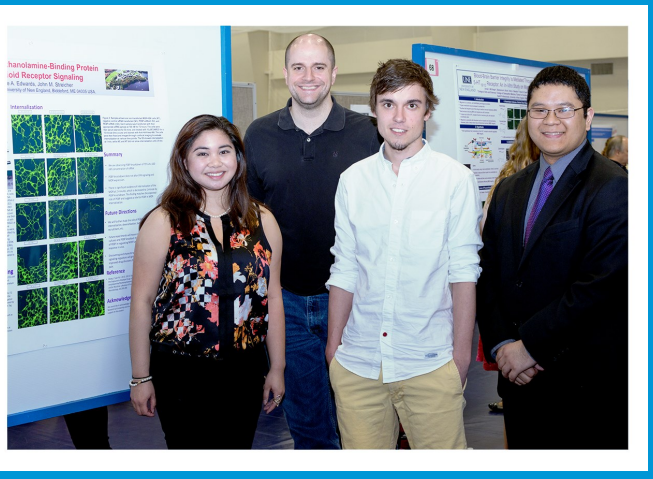

UNIVERSITY OF NEW ENGLAND

COLLEGE OF ARTS AND SCIENCES

20th Annual Spring Research Symposium

Friday, May 3, 2019

Campus Center, Biddeford Campus

UNE

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

Research at UNE

On behalf of the UNE College of Arts and Sciences Dean's Office, welcome to the 2018-19 College of Arts and Sciences Spring Research Symposium! This event, now in its 20th year, showcases the scholarly and creative endeavors of our students through posters, displays of art-work, and oral presentations, and represents the outcomes of over 200 talented students working under the direction of dedicated faculty.

Please join us in celebrating the hard work, enthusiasm, and creativity of our students and learning more about their fascinating projects. We hope you enjoy your day!

Amy Keirstead, Ph.D.
Associate Dean and Associate Professor of Chemistry
College of Arts and Sciences

Spring Research Symposium Program

Friday, May 3, 2019 | 9:30 a.m. – 4:00 p.m.

9:30 – 11:30 a.m.
Poster Presentations
Campus Center Gym

11:30 a.m. – 12:30 p.m.
Lunch and Speakers
Campus Center Gym
Jeanne Hey, Ph.D., Dean, College of Arts and Sciences
James Herbert, Ph.D., President, University of New England
Keynote Speakers:
Anda Panaitiu, Ph.D, '11
Ioana Panaitiu '15

1:00 – 4:00 p.m.
Oral Presentations
Decary Hall, 2nd Floor

Keynote Speakers

Anda Panaitiu, Ph.D. '11

Dr. Anda Panaitiu is a Research Scientist at Mascoma, LLC, where she leads a team working on development of new technologies and yeast strains for the TransFerm® product line. In 2017, Dr. Panaitiu received her Ph.D. in biophysical chemistry from Dartmouth College in New Hampshire, where her research focused on solving protein structures through high resolution biomolecular NMR. Prior to that, Dr. Panaitiu earned her B.S. (double major in Biochemistry and Neuroscience) from the University of New England in 2011. While at UNE, Dr. Panaitiu worked as a research assistant for Dr. Geoffrey Ganter, studying steroidal hormone modulation of nociception in a Drosophila model. Dr. Panaitiu was the 2011 recipient of the Jacques Downs Award for Academic Excellence.

Ioana Panaitiu '15

Ioana Panaitiu is a doctoral candidate at Northeastern University studying political science with a focus on American government and politics. Ms. Panaitiu earned her B.A. from the University of New England in 2015, where she majored in Political Science and minored in Philosophy. While at the University of New England, Ms. Panaitiu worked as a research assistant for Dr. David Livingstone Smith. She also participated in the Summer Undergraduate Research Experience (SURE) Program and was the recipient of the prestigious Jacques Downs Award for Academic Excellence. Her current research interests include political psychology, public opinion, race relations and U.S. nationalism, and political methodologies.

Poster 1: *Goat Island Power Project: A multifaceted approach to implementing renewable energy*

Maeve McGowan '19 | Pamela Morgan, Ph.D.
ENV 275: Environmental Science Colloquium

Goat Island, home to an iconic lighthouse in Kennebunkport, Maine, currently relies on energy from the mainland delivered by an underwater cable which is aging and will eventually need replacement. The mission of the Goat Island Power Project is to devise a practical plan to implement renewable energy on Goat Island by measuring potential for wind, tidal and solar energy and considering community input in order to produce a final recommendation.

Poster 2: *Abstract Living Laboratory*

Paige Dugan '20, Spencer Jones '21 | Christine Feurt, Ph.D.
ENV 375: Sustaining Water - Global Perspective, Local Action

In Fall 2018, ENV375 “Sustaining Water- Global Perspective, Local Action” undergraduates explored global approaches to sustaining water on the University of New England campus in Biddeford. Students learned about best management practice (BMP) used on campus that handles storm water management. Students researched individual BMPs to determine how they affect the environment and prevent pollution. This poster illustrates the different methods and the role they play in protecting the Saco River.

Poster 3: *Green Organic Chemistry Research Projects and Systems Thinking*

Kayla Archambault '20, Paige Basiliere '20, Elija Tuell ' 19| Amy Deveau, Ph.D.
CHE 250 & 251: University Organic Chemistry I & II

Building on the Green Chemistry Commitment of the Department of Chemistry & Physics, students in CHE 250/251 have developed authentic research projects in green chemistry as part of a course-based undergraduate research experience (CURE). Principles such as catalysis, solvent free chemistry, and sustainability have been integrated with systems thinking. Upon finishing the course, many students have been involved as assistants. Knowledge generated has been used to spearhead new projects and broader curricular change.

Poster 4: *The role of FGF1 in Parkinson's Disease using Zebrafish model*

Kelsey Springer '19 | Deena Small, Ph.D.

This project uses zebrafish that are deficient in FGF1 and exposed to Parkinson's inducing reagents to determine if FGFs play a role in blocking against Parkinson's symptoms. Particularly, does the lack of FGF1 cause symptoms to worsen.

Poster 5: *Effect of PBDE Exposure on Osteogenic Mice*

Alyssa Weinstein '19 | Deena Small, Ph.D.

The goal of the project was to determine if PBDE exposure affects the number of osteoblasts in bone marrow cultures. Based on previous observations, the hypothesis tested was that PBDE will decrease the differentiation of bone marrow cells into osteoblasts. We used primary mesenchymal stem cells from bone marrow to test the potential of osteogenesis.

Poster 6: *Towards using supercritical carbon dioxide as a greener solvent with poly(vinyl acetate)*

Paige Howard '20 | John Stubbs, Ph.D.

Supercritical carbon dioxide is a promising green solvent; however, it dissolves polar and ionic compounds only slightly. To solve this problem polymer cosolvents can be added to it, allowing reactions with these species to occur. This research focuses on using a poly(vinyl acetate) dimer to examine the Lewis acid-base interactions that are thought to improve this solvent system and compared to a related substance, poly (vinyl ethyl ether).

Poster 7: *Investigating egg development of green crab during the winter*

Hayden Cohan '22, Emily Rottino '22 | Markus Frederich, Ph.D.

The invasive green crab, *Carcinus maenas*, causes significant damage world wide. Understanding its reproductive biology helps to predict future invasions or range expansions. To test whether this species can reproduce in the cold winters of Maine, we collected gravid females in winter and documented the egg development. Contrary to the literature reports, the eggs do develop at temperatures as low as 4°C, leading to an elevated invasive potential for this species.

Poster 8: *Quantifying and comparing marine biodiversity between two marine intertidal sites*

Summer Bishop '20 | Angela Cicia, M.S.

Long-term monitoring is a useful ecological tool, as it helps to provide insight into how and to what extent anthropogenic or environmental stressors are impacting coastal habitats. As such, the current study will continue to collect intertidal invertebrate and macroalgae diversity and abundance data at two established intertidal monitoring sites within Saco Bay and to assess potential temporal and seasonal changes in invertebrate and macroalgae diversity and abundance between these two sampling sites.

Poster 9: *Monitoring juvenile fish assemblages in the Saco River Estuary, Gulf of Maine*

Zachary Carver '21 | Angela Cicia, M.S.

Building off an on-going study, the objectives of this research project will be to continue to monitor juvenile fish abundance using beach seines and traps and assess how juvenile fish abundance and assemblages change over a season and how this compares to previous years. The continuation of this work is important as it will further our understanding of the fish communities within Saco Bay to help conserve and protect this important fish habitat.

Poster 10: *Creating an Outreach Tool for Saco River Watershed Water Quality Data*

Kristofer Olson '19 | Pamela Morgan, Ph.D.

The purpose of this project was to organize a large quantity of water quality sampling site data in order to create a spatial representation of the water quality sampling currently and historically performed in the Saco River Watershed. This was done so that researchers and others interested in answering water quality-related questions will be able to locate data with greater ease.

Poster 11: *What soil conditions are most favorable for growing American Chestnut seedlings?*

Flynn Willsea '19 | Thomas Klak, Ph.D.

The American chestnut (*Castanea dentata*) was a keystone species of the eastern US forest until nearly eliminated by an accidentally imported fungal blight. We are greenhouse propagating 800 genetically diverse Maine chestnut seedlings to determine the most favorable soil conditions. We are holding constant all variables to compare seedlings grown with and without mycorrhizae and in 4 different soil media. Our results will help to standardized chestnut greenhouse propagation inputs.

Poster 12: *Collection and analysis of baseline climate change data in UNE's red maple swamps*

Jessica Szetela '19 | Pamela Morgan, Ph.D.

Climate change is expected to cause Maine to become warmer and wetter, causing hydrological changes that lead to species compositional shifts in red maple swamps (RMS). Baseline vegetation and water level data were collected in UNE's 363-acre woodland to observe changes that are occurring in RMS. An NMS analysis was completed to compare plant diversity between sites, and averages were calculated for both species richness and diversity indices. Analysis will be used for future comparison.

Poster 13: *Using Aquaponics to Sustainably Grow Food in Marginal Spaces*

Aubrey Jane '21, Elissa Kane '19, Everett Pierce '20, Griffin Harkins '19, Ken Peterson '20, Lukas Odrzywolski | Alethea Cariddi, M.S. Ed.; Zach Miller-Hope, M.S.; Jeri Fox, Ph.D.

Aquaponics is the combination of hydroponics and aquaculture and is a sustainable way to produce food in marginal spaces. The aquaponics club and UNE Sustainability Office have been working to augment the edible campus initiative through the application of aquaponics to vertical edible gardens. The living wall project in the Ripich Commons has highlighted the ornamental value of edible plants and brought affordable organic produce to the UNE community.

Poster 14: *The Saco River estuary from above and below*

Lauren Hayden '19 | Stephan Zeeman, Ph.D.; Michael Esty

Investigation of the dynamic shoreline and submerged portions of the Saco River estuary and Saco Bay using a variety of imaging techniques. Remotely operated underwater vehicles (ROVs) are used to collect geo-referenced underwater photos. Sidescan sonar is employed to collect data for substrate classification, habitat identification and to create images of the seafloor. LIDAR, aerial orthophotos, Maine State GIS data and drone imagery are combined to create GIS maps for use in research and planning.

Poster 15: *The Effect of Cloud Cover on Natural Fluorescence in Corals and Mollusks*

Cory Johnson '19 | Jeri Fox, Ph.D.; Michael Esty

Many marine species give off a form of fluorescence, which is believed to act as a natural sunblock to reflect light and protect the organism's tissues and the symbiotic zooxanthellae which live within the tissues. The objective of this study was to better understand how a meteorological event brought forth by climate change, such as increased cloud cover, affects pigment-emitting organisms, like corals and clams, and record the response through the power of 3D imaging.

Poster 16: *Development of an eDNA assay to detect the invasive tunicate* Ascidiella aspersa

Hannah Ciaramentaro '20 | Markus Frederich, Ph.D.

Detection of environmental DNA (eDNA) facilitates monitoring of invasive species as it does not rely on finding and identifying the actual animal. We developed a qPCR-based method to detect eDNA of an invasive tunicate in seawater.

Poster 17: *Planktonic algal community composition of the Maumee River: environmental factors and their relation to toxin-producing cyanobacteria*

Crista Kieley '21 | Douglas Kane, Ph.D.

The Maumee River serves as a source of nutrients and cyanobacterial colonies, driving potentially toxic blooms in Lake Erie. This project entailed continued monitoring of six sites along the Maumee River for five months to determine community composition, nutrient concentration, and toxin content at selected sites. Findings include the detection of a potentially toxic riverine bloom, as well as a change in dominant forms of nitrogen during a bloom.

Poster 18: *Methylmercury Concentrations in Sharks: Physical and Ecological Factors that Impact Accumulation*

Katelyn Dimm '22, Liam McInerney '20 | Zofia Baumann, Ph.D.

Methylmercury is the naturally forming and highly toxic form of the element mercury that bioaccumulates naturally in the aquatic environment. Sharks have been shown to exhibit relatively high concentrations of methylmercury, however the specific factors impacting accumulation are currently understudied. This study is the collaboration of multiple institutions and research faculty to try and create a more comprehensive understanding of what physical and ecological factors impact the accumulation of methylmercury in sharks.

Poster 19: *I Just Put What in Their Mouth?*

Alexsandra Abamonte '19, Kaleigh Gordon-Ross '19, Claire Reilly '20, Emily Watson '20 | Erika Diffin, M.S.

Kissing is a common activity during which saliva is shared between the two individuals participating. As the human mouth is a host of diverse natural microbial growth, bacteria must be shared through kissing, but how much? By utilizing the fermented milk product kefir (which is rich in Lactobacillus) as a biological marker, we attempted to determine the relative number of bacteria exchanged during kissing and observed an approximately 5-fold increase in oral Lactobacillus post-kissing.

Poster 20: *Approaching Chikungunya From a One Health Perspective*

Chelsea Robbins '19 | Anna Bass, Ph.D.
BIO 440: Medical Biology Topics - One Health Approach to Medicine

Chikungunya is an infection spread by *Aedes aegypti* and *Aedes albopictus* carrying Chikungunya virus. One Health is a multi-sectoral approach founded on the basis that environmental, animal, and human health are interconnected, and it is practical to approach any disturbance in those areas from many disciplines. This is a critical review of One Health approaches used in several Chikungunya outbreaks, why they were successful, and why the same approach should be used in future outbreaks.

Poster 21: *A multi-sectoral approach to reducing incidence of rabies; One Health in action.*

Griffin Kmon '19 | Anna Bass, Ph.D.
BIO 440: Medical Biology Topics - One Health Approach to Medicine

The One Health framework uses collaboration between Human Medicine, Veterinary Medicine, and the Environment to reduce the spread of zoonotic diseases. Rabies is a zoonotic disease spread via contact with animals infected with one of the viruses in the Lyssavirus genus. This review takes a critical look at the current and historical rabies prevention methods, and advocates for the application of the One Health approach to the current rabies crisis in India and Southeast Asia.

Poster 22: *Novel thermonociception method for* Drosophila melanogaster

Anneliese Rademacher '19, Christine Hale '23, Julie Moulton '20, Yvonne Otis '21, Samia Pratt '20 | Geoffrey Ganter, Ph.D.

Adult animals are magnetically restrained and contacted with a computer controlled thermal probe. Latency to product an avoidance response is measured. Animals in which nociceptors are silenced show significantly longer response latency. Distribution of nociceptors in the central abdomen was visualized via red fluorescent protein expression and confocal microscopy.

Poster 23: *The antioxidant pyrogallol inhibits biofilm formation by the bacterial pathogen* Staphylococcus epidermidis

Nina LoGrande '19, Melyssa Demers '19, Amber Cusson '18, '20 | Kristin Burkholder, Ph.D. ; Amy Deveau, Ph.D. ; Ursula Roese, Ph.D.

The use of antibiotics has led to widespread bacterial antibiotic resistance. One strategy for developing novel antimicrobials less likely to lead to resistance is to use "antivirulence drugs" that target bacterial virulence, rather than killing bacterial cells. Here, we show that the antioxidant pyrogallol inhibits biofilm formation, a major virulence trait, in *Staphylococcus epidermidis*, the leading bacterial cause of hospital acquired bloodstream infections. Ongoing work examines the impact of pyrogallol on Staphylococcal virulence gene expression.

Poster 24: *Survival of* Staphylococcus epidermidis *inside host cells differs between planktonic, biofilm-resident and biofilm-released bacteria*

Avery Bond '19 | Kristin Burkholder, Ph.D.

Staphylococcus epidermidis is a leading cause of bacterial bloodstream infections, which are exacerbated by biofilm formation and bacterial survival within host macrophages. Bacteria exhibit differential gene expression in planktonic, biofilm-resident versus biofilm-released states. How these growth states impact intracellular survival is unknown. We find that intra-macrophage survival is greatest for biofilm-released S. epidermidis. Ongoing work examines the impact of *S. epidermidis* growth state on resistance to macrophage innate intracellular defenses.

Poster 25: *Controlling Dengue through One Health Approach*

Iqra Tahir '20 | Anna Bass, Ph.D.
BIO 440: Medical Biology Topics - One Health Approach to Medicine

Dengue is transmitted via Aedes mosquitos. Through investigations in areas where dengue is prevalent, the One Health approach has shifted the focus from temporary solutions to more sustainable, permanent solutions for dengue control. I will identify the development and implementation of different strategies to control dengue. The need for a deeper understanding of cultural, social, and geographical differences among regions is necessary for controlling dengue transmission between vectors and humans and vectors and non-human primates.

Poster 26: *Effects of Murine Retrovirus and Morphine on Target Cytokine Expression*

Sadie Casale '19 | Ling Cao, M.D., Ph.D.

Human immunodeficiency virus is a retrovirus that affects over 36 million worldwide, and more than 1.5 million people were newly infected in 2017. HIV envelope protein gp120 transgenic (gp120tg) mice were infected with LP-BM5, a murine retrovirus to help investigating the role of gp120 in HIV-associated neurological disorder (HAND). Cytokine production in various brain regions, hippocampus, striatum and frontal lobe, were determined via qRT-PCR.

Poster 27: *Pathological Sprouting in OA and Cancer Pain*

Kristin Gaudreau '20 | Tamara King, Ph.D.

I have been looking at pathological sprouting in the periosteum of bones proximal to joints effected by osteoarthritis and in the periosteum of bones effected by cancer. I am looking at the connection between this sprouting and OA/cancer pain.

Poster 28: *Effects of Morphine on Behavioral and CNS Response in GP120 Mice Infected with a Murine Retrovirus*

Dalton Canonico '20 | Ling Cao, M.D., Ph.D.

An estimated 19 million people suffer from an HIV-associated neurocognitive disorder (HAND), and despite effective treatment, the presence of HANDs continues to be prevalent. In this study, gp120tg mice infected with a murine retrovirus were used as a mouse model for HIV infection in humans. Through behavioral testing, and sample analyses via ELISA and qRT-PCR, we hope to better understand the pathophysiology of HANDs disorders, particularly the behavior of gp120 under immunodeficient conditions.

Poster 29: *Novel Measures of Cancer Induced Bone Pain*

Colby Williams '21 | Josh Havelin '11; Tamara King, Ph.D.

In clinical settings cancer inducted bone pain is primarily treated with opiates. While beneficial in the treatment of ongoing pain patients report episodes of breakthrough pain (BTP) that fails to be controlled by narcotics. Placement of mammary adenocarcinoma cells into the tibia of female rats has lead to the development of a novel model of cancer-induced BTP in the presence of morphine controlling ongoing pain. Possibly providing a more useful strategy in controlling BTP.

Poster 30: *Culinary Medicine for the Prevention and Treatment of Nutrition Related Diseases*

Meredith Kenneally '20 | Kathryn H Thompson, Ph.D., R.D.; Douglas Spicer, Ph.D.; Leslie Ouellette, M.S., R.D., L.D., M.P.H.

Tulane University has successfully implemented a culinary medicine curriculum combining hands-on cooking skills and food procurement with nutrition education, enabling the development of a holistic approach towards counseling patients. In this study, we used two Tulane modules to measure the importance of the hands-on cooking on nutrition knowledge acquisition, retention and on attitudes towards nutrition counseling. Participation in the hands-on cooking activity helped students realize that changes in meal preparation can positively effect their patients' health.

Poster 31: *Effects of intra-amygdalar antalarmin on later-life fear and somatosensory function following acute neonatal pain*

Kayla Looper '21, Mariah Berchulski '21, Erica Russo '20 | Michael Burman, Ph.D.; Seth Davis, Ph.D.

Our lab has demonstrated that neonatal pain disrupts subsequent fear/anxiety behavior, as well as somatosensory function. We have also demonstrated that systemic administration of the CRF-R1 antagonist antalarmin reverses these deficits. In the current study, rats underwent a neonatal pain manipulation and later implanted with cannulae targeting the CeA. Prior to fear conditioning and sensory testing, rats were infused with either antalarmin or vehicle. They were then tested using our fear conditioning/somatosensory protocol.

Poster 32: *The influence of neonatal pain on maternal behavior*

Makaela Rice '19 | Michael Burman, Ph.D.

Early-life trauma has lasting consequences on cognitive and emotional behavior. Mother-infant interactions could potentially affect how neonates exposed to early-life pain or stress respond to a later-life trauma. Neonatal pups were subjected to either pain, stress, or no manipulation and dam-pup interactions were recorded. Inflammatory pain, but not acute pain, caused dams to exhibit less pup care and more nursing than the control pups.

Poster 33: *Examining the Long-term Effects of Neonatal Pain on Amygdala Corticotropin Releasing Factor*

Joshua Schultz '19, Mariah Berchulski '21, Kayla Looper '21, Divya Padmanabhan '21 | Michael Burman, Ph.D.

Neonatal nociceptive trauma has been linked to an increase risk in developing anxiety, depression and chronic pain. Consistent with a “two -hit” model of susceptibility, the current experiment used the in situ hybridization method of RNA scope to examine Corticotropin Releasing Factor in the amygdala following traumatic exposure in PD24 Sprague Dawley rats subjected to either neonatal nociceptive pain, tactile stimulation, or neither.

Poster 34: *Effects of gut microbiome modulation on intestinal alpha/beta diversity, persistent pain-depressed behavior, inflammation, and fecal microbiota transplant rescue in female Fischer rats*

Kylee Harrington '20, Ravin Davis '21, Emily Payne '19, Rebecca Brackin '19, Jacob Liff '19, Elizabeth Mutina '19, Francesca Asmus '22 | Glenn Stevenson, Ph.D.

Our findings indicate that (1) administration of gram-positive antibiotic vancomycin depleted Firmicutes and Bacteroidetes; (2) formalin produced concentration-dependent pain-elicited and pain-depressed behaviors; (3) antibiotic treatment reversed formalin-induced pain-like behaviors; (4) fecal microbiota transplant did not block ABX-induced shift in pain; (5) the protective effects of ABX on formalin pain-related outcomes were associated with divergent changes to proteobacteria in sedentary vs. voluntary exercised rats.

Poster 35: *Mixing Things Up: The Effects of Fluoxetine and Ethinylestradiol on Male Siamese Fighting Fish Boldness*

Amber Jenkins '19, Abbi Felix '22, Natalie Sunray '21 | Teresa Dzieweczynski, Ph.D.

Wastewater treatment processes are often ineffective at removing chemicals from our waterways, which can lead to behavioral impacts on fish. This study examines the effects of a mixture of two commonly occurring chemicals in wastewater effluent, an SSRI, fluoxetine, and an estrogen mimic, ethinylestradiol, on boldness behavior in male Siamese fighting fish, *Betta splendens*. Five different dosages were administered over a period of 28 days, and boldness behavior was assessed following the completion of trials.

Poster 36: *That's a little shady: the effect of Benzophenone-3 on female* Betta splendens *mate-choice preference*

Megan Stevens '19, Cassie Trask '20, Kelley Portrais '19, Elissa Cady '20 | Teresa Dzieweczynski, Ph.D.; Patricia Long, Ph.D.

This study investigated the effect of Benzophenone-3 (BP3), a UVA filter, on the mate-choice preference of female *Betta splendens*. Unexposed and exposed females were presented with male conspecifics of different exposure levels. We expect female subjects to exhibit different mate-choice preferences between unexposed and exposed groups. Results generated in this experiment will contribute to the limited literature that exists on BP3 and animal behavior as well as establish additional conclusions of BP3 as an eco-toxin.

Poster 37: *Species identification of Small mammal DNA using Loop Mediated Isothermal Amplification*

Rachel Amoroso '19 | Zachary Olson, Ph.D.

We conducted a blind trial of small mammal species identification using Loop Mediated Isothermal Amplification. We tested known small mammal species DNA against LAMP to determine if this protocol could correctly identify Northern bog lemming DNA from other small mammal species.

Poster 38: *Animal foraging and disgust: Effects of pathogen cues and pathogen risk on scavenging behavior*

James Welch '19, Christina Torlone '20, Alina Mauthe '19, Brooke Shea '19 | Zachary Olson, Ph.D.; Kristin M. Burkholder, Ph.D.

Scavenging constitutes an understudied, but important, energy pathway in terrestrial ecosystems, and occurs when an animal feeds on a carcass that it did not kill. Most carcasses are readily consumed by vertebrate scavengers, suggesting that carcasses may serve as a 'free meal' for whatever animal first encounters them on the landscape. We tested the free meal hypothesis by focusing on a suspected risk that scavengers would face at carcasses: the risk of pathogen exposure.

Poster 39: *Validating the Use of Genetic Methods to Detect Bats from Samples of Water*

Vienna Canright '21 | Zachary Olson, Ph.D.

Some bat species in Maine have recently been observed roosting in old wells, which could have conservation implications depending on the prevalence of this behavior. However, there is a need for a more efficient method to determine if and which species of bats are roosting in specific wells. We are testing the efficacy of environmental DNA (eDNA) methods to detect bat DNA from well water samples.

Poster 40: *Sexual Assault and Bystander Behavior: The Role of Exposure to Sexism and Modeling of Appropriate Responses*

Kristin Macek '19, Julia Beebe '19, Savannah Vanduyn '21, Olivia Kudas '21, Benjamin Katz '17 | Patricia Long, Ph.D.

Female undergraduates (N=235) read stories with sexist or nonsexist comments and a response or bystander behavior. Participants later reported their rape myth acceptance (RMA) and confidence to intervene to sexual assault vignettes (SAV). Results, controlling for social desirability, indicated that with a severe SAV, women with higher RMA reported the least confidence when exposed to sexism and no response in the stories. Only RMA and seeing no response influenced confidence in the less severe SAV.

Poster 41: *What's the Difference? A Comparison of Text Types with Various Comprehension Measures*

Courtney Parent '19, Genna Companatico '20 | Jennifer Stiegler-Balfour, Ph.D.

The study is the first to investigate the relation among three different reading comprehension assessments and sheds light onto which tests are better suited for predicting comprehension performance on narrative versus expository text. The study also provides evidence that reading comprehension ability can be significantly predicted from general working memory capacity and metacognitive skills.

Poster 42: *Sexism and Female Consumer Behavior*

Mackenzie Deveau '19, Kana Colarossi '20, Ashley Karpowicz '22 | Julie Longua Peterson, Ph.D.

The current research explored the relationship between exposure to sexism and consumer behavior. Using an online community sample, Study 1 revealed that women in the sexism (vs. control) conditions report more negative evaluations of cosmetic and cleaning products. Study 2 replicates and extends Study 1 by using a sample of college students and exploring moderators of the effect of sexism on consumer behavior.

Poster 43: *The Relationship Between Implicit and Explicit Gender Bias: The Difference in Judgments on Mothers and Fathers*

Sarah Woodford '21, Amanda Leonard '21 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

This study is interested in analyzing the relationship between an individual's gender and explicit gender bias, and their subsequent implicit bias, specifically towards working mothers and fathers. Participants were asked to analyze a fictional scenario and answer a set of questions. It is hypothesized that participants are more likely to have biases toward the mother rather than the father. This study is important to understanding the gender biases that exist in our society.

Poster 44: *Does Sleep and GPA Affect Student Anxiety Levels?*

Robert Moon '21, Eric Lederman '21 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

This study examines the correlation between anxiety levels, academic achievement, and amount of sleep. To study these variables, we have developed a series of questions to measure participants' GPA, the amount of sleep participant get per night, as well as their anxiety levels. It is hypothesized that a GPA will be positively correlated to anxiety levels, and sleep will be negatively correlated with reported anxiety.

Poster 45: *The Effects of Video Game Music versus Classical Music on Concentration*

Samantha Roche '21, Alexys Cote '21 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

Many studies have been conducted examining the effect of music on concentration. This study will extends this research by pairing classical music with more modern video game music. Participants read an article and completed a reading comprehension task. It is expected that video game music will better aid concentration. This research can be used to help with concentration or as a better technique for focusing.

Poster 46: *Music, Mood, and Gender Differences: How Music Genres Affect Moods in Different Genders*

Kira Dumont '20, Elizabeth Boccardi '19 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

Our project examines the effects of musical genre on the moods of men and women. Participants complete a mood survey to establish a baseline for their mood and were then asked to listen to one of two very different genres of music ("Hey Ya" by Outkast or "Dagger" by Vildhjarta). Finally, participants completed the mood survey once again. It is predicted that genre of music will have a differential impact on mood across gender.

Poster 47: *The effects of mood on the perceptions of others depending on trait level optimism*

Nicole Martin '21, Bobbi Brandau '21, Zane Getman '19, Elizabeth Vigue '20 | Jennifer Stiegler-Balfour, Ph.D.
PSY 285: Research Methods

Mood has been found to be a powerful determinant of an individual's behavior. The goal of the current project was to examine if mood or trait optimism were stronger predictors of how people perceive the world. In the study, participant's trait optimism was measured using the Beck, Weissman, Lester & Trexler (1974) hopelessness scale followed by either a positive or negative mood induction procedure before measuring people's perception of happiness of a neutral looking couple.

Poster 48: *Can font change how you read? Exploring font types' effect on comprehension and reading speed*

Nicole Martin '21, Ellie Leighton '19, Aubrey Sahouria '22 | Jennifer Stiegler-Balfour, Ph.D.

As the presence of technology grows, increasing number of texts are available on digital devices placing importance on understanding how reading on digital devices affects cognitive processes. When reading on electronics, individuals can change how a text is presented (e.g., changing the background color, font size or font type). The current project aimed to gain insight into how different fonts affect an individual's reading time and comprehension of a passage when reading on a Kindle.

Poster 49: *Effects of Self-Affirmation and Locus of Control on Stress*

Daria Cassaza '20, Nikonas Aganis '20, Brianna Jewett '21, Jessica Larsen '20 | Jennifer Stiegler-Balfour, Ph.D.
PSY 285: Research Methods

The purpose of our study was to examine if using self-affirmation can moderate the effects of stress in people who are either high or low on external locus of control. We measured these effects by using Rotter's Locus of Control, the Sources of Validation Scale, and a Perceived Stress Test.

Poster 50: *The Effects of Coloring Mandala Templates on the Stress Reduction of Male and Female College Students*

Margaret Gardiner '19, Michaela Super '21 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

Stress among college students is a recurring issue. Pressure from academic, loans, and other post-graduation factors lead to high levels of stress. Research has begun to look at ways to cope with stress. This study asked participants to complete a stress survey, color, and then retake the stress survey to examine whether coloring caused a reduction in reported stress as marketed in the popular media.

Poster 51: *The Effect of Experience on People's Perception of Different Dog* (Canis lupus familiaris) *Breeds*

Meagan Thompson '21, Ashley Johnston '21, Cassidy Morey '21, Erin Murphy '21 | Jennifer Stiegler-Balfour, Ph.D.
PSY 285: Research Methods

This study looks at how varying experience levels and different dog breeds affect an individual's perception on certain qualities often looked for in dogs (i.e. friendliness, adoptability). This study will be conducted using two dog breeds (Pitbull and Golden Retriever) and data will be collected through three separate surveys asking participants about their experience level with dogs, perception of the dog breed shown, and demographic information.

Poster 52: *Dietary Habits, Pet Ownership, and Relation to Animal Welfare Views*

Brianna Frankina '21, Megan Larouche '21 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

This study investigates how dietary habits and pet ownership are related to an individual's attitude toward animals. It is important to understand the relationship between lifestyle choices and attitudes toward animals to be able to promote animal welfare, as improvements in animal welfare are related to public appeal. We will administer the animal attitude questionnaire to participants and expect that those who identify as vegan pet owners will show the greatest concern for animal welfare.

Poster 53: *The Effects of Personality Type and IQ on Academic Performance*

Mackenzie O'Brien '20, Emily Gagnon '20 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

This study aims to observe potential relationships between extraversion/introversion and sensing/intuition traits from the Myers-Briggs Personality Inventory and academic achievement and IQ assessments. This research is important because it elaborates on pre-conceived ideologies regarding personality traits being predictors of life outcomes. Using a cross-comparison of MBTI traits and IQ, we hypothesize that extroversion and intuition will be positive indicators of academic achievement.

Poster 54: *The Effects of False Horoscopes on an Individual's Perception of Their Future*

Kaela Kee '21, Riley Kelly '21, Amanda Bettencourt '21, Josh Morris '20 | Jennifer Stiegler-Balfour, Ph.D.
PSY 285: Research Methods

Millions of individuals per day are logging online to read their daily horoscope in order to predict their futures (Clobert, Cappellen, Bourdon, & Cohen, 2016). Our study investigates the potential self-fulfilling prophecy set in motion by giving participants a false horoscope. We studied this by measuring the participants' locus of control, internal versus external, (Levenson, 1973) and their perception of their future success.

Poster 55: *The Seal Struggle of the Inuit in Angry Inuk*

Maritza Nary '19 | Susan McHugh, Ph.D.
ENG 401: Literatures of the Sea

This project analyzes the film Angry Inuk in the context of Inuit culture. It focuses on the film's representation of seal hunting in the context of popular and scholarly discussions, and makes the case for the film's special insights into Inuit perspectives on seal hunting, culture, and animal awareness.

Poster 56: *Why white people are funny from the Inuit perspective*

Joe Kucky '21 | Susan McHugh, Ph.D.
ENG 401: Literatures of the Sea

This project is a poster presentation about the movie Qallunaat! Why White People Are Funny. I go and talk about the issues that the Inuit people have faced over the years and also what their perspective is on white peoples, and white peoples perspective of the Inuit people.

Poster 57: *Daily Life of the Inuit*

Jessica Loverdi '20 | Susan McHugh, Ph.D.
ENG 401: Literatures of the Sea

The Inuit people live in a world of using their natural resources, but these sources are becoming scarce and they are losing their way of life. The ice and glaciers more specifically are melting causing problems to find fresh drinking water, directions and hunting. The daylight is changing also causing these climate changes to occur in the lives of the Inuit. Inuit now need to adapt to their new daily lives in order to survive.

Poster 58: *"It takes a village" Understanding Interprofessional Collaboration in K-12 Schools*

Olivia Cigna '22, Emily Box '22 | Lane Clarke, Ed.D.

It is important for us to understand how different professions collaborate within a K-12 setting so we can better prepare future teachers, social workers, allied health professionals, guidance counselors among other professionals who work in a school setting. While this is a big task, this research project aims to first understand what interprofessional collaboration looks like in the K-12 context.

Poster 59: *Rediscovery of Self Following Romantic Breakup*

Hannah Christian '20, Sara Authier '22, Eric Lederman '21 |
Julie Longua Peterson, Ph.D.
PSY 486: Advanced Research in Psychology

This study explored whether including family into the self-concept after romantic break-up could mitigate the negative effects of break-up on the self. We recruited college students who had recently ended a romantic relationship and randomly assigned half of them to an experimental condition aimed at increasing the degree to which they included family in the self-concept. Analyses explored whether this manipulation allowed participants to increased perceptions of self-rediscovery, and whether attachment anxiety moderated these effects.

Poster 60: *Memory Recall: Are Pictures Stronger Than Words?*

Megan McCue '19, Lauren Bucciero '20 | Christina Leclerc, Ph.D.
PSY 285: Research Methods

Do pictures speak louder than words? This experiment examines memory recall of pictures versus written words amongst men and women. Participants were broken down into groups of 15 men and 15 women for the photo group, and 15 men and 15 women for the word group. Prior research indicates that pictures are more easily recalled due to the Picture Superiority Effect (PSE). The outcome of the experiment aims to support or reject the PSE.

Poster 61: *Polar Bears and Climate Change: Comparing the Inuit and Scientific Perspectives*

Conor Wiley '21 | Susan McHugh, Ph.D.
ENG 401: Literatures of the Sea

The project will look at the perspectives of the scientific community and the Inuit people on the threat that climate change has on polar bears using scientific literature and the film Qapirangajuq: Inuit Knowledge and Climate Change.

Poster 62: *Inuit Film Presentation*

Emily MacDonald '20 | Susan McHugh, Ph.D.
ENG 401: Literature of the Seas

The Inuit are one group of Canadian first nations people. For a long time, white people have been forcing their culture upon them. In this film, the Inuit poke fun at white people's culture to showcase that the Inuit are people too.

Poster 63: *The Impacts of Climate Change on Inuit Life*

Olivia Scott '20 | Susan McHugh, Ph.D.
ENG 401: Literature of the Sea

This research project dives deep into the many impacts that the changing climate has on the lives of the Inuit people of the Canadian Arctic.

Poster 64: *The Reverse Anthropological Outlook on Inuit Perspective of Qallunaat*

Rebecca Anderson '19 | Susan McHugh, Ph.D.
ENG 401: Literatures of the Sea

The reverse anthropological outlook on Qallunaat culture by Inuit and the detrimental effect on culture.

Poster 65: *Adapting Hunting to a Melting World*

Meaghan Murphy '19 | Susan McHugh, Ph.D.
ENG 401: Literatures of the Sea

Inuit people must change their hunting techniques in order to adapt to the melting Arctic. Climate change will change the Inuit ways.

Poster 66: *Inuit Reliance on Dogs*

Jessica Nee '20 | Susan McHugh, Ph.D.
ENG 401: Literature of the Sea

This presentation will dive into the relationship between the Inuit people and their dogs, and how this relationship has changed over time. It will also explore the different factors that have lead to this change.

Poster 67: *Dogs: Are they an asset or a liability in modern society?*

Kendall Ericksen '20 | Susan McHugh, Ph.D.
ENG 401: Literature of the Sea

In the 2010 film, Qimmitt: A Clash of Two Truths, a question is posed in its most extreme form: are dogs an asset or a liability? Through examining this question in both the context of the film as well as from my perspective as a 21st Century dog lover, will provide new insights into one of man's oldest companions.

Poster 68: *Inuit Culture and Climate Change: The Ways in Which Life and Culture are Affected by Climate Change*

Quinn Lawrence '19 | Susan McHugh, Ph.D.
ENG 401: Literature of the Sea

This poster will examine the ways in which life and culture are negatively impacted by climate change among the Inuit. Specifically, this poster will look at the sustainable living practices of the Inuit, the importance and change of polar bears and seals with the Inuit, and the importance and change of glaciers and land ice with the Inuit.

Poster 69: *Inuit Reliance on Seal in Angry Inuk: Hidden Discrimination Embedded in Government Policies*

Kathleen Hemingway '19 | Susan McHugh, Ph.D.
ENG 401: Literature of the Sea

This project analyzes the film Angry Inuk in the context of Inuit culture. It focuses on the film's representation of seal policies emplaced by the EU. In the context of popular and scholarly discussion, it makes the case for the film's special insight into Inuit perspectives on discrimination and racism within government policies.

Poster 70: *Curiouser and Curiouser*

Kaylee Townsend '21, Anna Stowell '21, Sinead Scott '20 |
Cathrine Frank, Ph.D.
ENG 334: Methods in Literary and Cultural Criticism

This poster presentation will delve into children's literature and its connection to coming of age.

Art 1: *Alexandra Geisser's Art*

Alexandra Geisser '20

A collection of different art pieces done over the past few years by Alexandra Geisser. There are a range of different media used, including pencil, ink, acrylic, watercolor, charcoal, and pen.

Art 2: *Things of the Past*

Kaitlin Thibeau '19 | Stephen Burt, MFA
ART 495: Studio Exhibitions Seminar

My goal is to bring a new perspective to how people view and interact with nature, so they can question their negative contributions to the environment. Through abstraction, the viewer is looking at a symbolic ecosystem; it could be a water source like the ocean, a vernal pool, or the soil. I chose to show these connections within an ecosystem as abstract forms because they are transformations and shifts that I cannot see, but feel.

Art 3: *Learning to "Grow Through what you Go Through"*

Victoria Fitzpatrick '21 | Heather Dwyer Sadlier, Ed.D.; Charles Thompson, MFA

Abstract acrylic portraits on canvas with floral headdresses; emphasizing women empowerment, self-care, self-discovery, personal growth, and coming into your own.

Decary Hall Room 205

1:00-1:20: *The Effect of a Long-term, Art-making Regime on Anxiety Level and Academic Performance in College Students*

Caroline Cooper '19, Lauren Richards '19 | David Sandmire, M.D., M.A.; David Grimm, Ed.D.; Sarah Gorham, MFA, MAT

Anxiety now surpasses depression and relationship issues as the reason most college students seek counseling. An alternative anxiety-reducing activity might be art making. Using State-Trait Anxiety Inventory (subjective measure) and heart rate variability analysis (objective measure), we attempted to determine whether an extended schedule of art making reduces one's anxiety level. This would suggest a constructive way for young adults to cope with the day-to-day stressors of college and also develop a healthier lifestyle.

1:25-1:45: *Teratogenesis of Carbon Monoxide Derived from Cigarette Smoke*

Missy Young '19, Jamin Gerry '19 | David Sandmire, MD, MA
BIO 440: Medical Biology Topics - Human Reproduction and Development

Carbon monoxide is one of over 4,000 toxic chemicals found in cigarette smoke. This presentation focuses on the deleterious effects of maternal smoking, specifically those mediated by carbon monoxide exposure, on fetal development. Research is presented from multiple studies that establish the mechanisms underlying intrauterine growth restriction and maldevelopment of major organ systems as a result of maternal smoking in order to illustrate the damage done by the maternofetal transfer of this teratogen.

1:50-2:10: *Peripheral Nerve Sprouting in Chronic Pain*

Samantha Dinsdale '19 | Benjamin Harrison, Ph.D.; Michael Esty

100 million Americans suffer from chronic pain. Treatments are often ineffective, and prescribed opioids highly addictive, contributing to the ongoing opioid crisis. Americans need new non-addictive drugs, but the pathophysiology of chronic pain is highly complex involving multiple possible mechanisms, including nerve sprouting. In the Makerspace, we developed a method to measure nerve activity in a rodent model alongside image analysis pipeline previously established to better understand the role of nerve sprouting in pain.

Decary Hall Room 205

2:15-2:35: *Exploration and Synthesis of Novel Crescent and Macrocyclic Naphthyridine Dicopper-Chelating Ligands*

Elija Tuell '19 | Stephen Fox, Ph.D.

I will be expressing my experience of research at UNE through my pursuits in inorganic synthetic chemistry, attempting to create novel crescent and macrocyclic naphthyridine dicopper-chelating ligands. From this pursuit, I have obtained our groups first asymmetrical ligand, and our first chiral ligand, but most importantly, I have learned many lessons along the way, including much about the research process and how good research is done.

2:40-3:00: *UNE's Vernal Pools: How Are They Doing?*

Flynn Willsea '19, Megan Bain '19, Kyle Beem '19, Teagan Bollman '20, Luke Burns '20, Paige Dugan '20, Mitchell Hennings '21, Jillian Henrichon '19, Spencer Jones '21, Daniel Littlefield '21, Alexa Marquis '20, Ethan Maskiell '20, Ian Miller '20, Barrett Saint-Amour '19 | Pamela Morgan, Ph.D.
ENV 311: Ecological Monitoring

UNE's campus is home to many vernal pools, which are important habitat for wood frogs, salamanders, turtles and other species. We evaluated the current ecological status of these pools, including those impacted by previous campus development projects and those now protected in UNE's 363-acre forest.

3:05-3:25: *Using Social and Natural Science Research Methods to Help Get an Island Off the Grid*

Kyle Beem '19, Roxanne James '19, Rose Karis '19, Jes Szetela '19, Maeve McGowan '19 | Pamela Morgan, Ph.D.
ENV 275: Environmental Science Colloquium

Goat Island, located in Cape Porpoise Harbor, gets its electricity via an underground cable that is starting to fail. We explored the possibility of getting the island off the grid using solar, wind or tidal energy. Because the island is home to a historic lighthouse that has cultural significance, we also explored the community's views on alternative energy options for the island. This project was a collaborative effort between UNE and multiple community partners.

Decary Hall Room 205

3:30-3:50: *Nest initiation dates in a changing climate: Savannah Sparrows and Bobolinks respond to climactic variables from their wintering grounds*

Maeve McGowan '19 | Noah Perlut, Ph.D.; Allan Strong, Ph.D.

This research project is examining the response of two migratory grassland bird species, *Passerculus sandwichensis* and *Dolichonyx oryzivorus* to climate change. Using data from 2002-2018, we aimed to explain how phenological shifts caused variation in nest initiation dates among the two species and how these dates are projected to change in the future. Further, this project considers the relationship between nest initiation date and the haying date of fields to determine potential impacts on survivorship.

Decary Hall Room 206

1:00-1:20: *Normalization of Domestic Terror by Corporate Media*

Laura Wilkins '19 | Kenneth Courtney, Ph.D.
PSC 491: Integrative Essay

This research examines the ways that the corporate media and political elite normalize domestic terrorism within the United States and analyzes the reasons behind this normalization. It draws upon case studies of Oklahoma City and 9/11 to show the discrepancy in media representation of domestic terrorism versus foreign terrorism, and then analyzes smaller cases of domestic attacks such as the Charleston Church shooting and the Pittsburgh Synagogue shooting to show the normalization of these cases.

1:25-1:45: *Is Donald Trump a Fascist?*

Brendan Sharp '19 | James Roche, J.D.
PSC 491: Integrative Essay

Fascism is thrown around often public discourse, especially in regards to Donald Trump and the 2016 campaign. Is Trump a fascist or are these accusations overblown?

1:50-2:10: *Deep in Urban Politics: Corporate Greed and Public Opinion*

Justin Zmuda '19 | James Roche, J.D.
PSC 491: Integrative Essay

A case study of The Grand Victorian in OOB, Maine. Built in 2004, what were some of the obstacles for the corporate side and how did they overcome them? On the other hand, what was the public's opinion on the matter and how did they go about voicing their thoughts on the project?

Decary Hall Room 206

2:15-2:35: *Good People on Both Sides: How New Media Roused a Dormant Polarity*

Alexandra Cannon (nee Ruma) '19 | James Roche, J.D.; Ali Ahmida, Ph.D.
PSC 491: Integrative Essay

For years, the United States' policies and attitudes about social cohesion ignored the rising danger of political extremism and insurgent tribalism. More recently, this civil threat--born in the bowels of the internet where identity groups such as far-right nationalists and violent 'anti-fascist' groups used the identification of a common enemy to enforce protection over their way of life in America.

2:40-3:00: *Mass Violence and Elite Representation - Reflecting on the Sandy Hook Massacre*

Nicolas Yousse '19 | Ali Ahmida, Ph.D.
PSC 491: Integrative Essay

School shootings have been a hot button issue in our society. Specifically, the Sandy Hook Massacre was one of the most prevalent events in recent history. It was covered intensely by the media. I will argue that the media exploited the tragedy and framed their coverage in a way that fits a political agenda. I will specifically look at the reflections of Sandy Hook as covered by both liberal and conservative media sources.

3:05-3:25: *Beyond Eurocentrism: Power, Knowledge, & Colonialism*

Damille Devenyi '19 | Ali Ahmida, Ph.D.
PSC 491: Integrative Essay

Colonial rule, most notably in Africa and the Middle East, has influenced and reinforced Eurocentric notions of power and knowledge. These notions, illustrated by Michel Foucault, depict a narrative where the world is divided between the dominating 'West' and the subjugated 'East'. This essay challenges the prevailing narrative by examining how Michel Foucault's perspective on power relations can set the foundation for understanding the "West-East" dichotomy. Subsequently, through introducing Edward Said's concept of Orientalism, one can comparatively analyze how discourse in the West interacts with the Orient.

Decary Hall Room 206

3:30-3:50: *Bread Riots in Egypt and Tunisia and the Origins of the Arab Spring Revolutions*

Brittany Morrison '19 | Ali Ahmida, Ph.D.

PSC 491: Integrative Essay

I will be arguing that the political economy of bread and the moral economy of bread in Egypt and Tunisia, used the food prices to culturally and symbolically breach the social contract for basic needs. Bread and the politics that surround it should be held to a higher concern and protection because of the exacerbated accounts of bread riots that have occurred since 1977 up until 2011.

Decary Hall Room 207

1:00-1:20: *From Taboo to Legal: The Study of Legalizing Marijuana in the United States*

Isaac Vaillancourt '19 | Brian Duff, Ph.D.
PSC 491: Integrative Essay

This project is on marijuana legalization in the United States. It includes the history of Marijuana laws and why pot was and remains illegal in our country. It also looks at benefits that would come from legalization in America and potential problems and fixes that would come with legalizing this plant.

1:25-1:45: *Power, Dress, and Gender of the 19th Century British Victorian Empire Leading to the Rise of Neo-Victorianism and Raunch Feminism*

Monica Dell'Aquila '19 | Brian Duff, Ph.D.
PSC 491: Integrative Essay

Over the course of time scholarly articles, political scientists, and sociologists have consumed the idea that clothing and fashion can be used as tools to comment on political perspectives and formulate nationality. This can be traced from the British Victorian age to influence the modern day feminist movement. By exploring clothing trends, gender, and media it will help answer why the modern feminist movement is at its largest divide in history.

1:50-2:10: *Investigating K-5 Discipline: The Difference Between an Authoritarian and Authoritative Mindset and Why It Matters*

Lillian Sundgren '19 | Brian Duff, Ph.D.
PSC 491: Integrative Essay

This presentation will be exploring the difference between authoritarian and authoritative mindsets, discipline and punishment, and restorative and punitive behavior management in K-5 education. Furthermore, it will prescribe potential ways to appeal to the authoritarian, punitive-based mindset that exists in schools across the country with the ultimate goal being student self regulation, independence, and academic success.

Decary Hall Room 207

2:15-2:35: *Temperament reliability in repeated breedings of dogs*

Courtney Mills '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Ever since domestication, humans have selected for certain desirable traits in dogs. Since closely related breeds are similar in behavioral traits (Turcsán et al., 2011), dogs comprised of the same breeds from the same lineage should also exhibit similar traits. A dog's nervous system is also highly plastic and will be shaped by its environment (Foyer et al., 2014), so this study looked into how environment may impact the temperament of related dogs.

2:40-3:00: *The Effect of Competitor Presence on the Auditory Communication of the House Cricket* (Acheta domesticus)

Delia Torres '19, Frank Deveau '20 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

We're investigating at how the presence of one male cricket (*Acheta domesticus*) influences the call rate of another male cricket, while they are in the presence of female crickets.

Decary Hall Room 208

1:00-1:20: *Shelter Cat Communication: The Effects of Stress on Communicative Choice and De-escalation Effectiveness*

Jennifer Arasi '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Many cats in shelter environments do not act the way they would in a home setting. The added stresses of transitioning, being surrounded by noise, and being shuffled around by strangers in the shelter can lead them to react poorly. This project looks at how cats use body language and vocalizations to communicate stress, and explores strategies to bring them back to a more relaxed state.

1:25-1:45: *Phonotaxis in female house crickets*

James Welch '19, Margaret Leary '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

This project examines female cricket phonotaxis behavior in response to male song calls.

1:50-2:10: *Priority Antipredator Behavior in Crickets*

Harley Chute '19 , Rachel Amoroso '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Based on previous research crickets prefer dark sheltered areas. They can also pick up on air currents using receptors along their bodies as an indication that a predator may be in their area. When the receptors are stimulated crickets have been shown to move away from the air movement in order to avoid any predators. This study examines the priority behavior of crickets when placed in a situation where predators cues are present.

Decary Hall Room 208

2:15-2:35: *Effects of thermal injury on Drosophila larvae locomotion*

Giselle Dion '19, Christine Hale '23 | Geoffrey Ganter, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Injuring larvae with a thermal probe does not lead to an increased sensitization that matches that of UV light injury. To understand this difference in behavior, I am injuring larva with a thermal probe and then 24 hours later running them through a locomotion assay using a specially designed monitor and computer program to track their motion and record it. Then, analyze this data against mock-injured larvae's results to discover a difference between the groups.

2:40-3:00: *Effect of temperature on metamorphosis of painted lady caterpillars into butterflies*

Emily Precourt '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

I am looking at the rate of change of caterpillars changing into butterflies and how temperature effects their change along with factors such as body and wing size.

3:05-3:25: *Cat (*F. catus*) anxiety and modes of relief*

Jaslynn Lawrence '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

After inducing anxiety to house cats, I examine the effects of three modes of relief: anxiety relievers, distractions, or social contact. I hope to relate my findings to human anxiety relief.

3:30-3:50: *Auditory Lateralization in Cats*

Brooke Shea '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

This project seeks to test and further investigate auditory lateralization in cats in response to three playback types; conspecific, heterospecific, and prey. Their behavioral response will also be measured and analyzed to see if the vocalizations influence the cats' behavior.

Decary Hall Room 209

1:00-1:20: *Effects of Food Preference and Perceived Predation Risk on Foraging Behaviors in House Crickets* (Acheta domesticus)

Aspen Ladieu '19, Kyleigh Bechard '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

We will be testing the effects of food preference on foraging behaviors in crickets when exposed to an unknown predator threat. We predict that crickets exposed to the presence of an unknown predator will elicit more fear responses, will have longer latencies to forage, and shorter durations of foraging. Crickets who are not exposed to an unknown predator will show less risk of predation and travel farther to forage for a higher valued food item.

1:25-1:45: *Enlightened Crickets: An Examination of Humidity on Phototaxis in* Acheta Domesticus

Amber Jenkins '19, Kelley Portrais '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Our project examines multiple environmental factors on foraging behavior in *Acheta Domesticus*, or house crickets. Previous studies have show crickets prefer to forage in the dark, but few studies investigate why that's the case. We examined cricket foraging in light and dark habitats, with different humidity levels. Different humidity levels were examined as humidity is the suggested but untested reason why crickets prefer dark environments to light environments.

1:50-2:10: *Are auditory cues of predators enough to inhibit foraging behaviors of crickets?*

Jessica Sarro '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Previous studies have shown that crickets recognize predator olfactory cues and will remain in refuge if they are present. However, little has been done regarding whether crickets also use auditory cues to perceive a potential threat. It is expected that if crickets are able to detect the presence of predators via auditory cues, then they are more likely to either delay movement out of refuge or remain in refuge even when foraging options are available.

Decary Hall Room 209

2:15-2:35: *Cricket Mating Calls in the Presence of Anthropogenic Noise*

Renee Roth '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Crickets will be tested to see if their mating calls differ when in the presence of anthropogenic noise from their mating calls in silence and in the presence of white noise. The hypothesis is that the rate of calling will change from the rate in silence when in the presence of anthropogenic noise but not in the presence of white noise.

2:40-3:00: *Music Effects on Group Stress in Alpacas*

Alina Mauthe '19 | Zachary Olson, Ph.D.; Teresa Dzieweczynski, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

An experiment run to find any effects different genres of music might have on decreasing the stress response in huacaya alpacas, measured by number of stress behaviors and total time in calming the animals. The experiment was run at East Coast Alpacas in Biddeford, ME.

3:05-3:25: *Do Domesticated Guppies Lose Important Anti-predator Behaviors Through Inbreeding?*

Lauren Janitzki '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

The behavior of two types of guppies (domesticated and wild) will be compared to examine if anti-predator behavior is affected through the domestication process.

3:30-3:50: *Behavioral effects of exposure to common medications and vitamin supplements on goldfish* (Carassius auratus)

Olivia Buckridge '19, Taylor Foderaro '19 | Zachary Olson, Ph.D.
PSY 425: Advanced Methods in Animal Behavior

Groups of goldfish were exposed to two different concentrations of dextromethorphan and a liquid adult multivitamin in their water for five days in order to observe any behavioral effects. This was meant to simulate water pollutants and illustrate the danger that chemicals pose to wildlife.

Decary Hall Room 210

1:00-1:20: *Authors: Biography, Reception, Legacy*

Melanie Calicchio '19, Sara Costa '21, Stephen Johnson '20 |
Cathrine Frank, Ph.D.
ENG 334: Methods in Literary & Cultural Criticism

This project will attempt to observe the impact of an author's biographical context on the criticism and interpretation of their work(s) which follow in the decades after publication and reception. It will also question what impact the author's lifestyle and personal beliefs may have had on their works and how attitudes towards their reputation has shifted as this information has become available and more widely known.

1:25-1:45: *Altered Alice and Medicalized Magic: Cultural Representations of Children's Literature*

Mira D'Amato '19, Drew York '19 | Cathrine Frank, Ph.D.
ENG 334: Methods in Literary & Cultural Criticism

This project examines the cultural impacts and representations of children's literature, specifically Lewis Carroll's Alice in Wonderland and J.K. Rowling's Harry Potter and the Goblet of Fire. Exploration of contemporary representations of Alice in Wonderland demonstrate the novel's contributions to counterculture and pop culture. The magical world of Harry Potter is compared to medical ideals held by Western society and shows its impact on the medicalization of said society.

1:50-2:10: *Mary Shelley's Philosophical Implications in Frankenstein*

Hayley Chute '20, Grace Fortin '20, Vic Wilbur '21 | Cathrine Frank, Ph.D.
ENG 334: Methods in Literary & Cultural Criticism

Jonathan Jones discusses the Creature's alienation in Shelley's novel Frankenstein. Throughout his analysis, Jones refers to well known philosophers such as Locke, Rousseau and a few more individuals to support his discussion of the Creature's acceptance in society during the eighteenth century. In addition, I will further Jones analysis by redirecting his project through political and cultural views pertaining to the Creature's lack of humanity due to science and experimentation.

Decary Hall Room 210

2:15-2:35: *Creative Writing: Process, Revision, and Reflection Outside the Classroom*

Stephen Johnson '20, Andrew York '19 | Jesse Miller, MFA

We will share work from our creative writing projects we've been doing outside the classroom, then discuss our own process going about creating and revising these projects.

2:40-3:00: *Writing Fellows: Writing Fellow-ception! (It's an Inception reference!)*

Delaney Collins '21, Vic Wilbur '21, Michaela Godzik '22, Katrina Kelley '22 | Jesse Miller, MFA

Four fellows, new and returning, share cross-disciplinary insights and experiences about their work as a Writing Fellow, and even being embedded in class with a Writing a Fellow.

3:05-3:25: *Qimmit: The Extermination of Inuit Culture*

Melanie Calicchio '19, Grace Fortin '20 | Susan McHugh, Ph.D.
ENG 401: Literatures of the Sea

This presentation will explore the film "Qimmit: A Clash of Two Truths" and uncover the deeper themes of colonialism and cultural degradation experienced by the Inuit people living in Canada. It also will seek to explore how maritime practices among the Inuit, which were severely impacted by the events discussed in the film, have not only declined but have ceased playing a valuable role in Inuit culture.

Decary Hall Room 212

1:00-1:20: *A Health Survey of Farmed Blue Mussels (*Mytilus edulis*) Using Histopathological and Molecular Techniques*

Aubrey Jane '21, Connor Jones '19 | Carrie J Byron, Ph.D.;
Markus Frederich, Ph.D.; Adam St. Gelais, M.S.

The Gulf of Maine is one of the fastest warming ocean environments in the world, and many economically important species are vulnerable to this change. In an attempt to monitor and potentially mitigate the impact on these species, a spatial and temporal analysis of stress and infection rates within a farmed blue mussel population was conducted using histopathological and molecular techniques in congruence with the collection of environmental data.

1:25-1:45: *Effectiveness of American Beach Grass (*Ammophila breviligulata*) for Coastal Restoration*

Tessa Rock '22 | Stephan Zeeman, Ph.D.

American beachgrass was compared to other native beach plants for dune formation. Slope data was collected over a 4 four month period. The results showed that the native plants created a greater change in slope in their plots, however, the analyzed beachgrass was younger and hadn't established their rhizomal root system. The overarching take away is that American beachgrass needs to be monitored in its first year of planting to make sure the rhizomes attach.

1:50-2:10: Understand Law of the Sea

Nicole Kunin '19 | Susan Farady, J.D.
MAF 400: Marine Affairs Capstone

Understanding Law of the Sea was my Capstone research project that analyzes the pros and cons of the United Nations conference on the Law of the Sea. It explains topics in law, and policy, and focuses its discussion on the involvement of the United States and other large international powerhouses.

2:15-2:35: *Interannual analysis of gonad development and energy investment within a population of farmed blue mussels (*Mytilus edulis*) in Casco Bay, Maine*

Michele Condon '19 | Carrie Byron, Ph.D.; Adam St. Gelais, M.S.

Histological slides of farmed blue mussels were analyzed for trends within the reproductive cycle over a two-year time span. Possible spawning events were established based upon stages of gonad development and reproductive energy investment was determined using ImageJ analysis of tissue types. With differences observed between 2017 and 2018, it is even more crucial to continue this monitoring in the rapidly changing Gulf of Maine.

2:40-3:10: Honors Thesis

*A Reassessment of Age and Growth of the Atlantic Sharpnose Shark (*Rhizoprionodon terraenovae*) in the Gulf of Mexico*

Abigail Hayne '19 | Woon Yuen Koh, Ph.D.; Eric Hoffmayer, Ph.D.; William Driggers III, Ph.D.; James Sulikowski, Ph.D.

Given variability in reports, age and growth estimates for the Atlantic sharpnose shark *Rhizoprionodon terraenovae* in the Gulf of Mexico were reassessed. Age estimates obtained from sharks ranging from 29.8 to 93.5 cm fork length resulted in maximum ages of 12.5 (male) and 14.5 (female). von Bertalanffy growth model fit to raw data found $L\infty = 85.437$, $k = .212$ and $t0 = -2.799$. Results herein differ from those previously reported for the species.

3:15-3:45: Honors Thesis

*A Preliminary Population Estimate of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) within the Saco River Estuary*

Austin Flanigan '19, Joseph Langan '15 | James Sulikowski, Ph.D.

Understanding stock size is imperative for management of fish stocks, and the Gulf of Maine (GOM) Atlantic Sturgeon population is lacking current abundance estimates. To better understand the current state of the GOM Atlantic sturgeon stock, a mark-recapture and acoustic telemetry study was initiated in the Saco River Estuary (SRE). From the data collected, a conservative population estimate of 5000 individuals was made, indicating that the SRE may be critical habitat for GOM Atlantic Sturgeon.

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1:05							
1:10							
1:15							
1:20							
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1:40							
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1:55							
2:00							
2:05							
2:10							
2:15	Tuell	Cannon	Mills	Dion & Hale	Roth	Johnson & York	Condon
2:20							
2:25							
2:30							
2:35							
2:40	Willsea, et al.	Yousse	Torres & Deveau	Precourt	Mauthe	Collins, Wilbur, Godzik & Kelley	Hayne (Honors)
2:45							
2:50							
2:55							
3:00							
3:05	Beem, et al.	Devenyi		Lawrence	Janitzki	Calicchio & Fortin	
3:10							
3:15							Flanigan (Honors)
3:20							
3:25							
3:30	McGowan	Morrison		Shea	Buckridge & Foderaro		
3:35							
3:40							
3:45							
3:50							

Thank You!

The 20th Annual College of Arts and Sciences Spring Research Symposium would not be possible without the support of many individuals and organizations who each contribute in their own way.

First, a hearty THANK YOU to the faculty and staff mentors who have supported the students in carrying out their research or class projects presented here today. Your generosity of time and effort has allowed the students to complete truly remarkable work.

Thank you also to the many faculty and staff members who have volunteered their time and expertise to assist with today's program. Appreciation is also extended to UNE Institutional Advancement and Conference Services for their help in executing our event. A special note of thanks to the student Research Experience Club who promoted the event and provided the centerpieces for today's lunch.

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Finally, a warm thank you to Erinn Stetson for her keen eye, organizational wizardry, general event planning savviness, and dedication to making this symposium a success.

Dr. Amy Keirstead

THANK YOU!

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