During this experience we will share the benefits of play for young children and adults. Our goal is to create a play event where the individual will experience the positive aspects of sensory play. The sensory bins will include a variety of materials such as water and Orbeez, kinetic sand, Oobleck and a tactile bin.

LOCATION: Pawsway/Alumni Green

Integrated Capstone

RE-EMERGING JURIED STUDENT EXHIBITION

AUTHORS: Natalie Morris, Kaila Lambiasi, Bailey Kuczowski, Callissa Harbour, Maisie Hilliard, Zachary Cross

FACULTY MENTOR: Sarah Parrish

ABSTRACT: Presented by a group of students the Integrated Capstone course Remaking Museums, this exhibition celebrates the continued artistic work and talent of PSU students across all disciplines and stages of development. The work was juried by a professional artist, Plymouth photographer Maundy Mitchell, and entirely installed and publicized by students.

PRESENTATION TYPE: Activity/Performance | LOCATION: Hunnewell Kline Gallery, Draper and Maynard 310, and the Collins Gallery, Draper and Maynard 206

POSTERS

Allied Health Sciences

IMPACT OF LIFESTYLE INTERVENTIONS ON SYMPTOM SEVERITY AND PSYCHOLOGICAL WELL-BEING IN MENTAL HEALTH DISORDERS

AUTHORS: Keelie Wells, Leah Krull, Olivia Laro

FACULTY MENTOR: Julie Fagan

ABSTRACT: Lifestyle interventions such as physical activity, balanced nutrition, and sufficient sleep are increasingly recognized as valuable supports in managing mental health disorders. This project explores how these behaviors influence symptom severity and psychological wellbeing in individuals with conditions including depression, anxiety, and PTSD. Using a mixed-methods design, quantitative measures assessed symptom changes, while qualitative data captured personal experiences. Results show that regular moderate exercise is linked to reduced symptoms of depression and anxiety and improved emotional regulation. A nutrient-rich, balanced diet supports cognitive function and mood stability, while consistent, adequate sleep plays a key role in minimizing symptom flare-ups and enhancing stress resilience. Importantly, these factors work best in combination, producing stronger improvements than when applied individually. Overall, the findings highlight the value of incorporating lifestyle strategies alongside traditional treatments to improve outcomes and enhance quality of life for individuals with mental health disorders.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Applied Exercise Physiology and Human Performance

THE EFFECT OF CAFFEINE SUPPLEMENTATION ON MUSCULAR ENDURANCE, POWER, AND RATING OF PERCEIVED EXERTION

AUTHOR: Luke Sokolski

FACULTY MENTOR: RYANNE CARMICHAEL

ABSTRACT: INTRODUCTION: Caffeine is a commonly used ergogenic aid that may enhance resistance training performance by allowing individuals to sustain effort for longer durations and maintain higher levels of output during exercise. PURPOSE: To examine the effects of acute caffeine supplementation on muscular endurance, power, and RPE during bench press performance. METHODS: Division III athletes completed a randomized, double-blind, crossover study. After baseline testing, participants consumed a caffeinated or a placebo gel before performing three sets of bench press to failure at 70% 1RM. Repetitions, power, and RPE were recorded. RESULTS: No significant differences were found between conditions for repetitions, power and RPE ($p > 0.05$). A significant effect for time ($p < 0.05$) showed decreased repetitions across sets. CONCLUSION: An absolute dose of caffeine did not improve resistance training performance. A relative dose between 3-6 mg/kg may be more effective in this group.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Applied Meteorology

MJO TO NAO FORECAST PREDICTABILITY

AUTHOR: Joel Newman

FACULTY MENTOR: Eric Hoffman

ABSTRACT: Based on a Season to Sub-Seasonal (S2S) prediction project for skillful forecasting of the North Atlantic Oscillation (NAO) and the Madden Julian Oscillation (MJO), a preliminary evaluation for forecast skill can be derived. The December 16-17, 2020, snow event featuring a significant MJO with neutral NAO, and the December 18 - 20 rain event featuring a largely insignificant MJO with a strong positive NAO. The ECMWF's ability to predict MJO to NAO further in advance can provide insight into its forecasting capabilities. If NAO is stronger, mesoscale features of the event had higher predictability for mid-latitude cyclones impacting the northeast in December. Synoptic scale predictability based on the S2S time scale is more significantly correlated to the strength of low-pressure tracks. The strong NAO case featured more mesoscale predictability, synoptic predictability was lower than in the neutral case. Largely due to the December 2023 system having a significantly deeper low-pressure system.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Art History

PSU'S OWN TINY MUSEUM

AUTHOR: Saleo Gallant

FACULTY MENTOR: Sarah Parrish

ABSTRACT: A demonstration of community art displayed in numerous spots around campus and the PSU community in the culmination of the IS End Capstone

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Biochemistry

BREWING OUTSIDE THE LINES: HOW WILD YEAST TRANSFORMS GLUCOSE INTO ETHANOL

AUTHORS: Sydney Whitehouse, Katarina Hermanowski, Alexis Daughen

FACULTY MENTOR: Alexandra Disney

ABSTRACT: Fermentation is a microbial process in which sugars are converted into ethanol, CO₂, and secondary metabolites under anaerobic conditions. While industrial brewing relies on optimized, domesticated yeast strains for consistent production, wild fermentations harness diverse environmental microbes that can yield more complex flavor profiles. Given that fewer than 10% of yeast species species have been characterized, wild strains represent a promising resource for innovation. This study aimed to isolate and identify wild yeast from local sources and evaluate fermentation performance. Of three samples tested, only English holly produced limited yeast growth after approximately 120 hours, while rock elm bark and wild blueberries showed no viable cultures. The resulting stout reached 0.3% alcohol, below the 1.0% threshold for drinkability, compared to a 2.6% positive control. Future work should explore higher yield sources and increased sample quantities to improve fermentation outcomes.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

FERMENTATION FRENZY! USING WINTERBERRIES AND CRAB APPLES TO BREW BEER

AUTHORS: Amber Fernald, Charlotte Levasseur, Elisabeth Goodwin

FACULTY MENTOR: Alexandra Disney

ABSTRACT: Using winterberries and crab apples collected in Plymouth, NH to ferment and brew beer (not consumed on PSU campus).

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

FERMENTATION GONE WILD: ISOLATION AND CHARACTERIZATION OF WILD YEAST FOR BREWING APPLICATIONS

AUTHORS: Joshua Rebello, Joshua Rebello, Nathan Arzilli

FACULTY MENTOR: Alexandra Disney

ABSTRACT: This study aimed to isolate wild yeast from

environmental sources and evaluate its potential for brewing compared to a POF – *Saccharomyces cerevisiae* control. Crabapple-derived yeast was cultured, isolated, and used to ferment wort under controlled anaerobic conditions. Fermentation performance was assessed through measurements of ABV, IBU, SRM, and specific gravity, alongside sensory evaluation. Results showed that wild yeast produced low alcohol content (0.3%) and exhibited incomplete fermentation, likely due to limited metabolic efficiency. In contrast, the control strain demonstrated higher alcohol production (2.6%) and more desirable brewing characteristics. Although the wild yeast introduced unique fruity aromas, it lacked viability for traditional beer production. These findings suggest that while wild yeast may contribute traditional flavors, further enhancement is required for effective fermentation methodology.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

FERMENTATION OF FRUITS TO BEER

AUTHORS: Madison Vazquez, Scott Danroth, Maddy Kowalsky

FACULTY MENTOR: Sarah Tarullo

ABSTRACT: Using natural yeast sources has been getting increasing attention in the brewing industry, which develops many different strains of yeast and flavors of beer. Our study explores the use of natural resources, apples and gooseberries, as a primary source of yeast to brew beer. In order to perform this test, we isolated colonies, from which we cultured them, and they underwent DNA extraction. We did this so we could do PCR on them, as well as Sanger Sequencing. The gooseberries and apple yeast were added to wort, which was made using water, light malt syrup, sucrose and flower hops, which sat to ferment for 2 weeks. We did testing to see the alcohol percent to see if we were able to bottle it. The threshold for the class was 1.0%, but our gooseberry beer was 0.8%, which may continue to ferment after bottling - results to come.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Biology

AMPK ACTIVATION WITH METFORMIN AND IMEGLIMIN DOES NOT CAUSE CIRCADIAN PERIOD CHANGE IN LIMULUS POLYPHEMUS

AUTHORS: Eva Adorno-Martinez, Laura C Wood, Sydney K Coiffi, Fletcher K Hall

FACULTY MENTOR: Christopher Chabot

ABSTRACT: While the primary animal circadian clock is composed of a well-established network of genes and enzymes, the mechanisms that underlie other biological clocks are less well understood. A better understanding of the mechanisms of these secondary clocks may help to alleviate many human health issues caused by desynchronization of these clocks. Recent evidence shows that at least one gene (*bmal1*), and one enzyme (casein-kinase-1 ϵ) are shared between the circadian clock and another type of "secondary clock" that controls circadian

rhythms in intertidal organisms. In the current study, two pharmacological activators of another circadian enzyme, AMPK, were used to assess its possible role in the circatidal clock of horseshoe crabs but neither metformin nor imeglimin significantly affected the period or percentage of arrhythmicity ($P>0.2$) compared to controls. These results point out significant mechanistic differences between these clocks and highlight for the first time.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

BILATERAL PATTERNS OF NEUROPEPTIDE F-POSITIVE NEURONS IN THE HORSESHOE CRAB LIMULUS POLYPHEMUS

AUTHORS: Jessie Adams, Megan DiPietrantonio, Madison Newton, Ange Kalambay

FACULTY MENTOR: Christopher Chabot

ABSTRACT: Circadian rhythms are generated by internal clocks that regulate daily physiological and behavioral processes. In some invertebrates, Neuropeptide F (NPF) appears to function as a neurohormonal output from the clock, but NPF-expressing neurons have not been identified in any chelicerates, including the horseshoe crab *Limulus polyphemus*. To identify the location of NPF-expressing neurons in this species, we performed immunohistochemistry on juvenile *Limulus* maintained on a 14:10 LD cycle to visualize NPF-positive neurons. Bilateral NPF-positive neurons were present in 4-8 distinct cell patterns in the protocerebrum, subesophageal ganglion, and ventral nerve cord ganglia of the central nervous system. These results mirror the staining pattern of NPF positive cells and expression shown in previous studies done on the central nervous systems of fruit flies and mud crabs. This provides some of the first evidence of comparable organization of NPF clock proteins in chelicerates.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

DETERMINING LIGAND-INDEPENDENT GLUCOCORTICOID RECEPTOR MEDIATED STING EXPRESSION IN TRIPLE-NEGATIVE BREAST CANCER

AUTHORS: Sydney Whitehouse, Eva Adorno-Martinez, Scott Danroth

FACULTY MENTOR: Sarah Tarullo

ABSTRACT: Triple-negative breast cancer (TNBC) remains a clinical challenge due to the lack of targeted therapies. While the glucocorticoid receptor (GR) is expressed in ~40% of TNBC cases and associated with poor outcomes, its role in modulating immune signaling pathways remains unclear. This study investigates STING expression in MDA-MB-231 wild-type (GR-WT) GR. We observed peak STING expression 60 minutes post TGFB activation. Further immunofluorescent imaging will need to be done to confirm STING localization in GR-WT cells, while UCSC Xena dataset analysis was used to correlate GR and STING activation with patient survival. These findings suggest a regulatory role for ligand-independent GR in modulating STING within the tumor microenvironment. Understanding this crosstalk may reveal novel therapeutic strategies for aggressive TNBC.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

OPTIMAL CONDITIONS FOR DEVELOPMENT IN THE AMERICAN HORSESHOE CRAB, LIMULUS POLYPHEMUS, IN A LABORATORY SETTING BASED ON FIELD CONDITIONS

AUTHORS: Quinn Hagerty, Evan Hardy

FACULTY MENTOR: Christopher Chabot

ABSTRACT: Early development of marine organisms is affected by many abiotic factors including light and temperature. Understanding how these factors impact development is important for determining how to raise animals with uncertain future changes in oceanic conditions. The American horseshoe crab, *Limulus polyphemus*, is a keystone species in estuarine ecosystems, and is commercially harvested for *Limulus* Amebocyte Lysate - yet the factors affecting their early development remain unexplored. In this experiment, horseshoe crabs raised at varying temperatures weighed significantly different amounts as larvae and juveniles. Larvae were also exposed to LD cycles with three different light treatments, where all treatments showed significant nocturnal activity, with seeming differences in light-orientation preferences. In another experiment, animals exposed to long-term winter-like conditions compared to summer-like conditions expressed different activity and quality of rhythms. These results provide a better idea of how this species should be kept in the lab for use in biomedical research.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

SHORT-TERM LIGHT EXPOSURE DECREASES IN VITRO HEART RATE IN AMERICAN LOBSTERS, HOMARUS AMERICANUS

AUTHORS: Scott CA Danroth, Abigail R McKee, Dante R Parker, Ty C Rivera, Fletcher K Hall, Christopher Chabot

FACULTY MENTOR: Christopher Chabot

ABSTRACT: While the heart of animals is regulated by a variety of internal control systems, only a very few hearts appear to be light sensitive. The cardiac ganglion of an isopod crustacean appears to be directly light sensitive but this sensitivity has not been observed in decapod crustaceans such as the lobster, *Homarus americanus*, a species that has great importance in invertebrate neurobiology. Lobster hearts were isolated and maintained in saline at 12 °C while recording and heart rate was measured continuously. Heart rates in the light condition appeared to be lower than in the dark condition (49.8 vs 58.9bpm respectively). These results indicate that the cardiac ganglion is light sensitive and is one of the first demonstrations of direct cardiac modulation by light in decapod crustaceans.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE MOLECULAR MECHANISMS THAT REGULATE CIRCATIDAL RHYTHMS IN THE AMERICAN HORSESHOE CRAB, LIMULUS POLYPHEMUS

AUTHORS: Fletcher Hall, Joseph Christian

FACULTY MENTOR: Christopher Chabot

ABSTRACT: While the primary animal circadian clock consists of a well-understood network of genes and

accessory enzymes, the mechanisms that underlie other biological clocks are largely unknown. A better understanding of secondary clock mechanisms may help address human health issues caused by primary and secondary clock desynchronization. To identify additional shared components of circadian clocks and a type of “secondary clock” that controls circatidal rhythms in intertidal organisms, pharmacological modulators of circadian proteins were tested on juvenile horseshoe crabs, *Limulus polyphemus*, which exhibit robust circatidal rhythms of activity. Overall results indicate that three circadian enzymes (CKI, CKII, and GSK-3), and one gene (cryptochrome) are involved in the clocks controlling circatidal rhythms, while two other casein-kinases seem to be involved in the circadian clock only. While these results show shared mechanisms between the two clocks, they also demonstrate distinct differences which may allow for targeted pharmacological intervention and corresponding human health benefits.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Cell and Molecular Biology

A RECOMBINATION-BASED APPROACH TO EXPAND GENETIC MANIPULATION IN CLINICAL VIBRIO CHOLERAEE ISOLATES

AUTHOR: Madelyn Kowalsky

FACULTY MENTOR: Mike Son

ABSTRACT: *Vibrio Cholerae* is an aquatic organism often found in areas with limited access to clean drinking water and sanitation (Asantewaa, et al. 2024). The gram negative bacterium is responsible for the gastrointestinal disease Cholera, coined for symptoms of onset vomiting, GI distress, and rice-water diarrhea; ultimately leading to dehydration and death. The bacterium produces two main virulence factors, TCP and CT. Toxin co-regulated pilus (TCP) is located at the tip of the pilus and provides the bacterium with adhesion properties to colonize in the intestinal tract (Krebs et al., 2011). Cholera toxin (CT) is an enterotoxin that binds to receptors in the intestinal epithelium, cascading a cellular signaling pathway that brings about an electrolyte imbalance; ultimately responsible for the physical symptoms of Cholera (Zhang et al., 2022). *V.Cholerae* can be classified into strains based on their antigens, known as serotypes (NCI Dictionary of Cancer Terms - NCI, n.d). Serotype O1, the predominant *V.Cholerae* strain associated with Cholera can be phenotypically divided into two biotypes, Classical and El Tor (Kaper et al., 1995). In recent events, the two biotypes have come together to form a hybrid ‘El Tor Variant’, of which has reached new virulence capabilities as demonstrated with heightened symptoms and accelerated disease progression; driving the need for immediate investigation. However, many of the preexisting recombination methods typically used for investigation rely on antibiotic use, of which does not confer with the current global antibiotic resistance concern at hand (Salam et al., 2023). Combatively, we will be constructing pMIK and pSON as recombination plasmids, and integrate them with an alternative *Escherichia Coli* donor strain. Utilizing suicide vectors in a variety of polymerase chain reactions, we will

obtain the origin of replication (ORI) from PKAS32 and the backbone from PEX18 in which will get digested, ligated, and ultimately recombined with the donor *E.Coli* to become a new allelic exchange vector. In doing so, we hope to develop alternative recombination methodology that can be applicable to a wider range of *V.Cholerae* strains while also addressing the global antibiotic resistance matter at large.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Chemistry

AN ANALYSIS OF ENDOTHERMIC AND EXOTHERMIC REACTIONS

AUTHORS: James Tiller McDonald, Riley Sylvester

FACULTY MENTOR: Brad Moser

ABSTRACT: The understanding of heat output of different reactions can help us to better understand the mechanisms and bond interactions. Some of the easiest to study reactions of this type are those in which ions are split as they tend to take in either a lot more energy than starting energy. This study primarily focused on the heat output of CaCl_2 and NH_4Cl salts when dissolved in water and how their different reactions could affect energy output. After calorimeter analysis CaCl_2 was found to output 57.13 kJ/mol while NH_4Cl was found to output -12.56 kJ/mol.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Climate Studies

BIG CITY HEAT MITIGATION

AUTHORS: Wyatt Martin, Luke Gilbert, Hunter St.Cyr, Avel Durant, Michael Guest

FACULTY MENTOR: Ricardo Nogueira

ABSTRACT: This project examines urban heat mitigation strategies designed to reduce heat retention and protect residents. By analyzing successful practices in cities that have already implemented these systems, we aim to identify the most effective ways to help metropolitan areas adjust to a warming climate. Key focus areas include planting more trees, creating parks to improve air quality, and implementing reflective “cool” roofs and green roofs. Additionally, we will investigate ways to cool roads and sidewalks to decrease the capture and detainment of heat. These strategic green spaces and innovative building materials will help cool down neighborhoods and potentially reduce the cost of air conditioning.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Environmental Biology

COLOR POLYMORPHISM IN THE ICONIC AND GEOGRAPHICALLY WIDESPREAD PINK LADY SLIPPER (CYPRIPEDIUM ACAULE AITON)

AUTHORS: Ronan Sangster, Cassidy Margerison

FACULTY MENTOR: Diana Jolles

ABSTRACT: *Cypripedium acaule*, commonly known as the pink lady slipper, is an iconic orchid species native to northeastern North America, often found flowering adjacent hiking trails from mid-May to June at mid to low elevation in varying shades of pink to white. Though culturally important, the evolutionary significance of its floral color variation remains largely unexplored. This study investigates whether pollinator-mediated selection is contributing to divergence between the white-flowered form (*C. acaule* f. *albiflorum*) and the typical pink morph. Using digital floral image analysis and thin-layer chromatography, we examined pigmentation and volatile compound differences across multiple populations. We hypothesize that both flower color and venation pattern influence pollinator behavior, potentially reinforcing reproductive isolation. The study aims to uncover whether color polymorphism and associated floral signals could facilitate sympatric speciation despite gene flow, providing new insights into the mechanisms of lineage diversification in temperate orchids.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

CYANOBACTERIAL TAXA IN ARCHIVAL LAKE SEDIMENT CORES FROM WEBSTER LAKE, FRANKLIN, NH

AUTHOR: Norah Conley

FACULTY MENTOR: Lisa Doner

ABSTRACT: Cyanobacteria harmful algal blooms (cyanoHABs), and their synthesized cyanotoxins, have increased in frequency due to anthropogenic-induced eutrophication and climate change, posing growing threats to human and ecological health. Monitoring and analyses of cyanobacteria toxins and pigments in water columns are now commonplace in many aquatic environments, but the use of genomics to identify cyanobacterial taxa in sedimentary deposits is a newly emerging field. This project evaluates the feasibility of gathering meaningful genetic information from archival lake sediment core samples to reconstruct a Webster Lake's record of cyanoHABs. We processed ten, 0.5 mg subsamples of freeze-dried surface core samples, collected in 2016, from the upper 10 cm of core-1 for RNA amplicon sequencing at the Hubbard Center for Genome Studies, UNH, using 16S, 18S, MiFish, and CYTB primers. Results were processed with BLAST and QIIME2. In addition, the top 43 cm of core-2 were analyzed for phycocyanin and chlorophyll-a pigments after extraction by three freeze-thaw and sonication cycles.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

DEVELOPMENTAL AND BEHAVIORAL EFFECTS OF CHRONIC EXPOSURE TO NEW AND LEGACY PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) ON THE AMERICAN HORSESHOE CRAB, LIMULUS POLYPHEMUS

AUTHORS: Olivia Bailey, Becket White

FACULTY MENTOR: Christopher Chabot

ABSTRACT: Per-and-polyfluoroalkyl substances (PFAS) are a large class of synthetic chemicals known for their

environmental persistence, ubiquity, and association with several adverse health and developmental effects. Two of these, Perfluorooctanoic acid (PFOA) and a ore recently developed PFAS, perfluorohexane sulfonic acid (PFHxS), are both ubiquitous throughout the world, yet potential toxic effects of PFHxS has been little studied, especially in marine invertebrates. When freshly laid eggs from a keystone marine species, the American Horseshoe Crab (*Limulus polyphemus*), were exposed to environmentally relevant concentrations of PFHxS and PFOA, PFHxS significantly increased hatching and metamorphosis yield, whereas PFOA only increased metamorphosis yield. PFOA also decreased activity. Lastly, PFHxS increased survival at the 10E concentration, and no other concentrations or PFOA affected survival rate. The differences in toxicity between these compounds on development, behavior, and survival highlight the importance of further studying these compounds.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

PATTERNS IN MAMMALIAN ACTIVITY IN QUINCY PASTURE FOREST (RUMNEY NH)

AUTHOR: Michael Ings

FACULTY MENTOR: Kerry Yurewicz

ABSTRACT: We conducted a camera trapping study to assess mammalian diversity and activity patterns in Quincy Pasture Forest, a 91.5-acre property located in Rumney NH. We analyzed images captured from September 1st through November 5th in 2023-2025. The number of game cameras varied from 7-10 per year, and we documented a total of eleven mammal species. Eastern Gray Squirrels, Flying Squirrels, White-tailed Deer, and Eastern Chipmunks were the most frequently detected species. On average, White-tailed Deer, Eastern Gray Squirrels and American Black Bears were detected at more than half of the camera locations each year. Some species showed clear diurnal or nocturnal activity patterns, while American Black Bears and White-tailed Deer were detected across both day and night. Future work will add more years and different seasons to this data set.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Environmental Science and Policy

ENTIRE HOLOCENE FIRE ACTIVITY IN THE WHITE MOUNTAINS, NH RECONSTRUCTED THROUGH SEDIMENTARY CHARCOAL

AUTHORS: Virginia Moore, Elizabeth Hastings, Oliff Doiron, Gabriel Talon, Alex Hynes, Matthew Coleman

FACULTY MENTOR: Simon Pendleton

ABSTRACT: Wildfire plays an important role in the growth and health of forest ecosystems, but pose growing concerns for communities and infrastructure, especially as climate change increases wildfire risk. Paleo records of wildfire provide context for current and future forest management, particularly around the use of prescribed fire. Lake sediments can provide continuous, high-resolution

records of fire via the accumulation of charcoal particles. We compare results to mineral grain size, organic content, and temperature reconstructions from branched glycerol dialkyl glycerol tetraethers (brGDGTs) derived from the same core. Throughout the record, variability in charcoal particle size points to changes in fire proximity and intensity. Planned pollen analyses hope to constrain ecosystem change in response to fire and disentangle the influences of fire intensity, proximity, and fuel type. The Cone Pond reconstruction is part of a larger project that includes additional sites and fire-scar tree ring records aimed at reconstructing regional fire history from the early Holocene to present in the White Mountains of New Hampshire.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

EVOLUTION OF FIRE REGIMES: LONG-TERM TRENDS SINCE THE HOLOCENE IN NORTHERN NEW HAMPSHIRE FORESTS

AUTHOR: Bryan Conley

FACULTY MENTOR: Simon Pendleton

ABSTRACT: Temperatures are projected to increase over the next decades, increasing wildfire risk across New England. Using records of past fires is fundamental to assessing future fire risk and determining effective management practices. This project will reconstruct postglacial wildfire activity in northern New Hampshire using charcoal preserved in sediments from Middle Mountain Bog (Conway, NH). We will quantify macroscopic charcoal to produce a high-resolution record of fire activity. To place charcoal variations on a timeline, we will obtain AMS radiocarbon dates from selected organic macrofossils and use them to build an age/depth model. The resulting dated charcoal time series will identify long-term trends and shifts in Holocene burning, showing how northern New Hampshire forests responded to postglacial climate change and later human land use. Results will be shared with USFS land-management partners to inform prescribed burning practices and future forest protection.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

RECONSTRUCTING HOLOCENE WILDFIRE ACTIVITY IN THE WHITE MOUNTAIN REGION USING SEDIMENTARY CHARCOAL

AUTHORS: Maggie DelBove, Oliff Doiron

FACULTY MENTOR: Simon Pendleton

ABSTRACT: This study explores historical wildfire activity in the White Mountain region through sediment analysis of Black Spruce Pond (BSP), Tamworth, New Hampshire. This research is part of a three-year project through the U.S. Forest Service, "Assessing fire-dependency in natural red pine forests of the Northeast," funded by the Northeastern States Research Cooperative. The research focuses on fire history reconstructions that provide greater efficacy in forest management within our changing climate. Different paleolimnological approaches, Loss on Ignition (LOI) and particulate charcoal analysis, allow assessment of watershed productivity and the frequency of past wildfire events. Charcoal analysis reflects lower counts over the past ~4000

years but begins to increase significantly beginning at 7000 years. This increase appears to match a similar spike in charcoal count for Cone Pond, NH, another sampling site included in the project. Charcoal analysis to be completed on the final BSP core section dating back ~10,000 years BP.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

UTILIZING SPATIAL INTERPOLATION TECHNIQUES TO PLAN HALE BROOK CHANNEL RESTORATION IN WHITE MOUNTAIN NATIONAL FOREST

AUTHOR: Chris Roy

FACULTY MENTOR: Amy Villamagna

ABSTRACT: In the fall of 2025, I assisted with planning the White Mountain National Forest's Hale Brook stream restoration. In the field I assisted with a thalweg habitat survey and surveyed cross sections of the flood plain. This gave me the idea of using mapping software to create a visual from the survey points. Upon successful completion of the visual I then used this to create my own channel restoration proposals for Hale Brook.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Exercise and Sport Physiology

SEX DIFFERENCES IN BENCH PRESS PERFORMANCE FOLLOWING ACUTE CAFFEINE SUPPLEMENTATION

AUTHORS: Dan Godomsky, Maddox McCarthy

FACULTY MENTOR: RYANNE CARMICHAEL

ABSTRACT: INTRODUCTION: Caffeine is an ergogenic aid that may affect males and females differently. Females metabolize caffeine slower leading to longer lasting blood caffeine levels. PURPOSE: To examine sex differences in response to caffeine supplementation during a bench press test. METHODS: Division III athletes completed a randomized, double-blind, crossover study with one baseline and two experimental sessions. The baseline session included a 3RM bench press test. In the experimental sessions, participants ingested caffeine or placebo gels before performing three sets of repetitions to failure at 70% 1RM during the bench press. RESULTS: There were no significant differences between males and females in response to caffeine for repetitions to failure, power, and muscle oxygenation ($p > .05$). CONCLUSION: Despite the fact that caffeine is metabolized differently between males and females, no differences in performance were found in the current study. Continued research is needed using doses of caffeine relative to body weight.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

SHOULDER ANGLE AND ITS EFFECT ON BICEP ACTIVATION

AUTHORS: Joseph Hemenway, Kai Colson, Robert Perry, Kai Crusberg-Roseen

FACULTY MENTOR: Brad Moser

ABSTRACT: Our study tested the active insufficiency of the bicep and the shoulder as shoulder flexion and extension angles changed. We tested this theory using the length tension relationship measuring bicep activation using electromyography (EMG). We were able to observe variations in bicep activation depending on the differing angles of shoulder flexion and extension. Six different shoulder angles were measured. One in the anatomical position (neutral), two in extension and three in flexion. The measurements were taken in increments of 15 degrees, being 15, 30 and 45 degrees in shoulder flexion and 15 and 30 degrees in extension. We used a ten pound dumbbell for resistance and a goniometer to measure the shoulder angles. A metronome was used to assist the subject in contracting at a consistent pace for a cleaner EMG measurement. A metronome of 100 BPM was used with three beats during the concentric and the eccentric with no time for an isometric hold.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE EFFECT OF CAFFEINE ON MUSCLE OXYGENATION AND BENCH PRESS PERFORMANCE

AUTHORS: Lyle Witchley, Shawn Harrington, Brandon Firman

FACULTY MENTOR: RYANNE CARMICHAEL

ABSTRACT: INTRODUCTION: Caffeine is an ergogenic aid used by athletes for competition. Caffeine increases blood flow and muscle oxygenation, which can improve muscular endurance. PURPOSE: The purpose of this study was to examine the effect of caffeine on muscle oxygenation and performance. METHODS: Eleven athletes participated in this double-blind, randomized, crossover study. Participants completed a baseline 3 RM bench press test. For the experimental visits, participants ingested caffeinated or placebo gels followed by three sets of repetitions to failure at 70% on the bench press. Each visit was separated by 72 hr. During exercise, repetitions, power, %SMO2 delta, and SMO2 peak were recorded. RESULTS: There were no significant differences in repetitions, power, %SMO2 delta, and SMO2 peak between conditions ($p > .05$). CONCLUSION: An absolute dose of caffeine did not increase performance or muscle oxygenation. Future researchers should examine the effect of a higher absolute or a relative dose.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE EFFECT OF TART CHERRY CONCENTRATE ON PERFORMANCE AND DOMS IN FEMALE DIVISION 3 ATHLETES

AUTHORS: Joseph Hemenway, Colby Corson, Victoria Taylor, Cassidy Hanson

FACULTY MENTOR: RYANNE CARMICHAEL

ABSTRACT: PURPOSE: To investigate the effectiveness of tart cherry concentrate (TC) on performance and delayed onset muscle soreness (DOMS) in female athletes. METHODS: Sixteen participants completed four visits. The first visit consisted of paperwork, anthropometric data, and performance testing. Participants performed countermovement jumps, the 505-agility test, and a 20 m sprint. Participants supplemented for 10 days with 60 mL

of TC or placebo (PL). On the final day of supplementation, participants repeated 15x30 m sprints to induce DOMS. Performance testing and DOMS were assessed at 24 and 48 hr. RESULTS: Across each time point, there were no significant differences between TC and PL for CMJ, 505, and 20 m sprint ($p > .05$). There were no significant differences in reported muscle soreness ($p > .05$). CONCLUSION: TC was ineffective for reducing DOMS in this population. Given the difference in fatigability between sexes, continued research on females is needed.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Finance

FINANCE AND INVESTMENTS CLUB SHOWCASE

AUTHORS: Angus Somers, Micheal Toronto, Marlene Sophie-Krohn, Laurence Bouchard, Owen Kihlsinger

FACULTY MENTOR: Christina Bradbury

ABSTRACT: This semester, our finance club delivered strong results across trading, education, and professional development. We executed a series of strategic trades, providing members with hands-on portfolio management experience while navigating a dynamic macroeconomic environment marked by shifting interest rates and evolving market conditions. Members also had the opportunity to visit the New York Stock Exchange and Nasdaq, gaining firsthand exposure to the inner workings of global financial markets. On the educational front, our e-board led initiatives designed to deepen members' understanding of key finance concepts, from equity valuation to risk management. Together, these experiences reflect our club's commitment to bridging classroom knowledge with real-world financial practice.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Integrated Capstone

ADDRESSING URBAN HEAT ISLANDS

AUTHORS: Ethan Croteau, Ryan Oelkers, Taylor Smith, Monica Cotaldo, Adam Leblanc

FACULTY MENTOR: Ricardo Nogueira

ABSTRACT: This project looks at urban heat island (UHI) effects in Plymouth, New Hampshire, with a focus on how PSU and the surrounding community can implement practical mitigation strategies. Rising temperatures in developed areas contribute to increased energy demand, heat-related health risks, and reduced environmental comfort. Through research on green infrastructure, tree canopy expansion, reflective materials, and urban planning strategies, this study evaluates scalable solutions that can reduce localized heat buildup in the town. The project emphasizes multi-scale interventions, including neighborhood-level shading, district-level green corridors, and goes into a city-wide cooling infrastructure. Findings suggest that integrating vegetation, improving surface reflectivity, and redesigning built environments can significantly lower ambient temperatures while improving livability. The goal is to provide realistic, community-

based recommendations that PSU and the town can adopt to reduce UHI impacts and improve long-term climate resilience.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

DEFEND THE WHITE MOUNTAINS

AUTHORS: Reilly Brown, Daniel Espinal, Collin Ford, Nicholas Robie

FACULTY MENTOR: Molly McCahan

ABSTRACT: This project examines the expansion of logging on U.S. public lands, focusing on the White Mountain National Forest and recent federal policies that accelerate timber production while limiting environmental review. It highlights the financial drivers behind increased logging, where timber sales generate revenue for agencies and private companies, often prioritizing short-term economic gain over long-term sustainability. To raise awareness of these policies and the health risks associated with increased logging, we created a poster to distribute around campus. The poster includes a QR code linking to a survey to gather public opinion for presentation at the showcase. It also provides links to conservation organizations working to challenge these policies and protect the White Mountains.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

INTERPRETIVE SIGNAGE CREW

AUTHORS: Jimmy Scanlon, Nathan Clifford, Sam Higa, Riley Boynton

FACULTY MENTOR: Molly McCahan

ABSTRACT: For our integrated capstone project our group identified several locations across the town of Plymouth that could benefit from informational signage. The many community members in Plymouth are already involved in some form of eco-tourism, whether is it hiking, fishing, mountain biking or skiing. These signs have been refined for optimal information communication to allow accessibility and comprehension for all ages and knowledge levels.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Meteorology

A CASE STUDY ANALYSIS BETWEEN TUG HILL LAKE EFFECT SNOW EVENTS AND MOHAWK RIVER VALLEY LAKE EFFECT SNOW EVENTS TO DETERMINE THE EFFECT OF ELEVATION ON SNOWFALL TOTALS

AUTHOR: Jackson Diglio

FACULTY MENTOR: Eric Hoffman

ABSTRACT: I am using 4 different lake effect snow events (2 on the Tug Hill Plateau and 2 in the Mohawk Valley) of similar duration and conditions to analyze the effect of elevation on enhancing lake effect snow totals.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Nursing

ALTERNATIVE EVIDENCE-BASED INTERVENTIONS IN COMPLEX MEDICAL CONDITIONS

AUTHORS: Kiana McCormick, Hannah Pasquarello, Stephanie Segura

FACULTY MENTOR: Julie Fagan

ABSTRACT: The purpose of this poster is to demonstrate the impact of evidence-based interventions on nursing care across several important topics. Evidence-based interventions demonstrate measurable improvements in patient outcomes. Research on CAUTI prevention, scalp cooling, and permissive hypertension was examined to understand how evidence-based interventions affected care quality. A literature review through medical journals and clinical sites found a correlation between evidence-based practice and patients' quality of life. Evidence-based practice interventions illustrate the need for interdisciplinary collaboration and continuing education for optimized clinical outcomes that enhance patient recovery and wellbeing.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

ALTERNATIVE INTERVENTIONS FOR CRITICALLY ILL PATIENTS WITH RESPIRATORY DISORDERS

AUTHORS: Michael Zmuda, Ashley White, Vanessa Hurley

FACULTY MENTOR: Julie Fagan

ABSTRACT: This poster examines alternative respiratory interventions for critically ill adults with acute respiratory pathologies, highlighting ventilator-associated pneumonia (VAP) prevention bundles, chest tube management strategies, and prone positioning. VAP remains the leading respiratory infection in mechanically ventilated ICU patients; however, implementing VAP prevention bundles significantly reduces its incidence. Additionally, providing education to nurses on the significance of prevention bundles improves adherence. Water seal chest tube approaches and management, compared to suction, show a decrease in chest tube duration and hospital stay. The use of a digital air leak detection device further enhances chest tube monitoring by collecting data on continuous airflow and pleural pressures, allowing for early tube removal. Prone positioning in patients with acute respiratory distress syndrome (ARDS) improves oxygenation and reduces the length of mechanical ventilation, though it requires increased staffing and carries risks such as pressure injuries. Overall, these evidence-based interventions have been seen to improve patient outcomes, with an emphasis on nursing education and critical thinking.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

EFFECTS OF NONPHARMACOLOGICAL TREATMENT FOR PAIN AND POSTPARTUM DEPRESSION

AUTHORS: Rylie Platt, Katherine Anderson, Mackenzie Juszczak

FACULTY MENTOR: Julie Fagan

ABSTRACT: Managing pain in perinatal, neonatal, and postpartum patients is challenging, particularly

when limiting medication use. This poster displays the effectiveness of nonpharmacological interventions on pain during hospitalization, after discharge, and their impact on postpartum depression. A review of current research, including meta-analyses, randomized controlled trials, and literature reviews, examined interventions such as multisensory stimulation (MSS), non-invasive brain stimulation (NIBS), and labor-based techniques. Findings showed that nonpharmacological approaches during labor reduced epidural use, cesarean and assisted deliveries, shortened labor duration, and improved maternal satisfaction. In neonates, MSS significantly lowered pain scores, stabilized heart rate, and improved oxygen saturation, with no cases of severe pain reported. NIBS also demonstrated potential in reducing postpartum depression symptoms, especially for mothers avoiding medication. Overall, these interventions effectively reduce pain and improve outcomes, supporting safer, patient-centered care. Further research is needed to assess long-term effects and guide clinical implementation.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

EVALUATING FAMILY-CENTERED CARE IN THE NICU

AUTHORS: Molly Bellmore, Hailey Kolesar

FACULTY MENTOR: Julie Fagan

ABSTRACT: Preterm infants in the NICU experience high levels of stress and separation from their families, which can negatively affect development and parent-infant bonding. Family-centered care focuses on involving parents in care to improve both infant and family outcomes. This poster evaluates how specific family-centered interventions, including maternal voice and music-based therapy, as well as participation in family-centered rounds, impact infant stress, bonding, and parental understanding of care. Evidence shows that maternal voice and singing improve physiological stability, increase infant engagement, and promote bonding. In addition, family-centered rounds improve parental involvement, communication, and confidence in care. Together, these interventions support reduced stress and improved developmental outcomes for preterm infants. Implementing family-centered care practices in the NICU provides a low-cost, effective way to enhance both infant and family well-being.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

EVALUATING OUTCOMES IN TYPE 2 DIABETES: GLP -1 RECEPTOR AGONISTS VERSUS BASAL INSULIN

AUTHORS: Camryn Loomis, Riley McCarthy

FACULTY MENTOR: Julie Fagan

ABSTRACT: Purpose This poster evaluates the effectiveness of glucagon-like peptide-1 (GLP-1) receptor agonists compared to lifestyle modifications and standard therapy on glycemic control and adverse effects in adults with obesity, including type II diabetes. A review was conducted of peer-reviewed cohort studies, meta-analyses, and safety data. Significance Obesity and Type II diabetes increase the risk of cardiovascular, renal, and metabolic complications. Many patients do not achieve optimal glycemic control with lifestyle changes or standard therapy alone. Understanding the

efficacy and safety of GLP-1 receptor agonists is essential for evidence-based care. Findings A review of multiple studies indicate that GLP-1 receptor agonists are associated with lower HbA1c levels compared with basal insulin or standard therapy. Evidence also suggests modest weight reduction and improved insulin sensitivity. These agents demonstrate cardiovascular and metabolic benefits, though potential risks including thyroid cancer and mental health disorders, remain under investigation. Conclusion GLP-1 receptor agonists appear to offer significant advantages over basal insulin in select patients. However, further long-term and prospective studies are needed to better understand safety profiles. Using them strictly for weight loss may also have more adverse effects that continue to be evaluated.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

FACTORS AFFECTING FERTILITY

AUTHORS: Lauren Fell, Michelle Fell

FACULTY MENTOR: Julie Fagan

ABSTRACT: This project examines how diet and substance use influence fertility and pregnancy outcomes in women of childbearing age. Evidence indicates that modifiable lifestyle factors, including nutritional intake and substance exposure, play a critical role in reproductive health. Poor diet and nutritional imbalances contribute to hormonal dysfunction, inflammation, and infertility, while substance use—particularly alcohol and smoking—is associated with delayed conception, miscarriage, low birth weight, and preterm birth. Findings suggest that alcohol and inadequate nutrition have the most significant negative impact, while caffeine shows weaker associations but should still be limited. Additionally, diet affects fertility indirectly through hormone regulation, gut microbiome balance, and inflammatory processes. These results highlight the importance of early intervention, preconception counseling, and health education. Promoting healthy lifestyle behaviors prior to pregnancy can improve fertility outcomes and reduce complications, supporting better maternal and neonatal health.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

HORMONES AND WOMEN'S HEALTH: JOINT CHANGES, CONTRACEPTIVE OUTCOMES, AND IUD PAIN MANAGEMENT

AUTHORS: Sophie George, Raven Premont, Savannah Bergeron

FACULTY MENTOR: Julie Fagan

ABSTRACT: Hormones and Women's Health: Joint Changes, Contraceptive Outcomes, and IUD Pain Management The poster examines how hormonal changes and contraceptive choices can produce both unique and less commonly recognized effects on women's health, including impacts on ligament stability, reproductive outcomes, and experiences with IUD insertion. A review of current studies indicates that long-term oral contraceptive use prior to pregnancy may disrupt natural hormonal cycling and alter the expression of key markers involved in endometrial receptivity. These changes may influence the timing and environment required for successful implantation. Pain during IUD insertion is

frequently underreported by providers, reflecting gaps in patient-centered care. Notably, the use of a suction-based tenaculum has been shown to reduce pain, bleeding, and ecchymosis compared to traditional techniques. Additionally, research involving female athletes demonstrates that hormonal fluctuations can increase ligament laxity, contributing to a higher risk of anterior cruciate ligament injuries. These findings highlight the importance of patient education, informed contraceptive use, and improved clinical practices to enhance women's health outcomes.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

NEUROTECHNOLOGY IN STUDENTS WITH MENTAL HEALTH DISORDERS

AUTHORS: Abigail Halloran, Bekah Boudreau

FACULTY MENTOR: Julie Fagan

ABSTRACT: The purpose of this poster is to explore how neurological technologies can improve psychiatric conditions and learning difficulties in students. Two neurotechnologies were examined: neurofeedback and brain-computer interfaces. Research suggests neurofeedback (NF), a noninvasive EEG-guided technique, may improve self-regulation and reduce symptoms of ADHD, anxiety, and depression. Some randomized controlled trials using standard neurofeedback protocols found small but statistically significant improvements in attention and processing speed, indicating benefits in cognitive functioning. Brain-computer interfaces have the potential to provide deeper understanding of student learning gaps through identification of brainwaves during cognitively stimulating activities like classroom settings or even gameplay. Identifying gaps in optimal brainwave activity can help teachers adjust their curriculum, optimize student understanding and allow more inclusive interventions for those with learning and mental health disorders. These alternative treatments show promising potential, offering new advantages in managing psychiatric disorders and enhancing learning outcomes.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

STRESS IN NURSING

AUTHORS: Danielle Donahue, Amber Lafrance, Luke Cloutier

FACULTY MENTOR: Julie Fagan

ABSTRACT: This poster examines how the stress levels of nursing students and new graduate RNs are affected by quality sleep and the area of practice after graduation. This topic is significant because there is a growing need for more nurses amid the current shortage. Nursing is often considered a stressful and challenging career, and nursing school is one of the most demanding majors. Stress impairs performance, and poor sleep quality further exacerbates this effect. Having strong support through both nursing school and the transition to nursing practice helps reduce stress and improve performance. The cycle of rigorous learning, stressful practice, and lack of sleep impacts job burnout and patient care, contributing to the nursing shortage.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE IMPACT OF LABOR AUGMENTATION ON MATERNAL AND FETAL OUTCOMES

AUTHORS: Lydia Morris, Xena Jopson

FACULTY MENTOR: Julie Fagan

ABSTRACT: The purpose of this poster is to evaluate the impact of labor augmentation strategies on maternal and fetal outcomes in low-risk pregnancies. Labor augmentation methods, such as misoprostol and oxytocin, are commonly used to improve labor efficiency, but their safety and effects on delivery outcomes require careful assessment. A review of current literature indicates that misoprostol is an effective and safe method for labor induction, shortening labor duration and increasing the likelihood of delivery within 24 hours without raising adverse maternal or neonatal outcomes. Early augmentation was not linked to increased risks such as postpartum hemorrhage or low Apgar scores, though cesarean rates were higher in some studies. Evidence also suggests that midwifery-led care and birth centers are associated with fewer interventions and better maternal outcomes. Overall, labor augmentation can be beneficial when it is necessary. However further research is needed to clarify its impact across different care models.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE IMPACT OF PROVIDER EDUCATION AND GENDER/ETHNICITY BIAS ON DIAGNOSTIC ACCURACY AND PATIENT OUTCOMES IN ADULTS

AUTHORS: Jersey Strum, Felicity Felix, Mia Clarke

FACULTY MENTOR: Julie Fagan

ABSTRACT: This poster examines how provider education on gender and ethnicity based differences compares to standard practice and their effect on diagnostic accuracy and positive health outcomes. Healthcare providers often lack sensitivity training and education regarding treatment of patients of different genders, ethnicities, sexual orientations, and races. Implicit bias can affect treatment plans and outcomes for these patients. Education programs can increase awareness of implicit bias in the decision making process for providers. Education that includes self-reflection and cultural competence training can reduce healthcare disparities and improve diagnostic accuracy. One educational session is not enough to correct these issues. It has been found that continuing education can make a long lasting positive impact in care outcomes in adults.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Psychology

ANXIETY & BEDTIME PROCRASTINATION

AUTHOR: Taylor Reside

FACULTY MENTOR: Tyler Wilks

ABSTRACT: This presentation explores the link between generalized anxiety and bedtime procrastination in college students. It explains how stress and worry contribute to poor sleep habits, which in turn worsen mental health. Using

survey measures, the study tests whether higher anxiety is associated with greater delays in going to bed.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

CHILDHOOD SPORTS PARTICIPATION AND SELF CONCEPT CLARITY

AUTHORS: Mackenzie Griswold, Kaley Goodhart

FACULTY MENTOR: Tyler Wilks

ABSTRACT: We conducted a research project in our RMS II class. This was survey research in which we collected data about individual's sports participation growing up, to see if there is a correlation between participation and self concept clarity later in life. We drafted both an academic research paper and poster about our project as well.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

COURSE DESCRIPTION & ATTENDANCE RATES

AUTHORS: Ace Tremblay, Amanda Burdick

FACULTY MENTOR: Tyler Wilks

ABSTRACT: This survey intends to measure how students respond to different course designs, and whether those designs impact student's impressions of the course

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

EXAMINE THE RELATIONSHIP BETWEEN DEATH ANXIETY AND SLEEP INERTIA

AUTHOR: Ania Lillis

FACULTY MENTOR: Tyler Wilks

ABSTRACT: Sleep disturbances and impaired morning functioning are common among college students, yet their psychological predictors are not well understood. One construct that may play a role is death anxiety, defined as fear or apprehension related to one's own mortality. The present study examined the relationship between death anxiety and sleep inertia, a state of grogginess and reduced alertness immediately after waking. Undergraduate students (N = 33) were recruited through the SONA research participation system and completed an online survey consisting of the Sleep Inertia Questionnaire and a measure based on the Templer Death Anxiety Scale. It was hypothesized that higher levels of death anxiety would be associated with greater sleep inertia. A Pearson correlation indicated a small, non-significant positive relationship between death anxiety and sleep inertia, $r(31) = .19, p = .287$. These findings did not support the hypothesis and suggest that death anxiety may not be a significant predictor of sleep inertia

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

HOW PERCEIVED EMOTIONAL INTELLIGENCE AFFECTS SELF-REPORTED AGREEABLENESS

AUTHORS: Sarah Mires, Amber Keiran, Katelyn Dowden

FACULTY MENTOR: Angela Kilb

ABSTRACT: Our study aimed to get a better understanding of whether brief exposure to emotionally skilled or unskilled behavior influences how people perceive and portray their own emotional intelligence (EI) and how that relates to agreeableness. Participants viewed a short clip from a film showing someone displaying either high or low EI, then they completed a survey. We predicted that those who watched the high-EI clip would report a higher emotional intelligence score, while those who watched the low-EI clip would report a lower emotional intelligence score. We also predicted that agreeableness would positively correlate with reported emotional intelligence. While the positive correlation was observed, we found that there was no significant effect from the film clips on EI scores.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

MIND VS MACHINE

AUTHORS: Kailey Nagle, Elaina Bennett

FACULTY MENTOR: Tyler Wilks

ABSTRACT: This study examines the relationship between students' anxiety and attitudes toward artificial intelligence (AI). Participants complete the GAD-7 and an AI questionnaire to assess whether anxiety relates to concerns about academics and future career.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

MISINFORMATION AND FACT CHECKING

AUTHORS: Ava Coyle, Kira Harrison

FACULTY MENTOR: Tyler Wilks

ABSTRACT: Our project is about how misinformation online and fact checking affects college students.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE EFFECTS OF ACADEMIC STRESSOR AND ANXIETY

AUTHOR: Khalid Vicks

FACULTY MENTOR: Angela Kilb

ABSTRACT: The present experiment investigated the effects within academics and stress levels. The participants were assigned to a control group that had them write about their daily life or an experimental group that was to write about their academic stressors. After the initial task was finished, participants filled out the Generalized Anxiety Disorder-7 questionnaire to determine their level of stress and anxiety. Our first prediction is that those within the experimental group would rank higher on the GAD-7 scale. The second prediction was a higher level score on the GAD-7 would be associated with higher neuroticism. The results showed an increase of anxiety measures when writing about academic stressors. These findings apply to those who experience an academic life.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE INFLUENCE OF STORIES ON LONELINESS

AUTHORS: Riley Meadows, Lillian Bergan, Enais Kirk

FACULTY MENTOR: Angela Kilb

ABSTRACT: The purpose of this study was to examine the influence of stories on loneliness and determine whether any correlations exist between loneliness and extraversion. These findings could tell us more about loneliness as a state and how it can be treated. We used two participant groups: one read a narrative intended to evoke feelings of loneliness, while the other narrative evoked feelings of inclusion. We predicted that our narratives would influence the participants' loneliness rating, and that there would be a negative correlation between loneliness and extraversion. Our results did not support these predictions. Instead, we found no significant difference between the narratives and no correlation between loneliness and extraversion. These findings may suggest that overall loneliness isn't highly susceptible to change, but further research needs to be done.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE RELATIONSHIP BETWEEN WINDOW VIEWS AND STRESS LEVELS: NATURAL VERSUS INDUSTRIAL ENVIRONMENTS

AUTHOR: Alanah McAllister

FACULTY MENTOR: Tyler Wilks

ABSTRACT: My project examines whether characteristics of the view from students primary residential windows are associated with perceived stress.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

WELL-BEING EXPERIMENT

AUTHORS: Shea Loomis, Ramsey Nelson, Katelyn Machnik

FACULTY MENTOR: Angela Kilb

ABSTRACT: This study examines student well-being by exploring whether different types of music affect overall well-being. This research is important because music is part of students' daily lives and may influence mood and emotional wellness. Participants' well-being was measured using the WHO-5 Well-Being Index after listening to either a happy or sad song for 50 seconds. It was predicted that happy music would increase well-being scores. Results showed no significant difference between the two groups. These findings suggest that short-term music exposure may not affect immediate well-being as measured by the WHO-5 and that well-being may be more influenced by long-term factors.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Science

THE IMPACT OF EXERCISE INTENSITY ON CALORIC EXPENDITURE: A GENDER-BASED COMPARISON

AUTHORS: Rylie Beisang, Abigale Bsullak, Kennedy Michaud, Ariel Ortiz, Carlee Davis, Emalyn Jaime

FACULTY MENTOR: Vincenzo Nocera

ABSTRACT: This study compared differences in caloric expenditure and metabolic rate between men and women during moderate and vigorous-intensity treadmill exercise, and the effects of bodyweight. Six participants (three men and three women, ages 20-21) completed two treadmill protocols: one at a moderate intensity (3.0 mph, 5% grade) and vigorous intensity (3.7 mph, 7% grade) on separate days. Each trial lasted until the participants reached one mile. Heart rate and rate of perceived exertion (RPE) were collected, and energy expenditure was calculated using standard equations. Results showed that men had higher estimated metabolic rates and burned more calories than the women by approximately 200-500 calories. As intensity increased, caloric expenditure also increased. These findings suggest that sex and body weight contribute to energy expenditure during moderate and vigorous intensity treadmill exercise.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Social Work

HOMELESS SHELTER CAPACITY IN THE UNITED STATES

AUTHOR: Kelsey Bacon

FACULTY MENTOR: Kimberly Livingstone

ABSTRACT: My project examines homelessness in the United States, focusing on the limited capacity of homeless shelters and the broader systemic issues that contribute to housing issues. It argues that shelters are underfunded and overcrowded, often forcing individuals to remain unsheltered. My project highlights how homelessness is linked to poor health, economic instability, and lack of access to resources. It shows that certain groups, including youth, women, and racial minorities, are unfairly affected due to systemic inequalities. It also explores related challenges such as barriers to employment and healthcare. Addressing homelessness requires increased funding, expanded shelter capacity, and long-term solutions like affordable housing. In this project I aim to raise awareness, challenge stereotypes, and inspire action by combining research and understanding of those experiencing homelessness.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Tackle "Wicked Problems"

MASCOTS AND MISREPRESENTATION

AUTHOR: Isabel Krauklin

FACULTY MENTOR: Jason Paling

ABSTRACT: Mascots and Misrepresentation This project examines the controversy surrounding racist and offensive sports mascots in the United States, focusing on why certain mascots, particularly those representing Native Americans, have come to be viewed as disrespectful. While some argue these mascots honor tradition, critics claim they reinforce stereotypes and disrespect Indigenous cultures. Through my research of historical context, social movements, and academic research, this study explores how public opinion

and activism can influence decisions to change or retire team names and imagery. I have included case studies that include professional teams and local examples, highlighting the role of institutional pressure and cultural awareness in shaping these changes. Ultimately, this research aims to better understand how debates over mascots reflect broader issues of representation, racism, and evolving societal values in American culture.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

SHOULD WE BRING ANIMALS BACK FROM EXTINCTION?

AUTHOR: Alexis Bigelow

FACULTY MENTOR: Jason Paling

ABSTRACT: In 2025, scientific advancements have enabled efforts to revive extinct species through cloning, assisted reproductive technologies, and genetic engineering. By reconstructing the DNA of long-extinct animals, researchers are exploring the possibility of bringing these species back to life. Following the recent revival of the dire wolf, significant ethical questions have emerged regarding the implications of such endeavors and whether similar efforts should be pursued for other species. This project examines both sides of the ethical debate, outlining the potential benefits and drawbacks of de-extinction. It aims to raise awareness of this complex issue by presenting a balanced analysis supported by relevant evidence. Through engaging with this material, viewers are encouraged to critically evaluate the arguments and form their own informed perspectives on the ethics of reviving extinct species.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

THE DEBATE OVER CONFEDERATE MONUMENTS: SHOULD WE PRESERVE CONFEDERATE MONUMENTS?

AUTHOR: Bradie Thomas

FACULTY MENTOR: Jason Paling

ABSTRACT: In this research project, I explore the debate over Confederate monuments in the United States and who decides how history is remembered in public spaces. I focus on how many of these monuments were built long after the Civil War, especially during the Jim Crow era, which raises questions about their purpose. I examine different perspectives, including arguments for removing the monuments as harmful symbols and arguments for keeping them to preserve history, sometimes with added context. Using a historical research approach, I analyze sources such as journal articles, reports, and news media, and organize the information into key themes. I also look at Richmond, Virginia's Monument Ave as a case study to show how this debate appears in real communities. Overall, I argue that this issue is not just about history, but also about modern values, identity, and who controls public memory.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

UNDERUTILIZATION OF THE PLYMOUTH STATE POOL

AUTHORS: Ellie Parker, Peter May

FACULTY MENTOR: Jason Paling

ABSTRACT: This project examines the significance and underutilization of the Plymouth State University pool. The pool plays an important role in supporting student health by providing opportunities for physical activity, which can reduce stress and improve overall well-being. It also fosters community engagement by offering public swim hours that encourage social interaction between students and local residents. Research shows that campus recreational facilities contribute positively to student wellness and academic success. Despite these benefits, the Plymouth pool appears to be underused. This study suggests that limited awareness or lack of knowledge about the pool, scheduling conflicts, and restricted operating hours may be key factors of why the pool is very underused. If some of these problems are made more aware, Plymouth has an opportunity to increase use of the pool, enhance student wellness, and strengthen connections with the surrounding community.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

WHAT SHOULD/SHOULDN'T BE TAUGHT IN SCHOOLS

AUTHOR: Connor Vance

FACULTY MENTOR: Jason Paling

ABSTRACT: I did my wicked problem final project on What Should and Shouldn't Be Taught In Schools?. I chose this topic because it was a discussion in class one time and it made me think more about how it does affect every generations learning. I made a website, along with a poster about my topic. My website outlines what studies have said about each age groups and what the current curriculum bases everything on and how it gets decided, My poster is more explaining about different people's thoughts and how people could each compromise and what I think would solve this wicked problem.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

WHO CONTROLS THE GAME? SPORTS BETTING AND THE FUTURE OF COLLEGE ATHLETICS

AUTHORS: Elijah Edwards, Hunter Richards, Connor Frawley

FACULTY MENTOR: Jason Paling

ABSTRACT: This project examines how the rise of legalized sports betting, following the Murphy v. NCAA Supreme Court decision, is reshaping the cultural identity of college sports. With companies like DraftKings and FanDuel increasing marketing to college-age audiences, tensions have emerged between commercials and traditional values. Using case studies about of advertising, university partnerships, and media strategies, this research shows how betting influences student culture and institutional decision-making. What we found suggests that no single authority controls the preservation of college sports traditions, creating an issue involving universities, corporations, and governing bodies. The study highlights the conflict between economic incentives and cultural integrity in the future of college athletics.

PRESENTATION TYPE: Poster | LOCATION: HUB Courtroom

Tabletops Presentations

Biology

WHAT HAPPENED TO ALL THE INSECTS?

AUTHOR: Liam Starr

FACULTY MENTOR: Jason Paling

ABSTRACT: The decline of insects has contributed to the further desecration of the environment due to a lack of decomposers and pollinators. Research has indicated that the insect population worldwide has declined quite a bit since 1970. According to the studies an accumulation of metrics relating to the observable decline of insects due to their lack of appearance on our windshield. This study gained media attention in 2017 and thus created the study known as the windshield effect. The environment must have started taking blows to its bird population and agricultural pollination earlier than 1970 because for there to be studies about it there must have been an imbalance. Insects also break down and decompose organic matter without this our soils nutrient cycle weakens. This study have shined light on some issues such as some food web imbalance, weaker nutrient cycles, pollination reduction. These findings implicate problems that could create unsolvable issues in the environment.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

Educational Leadership

CHORAL IMPROVISATION FOR THE COMMUNITY SINGER: A STUDY OF SINGING SELF-EFFICACY; A MIXED METHOD STUDY

AUTHOR: William Gunn

FACULTY MENTOR: Vincenzo Nocera

ABSTRACT: Community singing is built into the fabric of many cultures. From singing folk songs in Irish pubs to harmonizing protest songs in the March on Washington, there is a cathartic and holistic experience to sharing voices together. Although singing is an inherent skill, there are many people who struggle to find their voice in formal choral settings. This could be due to the time commitment of a community choir, low vocal self-efficacy, or the pressure of a public performance. This explanatory mixed methods study looked at the effects of singers' (n=60) musical self-efficacy after a community circle singing session. Quantitative results showed a positive effect on participants' attitude toward their own singing ability after each session, and qualitative results showed a strong correlation on environment and pedagogical sequencing toward successful outcomes.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

Environmental Planning

LEAVE NO TRACE | CAMPUS CLEANUP

AUTHORS: Joshua Dupuis, Joseph Anderson, Parker Landfors

FACULTY MENTOR: Jessie Chapman

ABSTRACT: Our group is focused on trying to get more individuals on campus involved in caring for the outdoors and doing it in a way that doesn't feel forced. We plan on spreading awareness about impact of trash on campus and will provide students with the opportunity to sign up for a group campus cleanup.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

Environmental Science and Policy

DISSECTING POST-GLACIAL LANDSCAPE EVOLUTION IN PLYMOUTH, NH

AUTHOR: Kylie Bocash

FACULTY MENTOR: Simon Pendleton

ABSTRACT: Combining surficial geologic maps with recent high-resolution LiDAR elevation data, the chronology of deglaciation, regional sea-level records, and GIS analysis to dissect the post-glacial landscapes that were formed. These incisions created steep gullies that we still wonder about to this day, I will be trying to solve the question of what is there, and how was it made

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

Integrated Capstones

AIR POLLUTION: COMPARING CHICAGO AND ALMATY

AUTHORS: Megan Graustein, Arusha Binder, Michael Kelly, Zack Bourassa

FACULTY MENTOR: Ricardo Nogueira

ABSTRACT: Our paper explores how human populations in Chicago Illinois and Almaty Kazakhstan are affected by air pollution levels year over year. The major causes of air pollution in Almaty are heavy car emissions and coal-fired heating and power plants. Chicago also suffers from heavy car emissions and power plant pollution, but less than 30% of their power generation is from coal. We also look at how usable public transportation is in both cities. Public transit in Almaty is unreliable, only being on time at stops about 50% of the time. Chicago has millions of riders daily, and maintains a reliable public transportation schedule with 99% accuracy on timing their stops. How can Almaty cut down their fossil fuel emissions as much as Chicago has? They could repair their bus system. Here in Plymouth, Concord Coach has a wonderful bus system that is reliable, affordable, and easy to use.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

ART ACROSS AGES

AUTHORS: Faith Milne, Madelyn Lounsbury, Ricky Smith, Elli Cox, Jack Donahue

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Our project explores the impact of intergenerational play on the well-being of older adults through a community art event hosted in partnership with the Plymouth Regional Senior Center. The event brings together college students and older community members to engage in collaborative art play designed to foster social connection, creativity, and joy. Research shows that social isolation among older adults is linked to negative mental and physical health outcomes, while intergenerational interaction can improve life satisfaction and reduce loneliness. This project aims to address these challenges by creating a welcoming community event that promotes access to play and meaningful social connections across generations. Findings from participant feedback and observations will be used to evaluate the effectiveness of the event. This work highlights the value of play as a tool for community building and supports the integration of intergenerational programming in our Plymouth community.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

BEYOND THE HEADLINES- UNDERSTANDING THE CONFLICT IN THE MIDDLE EAST

AUTHORS: Jacob Hepburn, Mikayla Viger, Kiya Cashaw, Aiden arinello

FACULTY MENTOR: Jessie Chapman

ABSTRACT: The purpose is to educate others about what's happening with the Middle East conflict between the U.S, Iran, and Israel and spread awareness about the issues happening. I want it to be more of an awareness and dialogue event. The goal is not to have one specific political stance but to help people understand what's happening in the world and the different perspectives involved.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

BRIDGING THE BORDER: RESTORING THE NEW HAMPSHIRE-CANADA CONNECTION

AUTHORS: Camron Oak, Anthony Grazioano, Brady Courcy

FACULTY MENTOR: Katharine Harrington

ABSTRACT: Bridging the Border: Restoring the New Hampshire-Canada Connection Our project explores strategies to restore New Hampshire and Canada's cross-border relationship through tourism. Our target audience is Quebec citizens and border towns in New Hampshire. Recent political tensions have significantly impacted Canadian travel to the US. We examine current border affairs through interviews with an NH State Senator, a retired McGill University Law Professor, and a survey distributed to Canadians through Instagram. We highlight how media can create gaps in our relationship and explore the economic and social repercussions of reduced Canadian engagement. Our project seeks practical solutions to rebuild trust and encourage renewed partnership. Our project spreads awareness of the necessity of our relationship by

creating an Instagram account and informational posters for popular tourist destinations. Our goal is to demonstrate how understanding cross-border cooperation can improve the relationship between Canada and the US.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

COLLEGE STUDENTS TAKING PLAY BREAKS

AUTHORS: Daniel Post, Sammy, Grace, Nik, Mason and Dan

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Our project is about incorporating play breaks into college students academic lifestyle. when students are working hard and about to get work fatigued. they should apply a play break for like 5 or 10 minutes to get there mind off working hard for a little bit. its great to relieve stress .

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

COLOR TO CALM

AUTHORS: Courtney Johnson, Olivia Mara, Delaney Smith, Madison Bentley-DeMaggio, Nat Abiera

FACULTY MENTOR: Amanda Whitworth

ABSTRACT: Our project Color to Calm is a prototype to help reduce anxiety in healthcare settings specifically the ER. Long waiting times in the ER can cause high stress and anxiety. By providing art materials to patients in the waiting room the goal is to promote a calmer environment and improve healthcare outcomes.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

EMOTION MONSTER

AUTHORS: Zoey Grimard, Grant Barahona, Sadie Ainsworth

FACULTY MENTOR: Amanda Whitworth

ABSTRACT: Our project is an art-based activity called "Emotion Monster." This activity is designed for children ages eight and up. The goal of this activity is to help children recognize, express, and talk about their emotions in a creative and supportive environment. As we work with the Pemi Youth Center, we are helping the children regulate emotional development, which occurs alongside rapid social and cognitive growth. Many children struggle to effectively express emotions, leading to frustration, confusion, and behavioral difficulties. The monster will represent a feeling they sometimes experience, such as anger, sadness, worry, or excitement. Children will be encouraged to choose colors, shapes, and features that match the feeling their monster represents. After creating the monster, the art piece will be hung in the Lamson Library for an exhibition. Parents and children will be able to see their art work displayed in a local community space.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

ENCOURAGING TOURISM TO CANADA WITH TRIVIA

AUTHORS: Riley Sylvester, Mitchell Barton, Brodie McConnell, Jarrett Lamoureux

FACULTY MENTOR: Katharine Harrington

ABSTRACT: Our group project focuses on tourism between New Hampshire as well as the rest of New England and Canada. Recently, tourism across the border, north and south, has dwindled due to many reasons mostly related to the political climates between the United States and Canada, which affects the economies of many border towns who rely on tourists. Our project idea is to do an educational night with interactive games to demonstrate all there is to do just north of us in Canada. We will start the event with a short presentation, educating participants on different parts of Canadian culture and showing the importance of tourism north to encourage travel. We want to instill curiosity in Plymouth students to encourage them to visit Canada and to contribute to rebuilding the relationship between our two countries.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

EXPLORING CURRENT US-CANADA RELATIONS

AUTHORS: Ethan Roys, Amaya Eitapence, Greg J. Farmer

FACULTY MENTOR: Katharine Harrington

ABSTRACT: The United States and Canada have been close since they were both British colonies, and while the relationship has taken many forms, it has only become more important as time goes on. We believe there is a general lack of knowledge and awareness around just how important the relationship between the United States and Canada is to both countries. Our project serves as an examination of the importance of the connection between the US, specifically New Hampshire, and Canada. The project explores how the current tensions have affected both of our countries and the impact we have had on one another. We hosted tabling events on campus to better inform people of the importance of this relationship. We utilized a board to display our work and a Kahoot for review. We hope people gain a better understanding of the value of this relationship and the necessity of maintaining good relations.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

HEALING BEYOND THE DIAGNOSIS

AUTHORS: Caroline Goren, Cindy Haight, Cheyanne Amstead, Jason Brake

FACULTY MENTOR: Amanda Whitworth

ABSTRACT: Healing beyond the diagnosis is a project that implements art and play in hospitals. It is a written program plan that describes how art can influence patients. We distribute our documents to healthcare providers as a guide that they can use to incorporate art into the healing process of their patients.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

HYPER CONSUMERISM AT PSU

AUTHORS: Avery Hazelton, Ben Colby, Colin Hile

FACULTY MENTOR: Jessie Chapman

ABSTRACT: For our Protest and Performance class, our group

is focusing on hyper consumerism, and specifically focusing on trash buildup on and around campus. We are helping to educate peers on the seriousness of all different kinds of waste. For our table presentation, we plan to showcase our research as well as the trash that we will have collected throughout our pickup. If needed, since using trash, we can also demonstrate outside!

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

inSTAR

AUTHORS: Sawyer Bergeron, Ella Fraser, Kaiden Kelley, Finn Frasca

FACULTY MENTOR: Amanda Whitworth

ABSTRACT: Instar is a program focused on alcohol abuse recovery for adolescents and young adults. Nicotine addiction recovery has multiple over-the-counter products available for consumers, but alcohol abuse recovery has none. Drawing inspiration from services such as SOBIX, Finch, and Headspace, Instar is a website that provides daily self-care habits to support recovery. One of the main features of Instar is caring for a digital creature through daily self-care tasks, similar to Tamagotchi. Instar also hosts resources for recovering individuals.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

KNOW YOUR RIGHTS

AUTHORS: Austin Chierichetti, Dan Sleeper, David Albert

FACULTY MENTOR: Jessie Chapman

ABSTRACT: A set of short videos containing educational content with a focus on how to handle relevant situations pertaining to being a young adult in America and navigating the current political climate. Specifically making videos pertaining to Renters Rights, Voters Rights, and interacting with law enforcement.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

PLAY BEYOND THE PLAYGROUND: THIRD PLACES AND COMMUNITY BELONGING

AUTHOR: Maxwell Galbraith

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Rather than defining play only as children's recreation or structured activity, this project approached play as a broader human experience that can include creativity, movement, conversation, relaxation, experimentation, and spontaneous interaction. Focusing on "third places," or spaces outside of home and work or school, such as libraries, cafés, parks, student lounges, and recreation areas, this project explores how everyday environments shape opportunities for connection and low pressure engagement. The third space practical toolkit is designed to help make third places more welcoming, inclusive, and supportive of interaction.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

PLAY MORE, STRESS LESS: DISCOVERING FUN IN NH

AUTHORS: Makenzie Roche, Zachary Dolan, Mya Renkainen, Liam Callard

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Our project is designed to help students connect with all the fun opportunities around Plymouth. It's not always easy for college students to stay active and connected, especially with such a harsh winter in New Hampshire. We want to show students that there are fun things to do around Plymouth all year. By making this information readily available by collaborating with The Office of Student Life, we aim to increase access to and participation in play opportunities for students.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

PLAY OPPORTUNITY FOR MIDDLE AND HIGH SCHOOL STUDENTS

AUTHORS: Abigail Gurevich, Isabella Patry, Alyssa Rosato, Max Goodman

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Our project focuses on adolescent students who need more opportunities for play to develop stronger social, emotional, mental, and physical awareness. By encouraging more play opportunities, we can improve many aspects of personal development and help people better understand the importance of play for people of all ages. Our goal is for middle and high schools to implement a specific unstructured time for play for all students. These opportunities will occur during the school day as part of their weekly schedule to give access to all students. Over the course of our project, we have reached out to schools and teachers to discuss the benefits this could bring for a better school environment.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

PLAY WITHOUT PRESSURE

AUTHORS: Reese Burge, Hunter Holland, Camden Dezotell, Samantha Durrenberger, Connor Phillips

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: This capstone project examines the role of unstructured play in adolescent development, with a focus on middle school youth who often lose access to recess during a key transitional period. In partnership with Plymouth Parks and Recreation, the project proposes a community "open gym" model that provides a low-pressure, inclusive environment for play without the structure or cost of organized sports. Research, community outreach, and stakeholder conversations, including collaboration with the Director of Campus Recreation, were used to assess feasibility and identify barriers. Findings revealed consistent institutional limitations related to facility access and financial concerns. In response, the project outlines a scalable proposal that balances community access with university priorities through regulated use and minimal cost. This initiative highlights the potential for universities to foster community engagement while supporting youth well-being through accessible play opportunities.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

PLYMOUTH ANIMAL WELFARE AWARENESS

AUTHORS: Madison Dwyer, Beck Leininger, Haley Serafine

FACULTY MENTOR: Jessie Chapman

ABSTRACT: Our main objective is community outreach to spread awareness and information about animal welfare. We plan to provide the public with the knowledge and ability to spot animal abuse and what to do about it, and resources/hotlines. We have created interactive posters and events to engage with the community. We're concerned that violence against animals precedes interpersonal violence, and that these conflicts go unnoticed.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

SAP ACROSS BORDERS

AUTHORS: James Oatis, Kieran Barnard, Declan Agee, Robert Macri, Brenden Barry

FACULTY MENTOR: Katharine Harrington

ABSTRACT: Maple syrup is a important, warm, and tasty commodity that is shared between the United States and Canada. The maple syrup industry is an important aspect of both countries economic and tourism. Unfortunately, certain factors such as economic policy decisions and a United States administration that has disrespected our northern neighbors, have threatened local syrup producers in New Hampshire, Vermont, and Quebec. We are attempting to highlight how important local syrup producers are to both states and provinces, and how the liquid gold of maple syrup is a shared connection between Canadians and Americans.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

SCREW AI THERAPY

AUTHORS: Ella Orchard-Blowen, Corey Baker, Sofia Luciano

FACULTY MENTOR: Jessie Chapman

ABSTRACT: Our project is focused on informing the Plymouth State community on the harms on AI Therapy and educating on ways to access beneficial mental health support. This is for our capstone class.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

STRENGTHENING FRANCO-AMERICAN AND FRENCH-CANADIAN CULTURAL CONNECTIONS

AUTHORS: Finn Blomberg, Piper Blodgett, Mary Catherine Sullivan, Tony D'Arcangelo

FACULTY MENTOR: Katharine Harrington

ABSTRACT: Nearly a quarter of New Hampshire residents have French-Canadian ancestry. We wanted to bring awareness as well as understanding to the PSU community that Franco-Americans and French-Canadians share a lot of cultural similarities. Our project is about making cultural connections between Franco-Americans and French-Canadians more accessible via easy, tangible entry points for people to learn more. These entry points aimed at showcasing multiple facets of culture, as well as giving out information about an upcoming French-Canadian holiday.

Recipes in zine form, music compilations, and information about Saint-Jean-Baptiste day were all available when we tabled at Earth Jam; a student-led celebration of humanity and culture. Our project is about celebrating humanity, human art/culture, and bringing people together during a period of tension.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

SUDDEN UNDERSTANDING

AUTHORS: Gemmy Tremain, Annileah Coubrough, Moriah Rosenfield, Lukas Anderson, Sebastyan Torres

FACULTY MENTOR: Eden Bowditch

ABSTRACT: A jubilee style video series, in which, two opposing sides come together for a conversation and create mutual understanding.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

THE IMPORTANCE OF INTEGRATING ENVIRONMENTAL EDUCATION EXPERIENCES IN PUBLIC SCHOOL SETTINGS

AUTHORS: Hailey Banville, Michael Wainwright, Abey Gordon, Mollie St Pierre

FACULTY MENTOR: Molly McCahan

ABSTRACT: Our group went into a second grade classroom at Campton, Elementary School to teach them about the importance of our Public Lands. We ran three stations, all centered around environmental education practices including leave no trace, plant biology, and public land history.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

UNPLUG AND PLAY: THE BENEFITS OF SCREENLESS PLAY IN YOUTH

AUTHORS: Karlee Lehner, Juliet Rutigliano, Lucas Jones, Andrew Stuckless

FACULTY MENTOR: Elisabeth Johnston

ABSTRACT: Today's youth are spending more time looking at screens than ever before. While screen use can offer some benefits, it often replaces opportunities for screen free play which is essential for healthy development. By focusing on cognitive, collaborative, and physical forms of play, we can help reintroduce engaging alternatives that keep kids active and involved without relying on screens. Activities that support cognitive development strengthen problem solving skills, creativity and memory, while collaborative play builds social skills, teamwork, and conflict resolution. In addition, physical play promotes overall health and wellbeing. Prioritizing these types of activities helps kids develop important life skills, while supporting their growth in a more balanced and impactful way.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

URBAN HEAT MITIGATION - PLYMOUTH STATE

AUTHORS: Xavier Bibaud , Blake Yaffe , Ari Mckennedy, Madelyne Radzvilla, Charlie Despres

FACULTY MENTOR: Ricardo Nogueira

ABSTRACT: Climate Change occurs in many forms, especially in dense urban areas. Known as Urban Heat Islands, or URIs, is the cause of cities developing their own mini climate. Cities, especially in the summer, radiate heat off dark colored roads and buildings. Also, due to lower amounts of vegetation, increases heat as well. Extreme heat is the leading cause of death from global climate change. With climate predictions we are facing increasing temperatures. Looking at areas in which heat severity is a large issue applying mitigation strategies could be extremely valuable. Our goal in this research project is to determine what is the causation of URIs and how can we mitigate them in the future. Creating a mock layout of a sustainable city with infrastructure green-spaces and overall heat mitigation strategies to assess how great these impacts are and further break down how to assist the current challenge that effects high population density's country and worldwide.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

WORDS THAT REACH: GUIDED PROMPTS FOR MEANINGFUL MOMENTS

AUTHORS: Lucy Cote, Calla Baker, Emma Turner, Sarah Adamske

FACULTY MENTOR: Amanda Whitworth

ABSTRACT: Olde adults often struggle with loneliness and depression when living in an assisted living facility. We are working towards compiling a deck of cards that will aid in creating conversations between family when they are visiting their loved ones. Mae's Place has a population who often struggle with a decline in mental status, which can be difficult for family members to witness. By creating small conversation prompts that will be available to visiting family members, it may put them at ease and make visiting a less stressful event. This will increase the amount of family members visiting and the frequency that they do. We will present our project using Canva slides and having a few physical examples of the card decks that we will be providing. This will allow us to pass around our decks as we present so people will get a true understanding of what our projects provides. We will be splitting out time by each taking a few of the slides and presenting them, this will allow us to have adequate time to rehearse. Luckily, we don't have any time conflicts so all members of our group will be present.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

Science

EFFECTS OF ARM SWING CONDITIONS ON MECHANICAL WORK, IMPULSE, AND TAKEOFF FORCE IN VERTICAL SQUAT JUMPS

AUTHORS: Shelby Demingway, Danielle Walker, Sydney Whitehouse, Dan Daschbach-Eaton

FACULTY MENTOR: Brad Moser

ABSTRACT: This project investigates how arm swing influences vertical squat jump performance by analyzing mechanical work, takeoff force, and impulse. Using a

Bluetooth force plate and CAPSTONE software, force-time data are collected to determine key variables such as takeoff force, flight time, and impulse. These measurements are used to calculate jump height and mechanical work output. Two participants each perform 15 trials across three conditions: natural arm swing, overhead arm swing, and no arm swing. Average values for each condition are compared within and between subjects to identify performance differences associated with arm movement. The study aims to clarify the biomechanical contribution of arm swing to jump efficiency, providing insight into techniques that may enhance athletic performance.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

EMG ACTIVITY AND FATIGUE DURING ISOMETRIC BICEPS CONTRACTION ACROSS TRAINING LEVELS

AUTHORS: Veronika Castro Rodriguez, Greta Oberacker, Natalie Tremblay, Camryn Morris

FACULTY MENTOR: Brad Moser

ABSTRACT: This study investigates how electromyography (EMG) activity changes during isometric biceps contraction and how these changes differ across individuals with varying training levels. Participants included an in-season athlete, an out-of-season athlete, and a physically active non-athlete. Each performed isometric biceps holds at 90° elbow flexion using different weights until fatigue. EMG signals were recorded and analyzed using root mean square (RMS) values to assess muscle activation over time. Results showed that EMG activity increased as fatigue developed, reflecting greater motor unit recruitment. Heavier loads produced higher initial activation and shorter time to failure. Differences between participants suggest that training status influences fatigue resistance and muscle activation patterns. These findings highlight the relationship between biomechanics, muscle physiology, and physics principles such as force balance and torque in human movement.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

THE EFFECT OF MUSCLE FATIGUE ON BLOOD LACTATE LEVELS

AUTHORS: Camron Oak, Owen Walton, Andrew Martin, Jonathan Stahl

FACULTY MENTOR: Brad Moser

ABSTRACT: This project aims to demonstrate the relationship between muscle fatigue and blood lactate levels during exercise. During our presentation of the results, we will provide a step-by-step walkthrough of the steps taken to achieve the data. We will also provide a basic understanding of blood lactate, its impact on muscle performance, and its relevance.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

Tackle “Wicked Problems”

ABENAKI ARTIFACTS AND CULTURAL RIGHTS IN THE WHITE MOUNTAIN REGION

AUTHORS: Amelia Laidlaw, Riley Dever, Rory Daniels

FACULTY MENTOR: Jason Paling

ABSTRACT: For this project we will be assessing the issues about repatriation of Indigenous artifacts, using the Abenaki Tribe as a case study for this project. Members of the Abenaki tribe have had to try and preserve their culture by maintaining ownership of their early tribe’s artifacts. The Abenaki feel as though to keep their community alive, they need to also keep their culture alive. During our time researching this subject, we plan to interview members of the Abenaki Tribe to learn more about personal experiences that are tied to this subject and visit real Abenaki artifacts and sites. Through this research we plan to better understand the complexities of this issue and present our findings through a website at the Showcase of Excellence.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

BEYOND ISLAMIC STEREOTYPES

AUTHORS: Tyler Lomme, Tyler Tatro, Kason Miner

FACULTY MENTOR: Laura Tilghman

ABSTRACT: Our project is about religious division caused by stereotypes and false ideas about Islam and Muslims. We made a video that breaks down these stereotypes and responds to them in a clear and respectful way using facts, examples, and visuals. We focused on common stereotypes, like Islam is violent, that all Muslims are Arab, or that Muslims are dangerous to the United States. We are posting our video online and on social media, so our audience is our peers and people around the world who might see it. Our goal is to challenge these stereotypes and help people understand that a lot of these ideas come from misinformation. Overall, we want the project to make people think more before judging and help create more understanding between different groups.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

BEYOND PRESERVATION: THE ETHICS OF IDENTITY AND OWNERSHIP IN AMERICAN MUSEUMS

AUTHORS: Jeramiah Guerrero, Jayden Graham, Sam Cowette

FACULTY MENTOR: Jason Paling

ABSTRACT: This study examines the National Museum of the American Indian (NMAI) as a critical site for exploring the ethics of cultural ownership and tribal power. Housing thousands of ancestral artifacts, the NMAI serves as a focal point for the repatriation of items taken through historical looting. The central problem is the tension between institutional preservation and the rights of communities to reclaim their “cultural soul”—the link between historical objects and living identity. By analyzing the NMAI’s role

in upholding the Native American Graves Protection and Repatriation Act (NAGPRA), this project reveals that true preservation warrants the restoration of dignity and agency. To further this research, we will consult with an Analyst from Plymouth and a representative from the NAGPRA association. Ultimately, this work demonstrates that protecting American heritage is a shared moral obligation to ensure historical continuity and justice.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

BIBLE DISCOVERY, BIBLIOPOLY

AUTHORS: Jonathan Elkhoury, Steven Gilcreast, Ava Santini, Michayla Reagan

FACULTY MENTOR: Laura Tilghman

ABSTRACT: Even though many Americans are familiar with Christianity there can still be misunderstandings and prejudice. Our group project is educating people about Christianity to reduce religious division. Our goal is to create a fun, engaging way to learn with a board game called Bibliopoly, which we've modified to make it slightly more entertaining. Our intended audience was PSU students. The game is cooperative, a property-trading board game in which players travel through Biblical cities, aiming to be the first to build a church. Unlike Monopoly, players win by helping others gain resources rather than bankrupting them. Players earn "cornerstones" through good deeds, which allow them to build bricks and a steeple. The audience we reached was a youth church group. This game is open for all religions to learn something new about their culture or another culture.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

DEFORESTATION IN DAILY LIFE

AUTHORS: Lee Guarnieri, Izzy Frecker

FACULTY MENTOR: Sarah Parsons

ABSTRACT: In this presentation we will present ways people could start to lessen deforestation's impact

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

DOMESTIC ABUSE/ABUSE IN YOUNG RELATIONSHIPS

AUTHORS: Priscilla Reis, Bory Bory

FACULTY MENTOR: Sarah Parsons

ABSTRACT: We will be interviewing people who have experienced dv relationships and hows its affected them and what they did to get out of the relationships. We will be educating and giving solutions on what to do regarding what situation they are in.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

INTERVENING AGAINST CYBERBULLYING

AUTHORS: La'Anna Draper, Nylah Musisi, Aiden Caya

FACULTY MENTOR: Sarah Parsons

ABSTRACT: In this project, we will discuss the characteristics

of cyberbullying and explore ways in which it could be addressed.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

INTRODUCING NEW TECHNIQUES ON HOW TO LOWER PHONE USAGE TO THE STUDENT BODY

AUTHORS: Michael Kelly, Addie Fitzgerald, Alex Tull, Jack Maurice

FACULTY MENTOR: Sarah Parsons

ABSTRACT: Sleep prln this presentation we will address problems stemming from phone use, decreased productivity, and mental illness caused by social media.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

RELIGIOUS DIVIDES: EDUCATION IN HOPES TO HELP PREVENT ISLAMOPHOBIA

AUTHORS: Alexis Troville, Nick Coco, Caleb Charnley

FACULTY MENTOR: Laura Tilghman

ABSTRACT: In our project we are focusing on the bias and misconceptions of Muslims, and how we can help with religious division. We are making short video clips to educate people on Muslims and their beliefs. We made a google form asking people what they already know and some common misconceptions they've heard, which is going to give us a base line on what to include in our video. Our intended audience is Plymouth State University students. Our main goal is to educate people to help reduce islamophobia.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

RESURRECTING THE PAST: SHOULD WE RESURRECT SPECIES THAT HAVE BECOME EXTINCT, AND WHO SHOULD BE RESPONSIBLE?

AUTHOR: Owen Arias

FACULTY MENTOR: Jason Paling

ABSTRACT: This research project will explore the question of whether humans should bring extinct species back to life, using the woolly mammoth as the case study. With new genetic technology like CRISPR (Clustered regularly interspaced short palindromic repeats), scientists are now seriously working toward recreating mammoth-like animals by editing the DNA of modern elephants. While this may seem like an exciting scientific breakthrough, it also raises major ethical, environmental, and political questions. This project examines both the potential benefits and risks of de-extinction, including ecosystem restoration, animal welfare, and the impact on species that are already endangered today. It also looks at a key issue in this debate: who should be responsible if extinct animals are brought back by private companies, governments, or the scientific community. Overall, this research argues that de-extinction is not just a scientific issue, but also a question about responsibility, preservation, and humanity's relationship with the past.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

TWP PROJECT: REDUCING RELIGIOUS DIVISION THROUGH COMMUNICATION

AUTHORS: Jean Alton, Brian Pluck, Brian Kessel, Adam Boulguid

FACULTY MENTOR: Laura Tilghman

ABSTRACT: For our Tackling A Wicked Problem class, we attempted to address religious division through facilitating communication. Religious division is the separation and prejudices between people because of religious differences. Even though religious division can be decreased through relationships with people from different religions and having conversations, most people are hesitant to talk about it. Our audience was PSU students. We set up a table in the HUB and prompted people to engage in a short conversation with us about religion, and then reflect on how comfortable they generally feel talking about religion. While specifically religion was our focus, we encouraged people who don't subscribe to a specific religion to talk about their spirituality or worldview instead.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

RELIGIOUS ACCOMMODATIONS WITHIN DORMS

AUTHORS: Jorja Moore, Rosalynn Zaun, Anna Gardener, Addison Harper

FACULTY MENTOR: Laura Tilghman

ABSTRACT: Students should be able to practice their religion freely or it can cause religious division. Our group is addressing religious accommodations for students living in dorms. Our intended audience is Plymouth State students, specifically those who live on campus. We started by reviewing the housing policy and identifying what could be useful to incorporate into it. We then sent emails to Residential Life and a few religious figures in the community. We also created a student survey that would help us identify areas of improvement within the housing policy. Our survey results showed us that many students were unaware of the existing policies, leading us to change our focus to education and awareness raising.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom

WHO OWNS THE PAST? HOW DOES THE VIETNAM VETERANS MEMORIAL SHAPE HISTORICAL MEMORY?

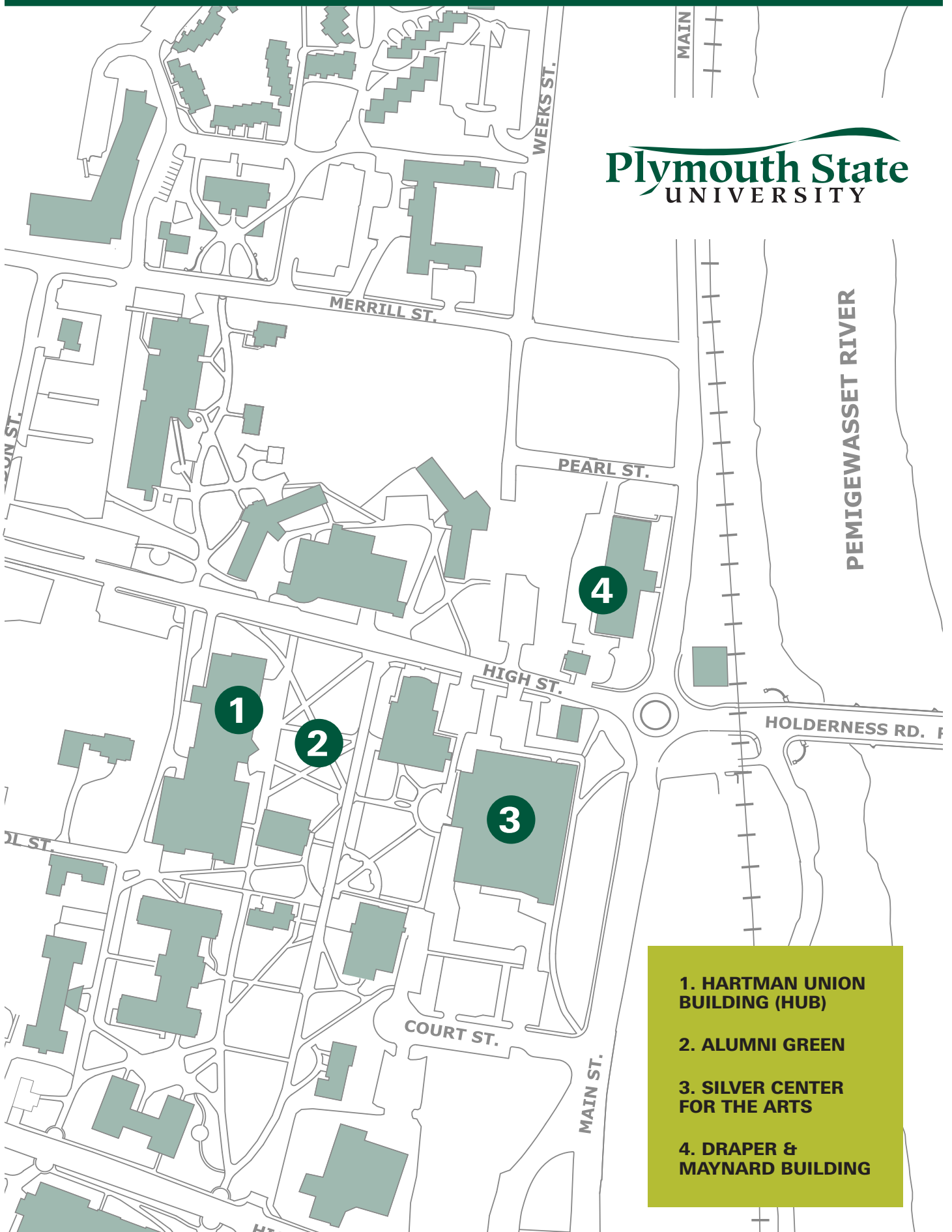
AUTHOR: Kyle Emerick

FACULTY MENTOR: Jason Paling

ABSTRACT: This project looks at how the Vietnam Veterans Memorial represents historical memory and brings up the questions about who owns the past. The Vietnam Veterans Memorial was designed by Maya Lin, and it is different from typical war memorials and focuses on the names of those who passed rather than a representation of victory. This study looks at research by others about the Vietnam Veteran Memorial's design, development, and public interaction shape its meaning. It also looks at how visitors play a role in memory through their engagement, such as leaving objects. By putting together historical backgrounds and perspectives

on collective memory, this paper looks into if public memory is shaped by institutions or by communities and individuals. These findings show that historical memory is not just facts, but developed and changed through designers, institutions and the public.

PRESENTATION TYPE: Tabletop | LOCATION: HUB Courtroom



- 1. HARTMAN UNION BUILDING (HUB)**
- 2. ALUMNI GREEN**
- 3. SILVER CENTER FOR THE ARTS**
- 4. DRAPER & MAYNARD BUILDING**