UNIVERSITY OF NEW ENGLAND

COLLEGE OF ARTS AND SCIENCES

19th Annual Spring Research Symposium

Friday, May 4, 2018

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 2017-18 College of Arts and Sciences Spring Research Symposium! This event, now in its 19th year, showcases the scholarly and creative endeavors of our students through posters, displays of artwork, and oral presentations, and represents the outcomes of over 150 talented students working under the direction of dedicated faculty. Highlighting the diversity of research and scholarship taking place at UNE, this program includes projects ranging from an evaluation of the thermal stress tolerance of green crabs, to a critical examination of fake news through various lenses, and a display of ceramics made from different media.

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

Dr. Amy Keirstead
Associate Dean and Associate Professor of Chemistry
College of Arts and Sciences

PROGRAM

Spring Research Symposium

Friday, May 4, 2018 | 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 Awards Presentation
Speakers include:
Jeanne Hey, PhD, Dean, College of Arts and Sciences
James Herbert, PhD, President, University of New England
Campus Center Gym

1:00 — 4:00 p.m.
Oral Presentations
Various Rooms
Decary Hall, 2nd Floor

Poster 1: *Consequences of Divorce on Reproductive Success of Grassland Songbirds Breeding in Vermont Hayfields and Pastures*

Kylee DiMaggio '19 | Noah Perlut, PhD

During the summer of 2017, I worked with Dr. Noah Perlut under his ongoing study to determine the effects of agricultural haying on ground nesting, grassland songbird populations in Vermont. My research specifically focuses on divorce of these birds and whether or not haying influences rate of divorce or reproductive success.

Poster 2: *Reproductive Benefits of Natal Philopatry in Bobolinks and Savannah Sparrows*

Kylie Denny '18 | Noah Perlut, PhD

The goal of this project was to determine if there were any possible reproductive benefits for birds who return to the field they were born on to breed (natal philopatry). We assessed reproductive success in two species of grassland birds, the Bobolink and the Savannah Sparrow, in the Champlain Valley of Vermont. We hypothesized that birds who bred on their natal field would have an advantage over birds who were not born on that field. We also expected that age and breeding experience would influence reproductive success, with philopatric individuals having advantage over inexperienced breeders.

Poster 3: *Delta / mu opioid receptor interactions in operant conditioning assays of pain-depressed responding and drug-induced rate suppression: Assessment of therapeutic index*

Sarah Couture '18 | Glenn Stevenson, PhD

In vivo delta / mu opioid receptor interactions vary as a function of drug efficacy, species, and behavioral endpoint, yet there have been no assessments of these interactions using translationally valid assays of pain-depressed responding. Using these assays, fixed ratio mixtures produced supra-additive antinociceptive effects and additive sedation effects, relative to compounds alone. A unique finding was that therapeutic index inversely varied as a function of amount of delta receptor drug in the mixture.

Poster 4: *Effects of gut microbiome modulation and voluntary exercise on inflammatory pain conditions*

Philomena Richard '18 | Glenn Stevenson, PhD

Emerging evidence suggests the gut-microbiome-brain axis regulates peripheral and central nervous system disease states, including inflammatory conditions. The goal of the present experiments was to determine the effects of gut microbiome modulation on inflammatory pain using inflammation-sensitive and inflammation-normal strains of rats. Preliminary results from behavioral, cytokine, and 16S sequencing indicate validation of protocols, allowing for further characterization of interactions among antibiotic-induced dysbiosis, inflammatory pain, cytokine load, across strains, and probiotic / fecal transplant rescue.

Poster 5: *Therapeutic Benefits of Hereditary Persistence of Fetal Hemoglobin*

Aubrie Mazurek '18, Mariah Harding '18 | David Sandmire, MD

We will give an over view of the Hereditary Persistence of Fetal Hemoglobin (HPFP) including the cause and how it is inherited. Additionally, we will discuss how manipulation of the genome can be done to create HPFP like states which serve as a therapy for hemogoblinopathies.

Poster 6: *Influenza A H3N2: The Viral Perfect Storm*

Natasha Nary '18 | Anna Bass, PhD

A One Health approach to emerging infectious disease advocates for a process that includes the traditional silos of human and veterinary medicine, and environmental health. A critical assessment of the application of a One Health approach to Influenza A H3N2 including both historical and current practices is presented. This review also explores how a One Health approach supports initiatives not only improving knowledge of H3N2, but also helping treat and prevent epidemics in human populations.

Poster 7: *Characterizing patterns and properties of Fibonacci subsequences modulo m*

Jessica White '19 | James Quinlan, PhD

The Fibonacci numbers have long interested mathematicians. Interest piqued in the Fibonacci numbers after DD Wall published his work around the numbers in 1960. Now, research in the Fibonacci numbers is prevalent, with patterns and characteristics of subsequences identified, and an entire journal dedicated to the field. The patterns and characteristics of subsequences of Fibonacci sequences modulo m, however, remain uncharacterized. Using Matlab software, the properties of Fibonacci subsequences modulo m are being examined.

Poster 8: *Exploring the impacts of PBDE on THR function in osteoblast-differentiated C3H10T1/2 mesenchymal stem cells*

Jessica White '19 | Deena Small, PhD

Polybrominated diethyl ethers (PBDEs) are a class of flame retardants previously used in upholstery and electronics. PBDEs have been classified as an endocrine disruptor, meaning that they interfere with the endocrine (hormone) system. C3H10T1/2 murine mesenchymal stem cells, were differentiated into osteoblasts and exposed to PBDE post-differentiation. As thyroid hormone receptor function is important in osteogenesis, the impact of PBDE exposure on targets of THR activity were analyzed.

Poster 9: *Using Various Biochemical and Biophysical Techniques to Study the Interactions of a Tunable-Affinity Adaptor Protein, Src Homology 3*

Aleeza Barkas '18 | Eva Rose Balog, PhD

Src homology 3 (SH3) domain is an adaptor protein whose binding affinity for its ligand is dependent on the presence of proline amino acids at certain key sites. We expressed and purified a bacterial culture of a yeast SH3 domain and used various Biochemical and Biophysical techniques to study the interactions of SH3. This work will inform our future incorporation of SH3 and SH3-binding peptides into genetically engineered biopolymer materials for growth factor presentation and release.

Poster 10: *Impact of Polybrominated Diphenyl Ether on Key Components of the Intrinsic Apoptosis Pathway in C3H10T1/2 Mesenchymal Stem cells*

Aleeza Barkas '18 | Deena Small, PhD

Polybrominated Diphenyl Ether (PBDE) are brominated hydrocarbons that widely used in building materials as a flame retardant. These chemicals are released into the environment and are found in breast milk, food, and dust. Apoptosis is a response to cellular stress and we expect that PBDE may induce apoptosis. We evaluated the effect that PBDE exposure has on the intrinsic apoptosis pathway in Mesenchymal Stem cells by measuring expression rates of genes important to cell death.

Poster 11: *Histopathological and PCR Analysis of farmed blue mussels (Mytilus edulis) in Casco Bay, Maine*

Aubrey Szoke '18, Connor Jones, Katie Parker '18, Michele Condon '19 | Carrie Byron, PhD; Adam St. Gelais, MS

The collection of preliminary data on the histopathology of blue mussels (Mytilus edulis) showed high rates of oocyte atresia and digestive gland atrophy prompting more research into the optimal conditions for blue mussels and the pathogens that are affecting them. This research aims to explain the relationships between events such as mass die-offs or out of season spawning and ecological factors. Histological techniques and PCR will be used in the analysis of blue mussel health.

Poster 12: *The Influence of Tidal Range on Biodiversity in Maine's Lower Intertidal*

Liz Boccardi '19, Olivia Barberi, Michele Condon '19, Thomas Little '18, Brittany Whitehouse '20 | Carrie Byron, PhD

Marine biodiversity is known to vary within the intertidal and geographical locations. The coast of Maine experiences a wide tidal range which creates greater habitat area and increased biodiversity. Since Northern Maine has a higher tidal range than Southern Maine, we hypothesize that Northern Maine will have a greater biodiversity.

Poster 13: *How is biodiversity affected by the complexity of substrate?*

Kayla Burdick ’20, Connor Jones, Meaghan Murphy ’19, Tom Sniady ’18 | Carrie Byron, PhD

Biodiversity in the intertidal zone varies. The complexity of the substrate influences the biodiversity of the rocky intertidal. Complexity will be measured using a categorical scale.

Poster 14: *Relationships Between the Isotopic Values of Tissues in Marine Organisms*

Kyle Brennan ’20, Emma Taccardi, Carissa Maurin | Carrie Byron, PhD

By evaluating the stable isotopic values of Î´13C and Î´15N in different tissue types, an organism's dietary history and recent diet can be determined. Getting the samples necessary to conduct such research can be expensive and time consuming. To minimize cost, time spent sampling, and to fill in gaps in already existing data, mathematical relationships must be established. In this project, relationships between liver, fin, skin and muscle samples were drawn in Atlantic salmon.

Poster 15: *Detection of human pathogens on sugar kelp using microbiological and molecular methods*

Melyssa Demers ’19, Olivia Barberi | Kristin Burkholder, PhD; Adam St. Gelais, MS; Carrie Byron, PhD

Sugar kelp is growing in popularity as a food product. While its production is a burgeoning Maine industry, there are no methodological guidelines for detecting human pathogens in kelp. We compared microbiological (plating) and molecular (qPCR) methods, and the necessity of microbiological enrichment, for detecting pathogens on kelp inoculated with Vibrio parahaemolyticus or E. coli O157:H7. Both plating and qPCR detected pathogens, but qPCR provided increased sensitivity and may eliminate the need for enrichment.

Poster 16: *IMethicillin-resistant Staphylococcus aureus (MRSA) evades destruction by the macrophage autophagy system*

Avery Bond '19 | Kristin Burkholder, PhD

MRSA is a pathogen that infects human macrophages, although mechanisms of intramacrophage survival remain unclear. We investigated the interaction of MRSA with the macrophage autophagy system, a defense used to destroy intracellular pathogens. Most MRSA associated with an autophagosomal marker, although infection did not trigger degradation of p62, a protein normally destroyed by autophagy. Inhibition of autophagy decreased MRSA intramacrophage survival. Findings suggest that MRSA activates, but perturbs, the macrophage autophagy system.

Poster 17: *Chemical Extraction, Biological Evaluation, and Stability Analysis of Coastal Maine Saccharina latissima Extracts that Exhibit Antimicrobial Potency Against MRSA*

Amber Cusson '18 | Amy Deveau, PhD; Kristin Burkholder, PhD; Zachary Miller-Hope, MS

Methicillin resistant Staphylococcus aureus (MRSA) threatens human health and new treatments are needed. Saccharina latissima, a coastal Maine kelp, produces compounds with specific inhibition against MRSA and other strains of staph. In an effort to discover more effective antibiotics, the harvest, extraction, and biological evaluation of S. latissima extracts will be described. The results of a five-month study investigating how the antimicrobial properties of the crude extracts are related to storage conditions, length of storage, and temperature of storage will also be reported.

Poster 18: *The Effects of Polybrominated Diphenyl Ether on Chondrocyte Differentiation from C3H10T1/2 Mesenchymal Stem cells*

Amber Cusson '18 | Deena Small, PhD

Chondrocytes make up cartilage and are some of the first cells to form in embryos. Polybrominated diphenyl ether (PBDE) is a flame retardant that has harmful effects against humans and traces are being found within the environment and our bodies. The results of exposing mesenchymal stem cells (MSCs) to PBDE and the use of qualitative and quantitative PCR as well as a BCA assay to determine if chondrocyte differentiation was impaired will be reported.

Poster 19: *Effects of deca-BDE on Mature Adipocyte Lipid Synthesis and Lipolysis*

Victoria D. Eaton '18 | Deena Small, PhD

Polybrominated diphenyl ethers (PBDEs), are prevalent flame retardants used in consumer products. PDBEs are of environmental concern because they leach into nature, are resistant to degradation and therefore may be harmful to humans. This projects aims to investigate how PDBE affects mature adipocytes using C3H10T1/2 mesenchymal stem cells. The effects measured include adipocyte differentiation, lipid synthesis and lipolysis.

Poster 20: *The effects of PBDE-209 on cell adhesion ability of Mesenchymal Stem Cells*

Robert Elliott '18 | Deena Small, PhD

The detailed 3D architecture of cell tissues depends on an individual cell's ability to attach to its environment via genetically regulated cell adhesion molecules. Polybrominated diphenyl ethers (PBDEs) were a common fire-retardant until their toxic characteristics were enumerated, and they were phased out; although they persistent in the environment. Here we elucidate the effects of PBDE on the cell adhesion of C3H/10T1/2 Mesenchymal Stem Cells; an unstudied cell line regarding PBDE-effected cell migration.

Poster 21: *Effects of PBDE-209 on Inhibitors of Apoptosis in Murine C3H10T1/2 Mesenchymal Stem Cells*

Audrie Langlais '18 | Deena Small, PhD

Polybrominated diphenyl ethers (PBDEs) are toxic brominated flame retardants that pollute environments and animals. In humans, PBDEs have been shown to affect apoptosis,or programmed cell death. Apoptosis is integral to development, but in healthy cells can be halted by Inhibitors of Apoptosis (IAPs). We investigated the activity of IAPs in C3H10T1/2 murine mesenchymal stem cells (MSCs) to determine whether PBDE exposure promotes apoptosis by inhibiting IAP activities.

Poster 22: *Development and application of a histological protocol for the age determination of monkfish, Lophius americanus*

Kayla Burgess '18 | James Sulikowski, PhD; David Koester, PhD

Monkfish are an economically important species, but little is known about their age and growth. This research aims to develop a method for processing monkfish vertebrae in order to accurately determine their age.

Poster 23: *The effects of AMPK on crustacean thermal tolerance*

Pierce Lancor '18 | Markus Frederich, PhD

We investigated how the cellular energy master regulator, AMPK, affects thermal tolerance in green crabs. We injected AMPK activators and inhibitors to modulate AMPK activity and investigated the subsequent AMPK activity and the crab's thermal stress tolerance.

Poster 24: *An investigation into the presence and prevalence of wasting disease in Gulf of Maine sea stars, Asterias forbesi and Asterias rubens, through histology and DNA analysis*

Michaela Kenward '18 | Markus Frederich, PhD; Angela Cicia, MS

In October 2016, sea stars kept in the Marine Science Center died unexpectedly, mirroring symptoms of sea star wasting disease (SSWD), a well-documented infection that has decimated sea star populations in the Pacific. However, the disease has been significantly understudied in this area. This study has used morphology, histology, and molecular techniques to characterize the infection. Overall, histological and visual examination strongly suggest that SSWD is present in Southern Maine, but at a low prevalence.

Poster 25: *The predation effects of milky ribbon worms (Cerebratulus lacteus) on shellfish harvesting in estuarine systems*

Nathan Orff '21, Curtis Fahey '19 | Markus Frederich, PhD

This project uses a combination of field observations and lab experiments to assess the consequences of an increasing abundance of milky ribbon worms in the Scarborough marsh estuarine system, and the resulting damage on the local shellfish economy. Specifically, the project seeks to quantify the predation of soft shell clams (Mya arenaria) by milky ribbon worms (Cerebratulus lacteus) and other estuarine predators. Intertidal zone surveys are already being conducted in coordination with local shellfish harvesters.

Poster 26: *Developing a remote controlled suction device for near-shore plankton sampling*

Ariella Danziger '19 | Markus Frederich, PhD

To explain the coexistence of Carcinus maenas and Hemigrapsus sanguinaeus and the timing of larvae release and settlement, we performed nearshore plankton collections in the Biddeford Pool. Due to low water levels, a plankton net could not be used. Therefore, we designed a remote controlled plankton suction device that can be deployed in shallow waters for easier sampling in this area. Twenty-seven species of zooplankton were detected in samples through the use of a FlowCam.

Poster 27: *The effect of pH on the growth rate of marine coccolithophore Emiliania huxleyi*

Charlotte Rantz '20 | Alicia Williams, PhD; Angela Cicia, MS

Increasing CO2 in Earth's atmosphere has decreased ocean pH, destabilizing the carbonic acid cycle and challenging CaCO3 producing organisms. Growth rates and chlorophyll a content were measured from cultures of Emiliania huxleyi, a phytoplankton with CaCO3 platelets covering its cell, grown under three projections of future oceanic pH. Preliminary results show suppression of population at lower pH. Phytoplankton contribute to the base of marine food webs so understanding their responses to ocean pH is important.

Poster 28: *Effect of PBDEs on the normal functioning of differentiated Osteoblasts*

Elija Tuell '19 | Deena Small, PhD

PBDEs are a fire retardant that was commonly added to material goods, which then leech into the environment and move up the food chain. Little is known on how they affect the normal functioning of osteoblasts. We probed this unknown using C3H10T1/2 mesenchymal stem cell cultures exposed to PBDE. Expression of key signals of osteoblast functioning were measured to give insight into whether PBDEs decrease bone mineral density and promote the onset of osteoporosis.

Poster 29: *PBDEs' Effect on DNA Methylation of Adipogenic Genes*

Devon Dionne '18 | Deena Small, PhD

Polybrominated diphenyl ethers (PBDEs) were used as flame retardants in many different objects. Studies have shown that PBDEs from these objects found their way into animals and humans. Previous research indicates that PBDEs changed DNA methylation in neurons, no data has been collected to determine the effects of PBDEs on adipocytes. The DNA methylation pattern of adipogenic genes isolated from mesenchymal stem cells exposed to PBDE was analyzed to determine if PBDE changed DNA structure.

Poster 30: *The Effects of PBDE-209 on Differentiated Chondrocytes from Murine C3H10T1/2 Mesenchymal Stem Cells*

Briana Goud '18 | Deena Small, PhD

Polybrominated diphenyl ethers (PBDE) were used as a flame retardant in household products and other materials until the mid 2000's, when their production became prohibited. However, individuals today are still exposed to low levels of PBDEs that are accumulating within the body. To understand the effects of PBDE exposure on chondrogenesis, murine C3H10T1/2 mesenchymal stem cells were differentiated into chondrocytes and then exposed to PBDE-209. Chondrocyte formation was measured by Sox-9 and collagen expression.

Poster 31: *The Power of Touch: People High in the Need to Belong Become Approving of Casual Sex Following a Physical Touch Manipulation*

Lacey Durkee '18, Emma Wuerdeman '18, Allison Symonds '18 | Julie Longua Peterson, PhD

The current research examined how the need to belong influences the approval of casual sex following a brief physical touch manipulation. Results suggested that participants high in the need to belong increased their approval of casual sex following the physical touch (vs. control) manipulation, while participants low in the need to belong did not show any change in attitudes toward casual sex following the physical touch manipulation.

Poster 32: *Implicit Self-esteem and Loss of Self after Romantic Breakup*

Allison Symonds '18, Lacey Durkee '18, Emma Wuerdeman '18 | Julie Longua Peterson, PhD

The current research examined how including friends and family in the self-concept following romantic breakup reduces loss of self among people with low implicit self-esteem (ISE). Our results suggest that people with low (vs. high) ISE experience a greater loss of self post-breakup when they report low inclusion of friends and family in the self-concept.

Poster 33: *Narcissism, Interpersonal Rejection and Cosmetic Pricing*

Hannah Christian '20, Mackenzie Deveau '19, Allie Symonds '18 | Julie Longua Peterson, PhD

The current research examines the effect that a rejection manipulation has on the way females value certain makeup products, and how this effect is moderated by narcissism.

Poster 34: *Trafficked U.S. Agricultural Farmworkers Face Sexual Harassment*

Olivia Madore '18 | Alicia Peters, PhD

The human trafficking victims that work in the United States agricultural fields are being sexually harassed. This research will look into why and how it happens, how common it is, and the resources available for the victims. The development of possible policy recommendations for improvement in the future.

Poster 35: *Men and Boys: An Overlooked Population in the Ongoing Battle Against Human Trafficking*

Wynter Paiva '19 | Alicia Peters, PhD

For my project, I will explore the human trafficking of men and boys. This will include common ways of process, means and purpose of trafficking in men and boys, as well as common industries that heavily traffic men and boys. In order to effectively address the issue of human trafficking and all of its complexities, all possible victims must be properly identified.

Poster 36: *Sexual Assault and Bystander Behavior: The Role of Exposure to Sexism and Modeling of Appropriate Responses*

Abigail Beaulieu '17, Jade Glidden '17, Kristin Macek '19, Ben Katz '17, Julia Beebe '18, Jacob Barry '17 | Patricia Long, PhD

Does exposure to sexism and modeling of appropriate responses impact an individual's bystander behavior in high risk sexual situations? Undergraduates will read one of four sets of vignettes in which an individual witnesses sexist or inappropriate (but nonsexist) comments and then either engages in bystander behavior or responds appropriately. Analyses will examine exposure to sexism, modeling of appropriate responses, and the interaction of these on likelihood to be a bystander in high risk sexual scenarios.

Poster 37: *Is There a Relationship Between Pets on Campus and Student Anxiety Level?*

Danielle Jolie '20 , Erin Shores '20 | Christina Perazio, MA

The purpose of this study is to examine the relationship between allowing pets on campus with University of New England undergraduates' anxiety levels. A survey was sent out to students currently living on the Biddeford campus to collect their opinions on the pet policy and examine their anxiety levels. This study aims to test the hypothesis that students who feel the policy is flawed will have higher levels of anxiety.

Poster 38: *American Indian Shell Middens: Comparing Chemical and Physical Properties to Current Saco Bay Mya arenaria.*

Danielle Jolie '20 | Joseph Kunkel, PhD; Arthur Anderson, PhD

We will discuss the findings from a variety of tests conducted on ancient fragmented Mya arenaria to modern samples retrieved from the Saco Bay. We are applying use of ImageJ and R computational software to this project while the fluctuations in solubility will be analyzed utilizing an ion probe. This study aims to provide preliminary data.

Poster 39: *The effects of spoken versus written information on the misinformation effect.*

Fayla Sutton '20, Alyssa Roof '20, Delia Torres '19 | Julie Longua Peterson, PhD

We aim to study the misinformation effect, and whether receiving auditory (a statement read to participants) or visual (a statement participants read themselves) will increase or decrease its effects.

Poster 40: *How Pet Ownership Affects Narcissists' Prosocial Behavior*

Hannah Clifford '20, Abby Corriveau '20, Emily Precourt '19 | Julie Longua Peterson, PhD

The goal of this study was to determine if narcissism interacts with pet ownership to influence the willingness of participants to donate to different causes (animal vs. human). We hypothesized that Narcissists with pets (vs. Narcissists without pets) would be more willing to donate and donate more to animal related causes than human-related causes.

Poster 41: *Mood-Boosting Activities: Is Watching an Animal Video or Coloring Better for Your Mood?*

Ryann O'Carroll '20, Caelyn McCarthy '20, Rebecca Sanda '19 | Jennifer Stiegler-Balfour, PhD

The study looked at the effects of different leisure activities on individuals' mood scores and whether these findings were moderated by people's level of neuroticism. Participants were asked to take a mood assessment, complete either a coloring activity or watched an animal video followed by another mood assessment and evaluation of their level of neuroticism.

Poster 42: *Expository text comprehension on digital mediums and the resiliency of print textbooks*

Ellie Leighton '18, Nicole Martin '21 | Jennifer Stiegler-Balfour, PhD

The current study examined why people may enjoy reading on e-readers for recreational purposes but not for learning purposes and how reading comprehension skill plays a significant role in determining whether digital mediums should be used for reading. The results showed that while skilled readers took longer to read expository text on a digital medium they maintained high levels of comprehension whereas less-skilled readers failed to adapt their reading pace and thus comprehension suffered. For narrative text, both skilled- and less-skilled readers read and comprehended text on a digital medium with ease and efficiency.

Poster 43: *Are e-readers better for leisure or learning? The effects of text type on reading speed and recall ability*

Sarah Hendrix '18, Glenn Rose '21, Courtney Parent '19 | Jennifer Stiegler-Balfour, PhD

This study investigated whether the writing style (i.e., narrative or expository) influenced readers' ability to learn factual information when reading on a Kindle e-reader. The study found that high-skilled readers were better able to learn factual content from text regardless of the writing style while lower skilled readers performed poorer as they adapt to writing style and not content.

Poster 44: *Music and ME: The effects of music on mood and recall*

Courtney Parent '19, James Welch '19, Rachel Amoroso '19, Cade Cabral '19 | Jennifer Stiegler-Balfour, PhD

The current study determined the effects of upbeat or sad music on the ability to recall congruently or incongruently colored objects. In this study, participants were randomly assigned to either listen to the instrumental versions of one happy and one sad Coldplay song while participants viewed a series of 20 slides, including either congruently or incongruently colored objects (e.g., a purple vs. a yellow banana). This was implemented to assess which song type and object condition would lead to the highest recall rate.

Poster 45: *Standardized vs. Unstandardized: How lighting conditions affect the color of small mammal pellets*

Rachel Amoroso '19 | Zachary Olson, PhD

In this study we conducted color analysis on 30 images of small mammal pellets in standardized and unstandardized lighting conditions. We expected standardized lighting conditions to improve our assessment of small mammal pellets by providing more accurate and more consistent colors.

Poster 46: *Does age and sex impact the social behaviors that dogs express towards each other?*

Haley Blumenkrantz '18 | Teresa Dzieweczynski, PhD

This study looks at makes and females in five different age groups of Great Danes to see if there are any differences in the social behaviors that they express towards each other. It is an important topic because it can show when certain behaviors emerge and it can help to show how the sequence of behaviors emerges.

Poster 47: *Use of Non-Invasive Genetics for Northern Bog Lemmings in Maine*

James Welch ’19, Julia Biagini ’19, Lauren Janitzki ’19 | Zachary Olson, PhD

The poster presentation will be on genetics research detecting northern bog lemmings in Maine. The research also includes analysis of lemming pellets for characteristic and color. The poster will include methodology of genetic analysis and preliminary results of findings for bog lemming detection and pellet data.

Poster 48: *Developing Stereotypes: Factors that Contribute to Perceived Aggressiveness of Canines*

Lauren Janitzki ’19, Kira Dumont ’19 | Christina Perazio, MA

This study aims to identify the mechanisms that underlie the development of perceived aggression of specific canine breeds. One mechanism studied is the influence of the availability heuristic, which will be studied using three levels of the IV by asking participants to read positive-, negative-, or neutral-emotional article titles. After reading the titles, participants are given questionnaires with images targeted to identify impacts of size, age, and body position that may contribute to perceived aggression.

Poster 49: *Distance from home and anxiety and homesickness in college students*

Cassidy Smith ’20, Maddie Lynnworth ’20, Miranda Hall ’19 | Christina Perazio, MA

We are looking to find a relationship between distance from home while at college and the levels of anxiety felt within your first few years at school, and later years. UNE students were able to participate in a survey where they answered questions regarding distance from home, anxiety, and homesickness, the latter two reflecting back on their first month at college. Upperclassmen were also asked to report on their current levels of anxiety and homesickness.

Poster 50: *Childhood Pet Type as a Correlate of Extraversion*

Samantha Mundy '20, Madison Dolan '20 | Christina Perazio, MA

This project surveyed 50 UNE students with the goal of determining if there is a correlation between the personality trait of extraversion and type of pet owned during childhood (0-12 years of age). Based on previous research that found differences in the personality traits of cat and dog-people, it was hypothesized that extraversion scores will rank (highest to lowest) as follows: dog owners, cat owners, non-traditional pet owners, and individuals who don't own pets.

Poster 51: *The outlook is not so bright: The effect of Benzophenone-3 on the behavior of male Siamese fighting fish*

Megan Stevens '19, Kelley Portrais '19, Jessica Szetela '19, Cassie Trask '20, Samantha Mundy '20 | Teresa Dzieweczynski, PhD

Benzophenone-3 (BP3) is an organic uv-filter used in several popular products like sunscreen and its increasing prevalence in aquatic ecosystems demands further investigation as it appears to cause negative effects. Little research has been done on the behavioral effects of BP3, even though behavioral changes often have fitness consequences, and we believe our study is the first to examine how behaviors like boldness and courtship are affected by exposure to environmentally-relevant amounts of BP3.

Poster 52: *I have mixed feelings about this: an examination of the combined effects of vinclozolin and ethinylestradiol on Siamese fighting fish boldness*

Jaslynn Lawrence '19, Amber Jenkins '19, Samantha Mundy '20 | Teresa Dzieweczynski, PhD

Two well known endocrine disrupting chemicals, one with antiandrogenic and one with estrogenic properties, have negative effects on Siamese fighting fish fitness separately, with either an increased or a decreased effect on boldness, but we don't know how they act in combination. Studying combined effects of these drugs is beneficial to accurately understand their threat because aquatic organisms encounter chemicals in mixtures rather than in isolation due to runoff from ineffective human waste treatment facilities.

Poster 53: *Compete With This: The Impact of Video Games on Athlete Competitiveness*

Kiera Murray ’19, Amber Jenkins ’19, Daron Hoges ’19 | Jennifer Stiegler-Balfour, PhD

Understanding how competitiveness affects enjoyment and performance on a given activity is important in understanding the relationship between competitive drive in athletes and non-athletes. In this study, athletes and non-athletes were randomly assigned to a competitive or non-competitive video game, followed by an assessment of their competitiveness and a measure of their enjoyment of the task to determine whether athletes generally prefer more competitive games compared to non-athletes.

Poster 54: *Stress Relief in College Students*

Dianne Fahey ’20, Taylor Foderaro ’19, Margaret Leary ’19 | Jennifer Stiegler-Balfour, PhD

The purpose of our study was to examine the effect that a stuffed animal has on stress relief in college students. We will examine this by presenting participants with a pre-treatment stress test, an easy of difficulty math quiz, and a post-treatment stress test. The results of the study will help us determine whether holding a stuffed animal (or not) will reduce stress for either easy, difficult or both types of tasks.

Poster 55: *Topics in Women's History Poster Presentation*

Megan Hall ’18, Haley Gorman ’18, Lilly Sundgren ’19, Makaela Rice ’19 | Elizabeth DeWolfe, PhD

As women, we will each be examining our current opportunities in our respective fields through a historical lens. I will be presenting research on American women writers and students of English. Specifically, I will be looking at the phenomenon of using male pen-names for the publishing of women's work.

Poster 56: *The effects of neonatal trauma on anxiety in post weaning rats*

Taylor Paquin ’20, Jacob Rudlong ’18, Benjamin Sasso ’18, Makaela Rice ’19, Emma Tobin ’20 | Michael Burman, PhD

Neonatal stress can have lasting effects on emotional function. To test this, neonatal stress was manipulated in rat pups during their first week of life. Several days after weaning, the rats were put through two different anxiety tests; predator odor exposure, and an elevated plus maze.

Poster 57: *Does Amount of Exercise per week improve the quality or quantity of sleep college students get at the University of New England.*

Matthew Ercolini ’20, Taylor Paquin ’20 | Christina Perazio, MA

This study looks at the relationship between the quality/quantity of sleep of college students at the University of New England and the exercise they partake in. Questions were taken from the Pittsburg Sleep Quality Index to determine quality of sleep in students. We asked seven questions relating to how often, how hard, and how long the participants exercise. Our hope is that we see a positive correlation between exercise and quality/ quantity of sleep.

Poster 58: Exercise Frequency and Feelings of Sadness

Elliott Comeau ’19, Luke Burns ’20, Frank Deveau ’20 | Christina Perazio, MA

Our project is a study conducted at University of New England in Biddeford Maine, in the form of a focused survey measuring the relationship between exercise frequency and overall feelings of sadness (such as stress, anxiety and generally feeling "low"). Past studies have shown as exercise increases, feelings of sadness decrease. We believe that there is significant evidence suggesting a negative relationship between these two variables that our results will show upon analysis of data.

Poster 59: *Marriage: A Millennial's Perspective*

Victoria McGuire ’20, Katelynn Paul ’20 | Christina Perazio, MA

We created a 26-item questionnaire in which participants were asked to answer a series of questions about their thoughts and feelings on marriage and relationships using a Likert scale, as well as questions about their parents/guardians' current relationship status. We are looking to find a correlation between the parental relationship status and the millennial desire to marry. We anticipate a positive correlation between millennials wanting to get married if their parents are married, and vice-versa.

Poster 60: *Lifestyle and Well-being*

Ray Gjelsvik ’19, Brittney Lashier ’18, Riley Rhodes ’20
| Christina Perazio, MA

There is a correlation between and individual's wellbeing and their anxiety/stress levels. This means that if one chooses to live a healthier lifestyle, their overall stress and anxiety should be decreased. We are observing this correlation by conducting an experiment with students and faculty at UNE in Biddeford. We will be categorizing 'wellbeing' into three different variables: nutrition, physical activity and sleep. The three variables will be measured and compared to their anxiety/stress levels.

Poster 61: *Relationship Between Yoga and Stress*

Genna Companatico ’20, Alyssa Marquez ’20
| Christina Perazio, MA

Our research project looks at the relationship between doing yoga and stress levels. Our hypothesis states that students who do yoga at least 1-2 hours a week have lower stress levels, and students who do not do yoga at all have high stress levels. In this study, we used the International Stress Management Association's (ISMA) Stress Questionnaire to determine individual's stress levels.

Poster 62: *Intensity in Presentation is Associated with Participants' Level of Agreement*

Emily Mott '20, Kana Colarossi '20 | Christina Perazio, MA

When people are presented with controversial topics, such as women's rights, intensity of the presentation (high or low) will be associated with a change in levels of agreement after exposure to one of the two levels of the independent variable. The videos include a quoted portion from Emma Watson's HeForShe Campaign speech, spoken by Emily Mott, at different levels of intensity. High intensity displays engrossing characteristics, while low intensity displays disengaging characteristics to influence agreement/disagreement.

Poster 63: *The Effects of Antalarmin on Fear Conditioning and Sensory Function in Prenatally Stressed Adolescent Rats*

Benjamin Sasso '18 | Michael Burman, PhD; Seth Davis, PhD

Stress experienced during early development is thought to have long-term effects on sensory function and anxiety. We hypothesize this effect might depend upon alterations of the brain's CRF system. To test this, neonatal rats were subjected to similar manipulations as might be experienced in the Neonatal Intensive Care Unit. Pups were fear-conditioned and subjected to sensory-testing. Antalarmin, a CRF-R1 antagonist, injections were performed 20 minutes before fear-conditioning to determine the role of CRF signaling.

Poster 64: *The influence of neonatal pain on maternal behavior*

Makaela Rice '19, Jared Zuke, Benjamin Sasso '18
| Michael Burman, PhD

Early life trauma has lasting consequences on emotional and cognitive behavior. Maternal-infant interactions could potentially affect how neonates affected by early life pain or stress respond to a later life trauma. We've created an animal model in which neonatal pups are subjected to either pain, stress, or no manipulation for the first week of their life and mother-pup interactions are recorded and scored.

Poster 65: *Early-Life Pain and its Effects on the CRF System in Rats*

Victoria E. Eaton '18, Ashley Steinis '18, Makaela Rice '19 | Michael Burman, PhD

We are interested in understanding how early life pain and stress affects the CRF stress system in the neonatal rat brain. These studies aim to determine whether there is a difference in the levels of CRF mRNA in the amygdala and hypothalamus as a function of neonatal treatment condition immediately following a pain-manipulation that takes place during the first week of life. We hypothesize that subjects that receive pain will have elevated levels of CRF mRNA compared to control subjects.

Poster 66: *The Effects of Neonatal Trauma Subsequent HPA Axis Function*

Jacob Rudlong '18, Makaela Rice '19, Victoria Eaton '18, Joshua Schultz '19, Melissa Ertman '19, Jared Zuke | Michael Burman, PhD; Seth Davis, PhD

Past research has shown that neonatal pain affects corticotropin-releasing factor (CRF) expression in rats. The current experiment analyzes whether potentially altered hypothalamic CRF results in abnormal hypothalamic-pituitary-adrenal (HPA) axis function, by measuring juvenile and adult corticosterone expression.

Poster 67: *Effects of HIV Proteins on Inflammatory Cytokine Production by Astrocytes*

Sharene Kamel '19 | Ling Cao, MD, PhD; Beau Rostama, PhD

An astrocyte cell line C8D1A is used to assess the respective effects of HIV proteins, gp120 and transactivator of transcription (tat) on astrocytes' production of proinflammatory cytokines, TNF-alpha and IL-1beta in vitro. Cytokine enzyme-linked immunosorbent assays (ELISA) is used to measure cytokine levels.

ART PRESENTATIONS

Art 1: *Ceramics: Exploring Material and Form*

Olivia Scott ’20 | Charles Thompson, MFA

Ceramics made on the potter's wheel using porcelain and stoneware clay bodies.

Art 2: *The Duchess*

Lara Murnik ’18 | Charles Thompson, MFA

Recreation of Swedish artist Alexander Roslin's late 1700's portrait of a duchess, re-imagined with a different figure. This work was created as a prop piece and was used in the play "Monstrous Regiment" put on by the talented UNE Player's during the Fall of 2017. Painted on canvas with acrylic.

Art 3: *Self Portrait*

Lara Murnik ’18 | Charles Thompson, MFA

Unconventional self portrait series in vine charcoal and black conté crayon on paper.

Decary Hall Room 205

1:00-1:20: *Effects of the Invasive European Green Crabs on Species Interactions within the Saco River Estuary*

Andrew Davidsohn '18 | Carrie Byron, PhD

Over the last 2 summers, the effects of invasive European green crabs on the trophic interactions occurring within the Saco River Estuary have been observed and analyzed. Predation rates of green crabs on soft shell clams (2016) and the stomach contents and stable isotope signatures of striped bass (2017) were collected and analyzed. Using these results, it was hypothesized and supported that green crabs have introduced an energy pathway from the clams to striped bass.

1:25-1:45: *Histopathological Analysis of Parasites and Environmental Stress Responses of Farmed Blue Mussels (Mytilus edulis) in Casco Bay, Maine*

Katherine Parker '18 , Connor Jones | Carrie Byron, PhD; Adam St. Gelais, MS

This project focuses on identifying parasites and pathogens as well as physiological responses to environmental stress in contribution to a preliminary health assessment of farmed blue mussels in the Gulf of Maine. Mussel health compared between inshore and offshore farm sites based on biophysical parameters (salinity, dissolved oxygen, temperature) will provide further insight to establish a correlation between environmental conditions and blue mussel health.

1:50-2:10: *From sea to table: An assessment for the potential of aquaculture in Saco Bay, ME*

Katie Perry '18 | Carrie Byron, PhD; Barry Costa-Pierce, PhD; Leslie Smith, PhD

In order to feed the world's growing population, we must look to innovative and sustainable methods for food production; such as aquaculture. Many factors are involved in the journey of food from the sea to our table; from the ecological system of the bay to the economics of the seafood industry. We aim to identify key factors involved in the introduction aquaculture into our own backyard, Saco Bay, ME.

2:15-2:35: *Establishing the relationship between Coliform and Vibrio bacteria species on the surface of farmed Sugar Kelp Saccharina latissima and in surrounding seawater*

Mary Hollandbeck '18 | Carrie Byron, PhD; Adam St. Gelais, MS

Quantification of bacteria growing on the surface of farmed sugar kelp and the surrounding water to explore the relationships present.

2:40-3:00: *Interannual analysis of reproductive development and energy investment within a population of farmed blue mussels (Mytilus edulis) in Casco Bay, Maine*

Michele Condon '19, Connor Jones | Carrie Byron, PhD; Adam St. Gelais, MS

Blue mussel (Mytilus edulis) aquaculture is a growing industry in Maine but more information on the mussel's health is needed for farmers to maximize their profits and improve their methods of sustainable harvest. This research analyzes a population of farmed blue mussel's health in terms of reproductive development and energy investment. Histological slides produced and analyzed since February 2017 will continue until the summer of 2018 to provide an interannual data set.

Decary Hall Room 206

1:00-1:20: *Are dogs able to decipher changes in human emotional states?*

Breanna Riley '18 , Serena Valle '18 | Teresa Dzieweczynski, PhD

A total of 10 domesticated dogs (Canis familiaris) are shown a sequence of three, one minute videos of humans displaying different emotions. These emotions include happy, sad and angry. The subjects behaviors are observed, recorded and then analyzed in relation to the videos presented. The importance of our study is that it brings us one step closer to understanding the thought processes of the domesticated dog and how emotionally in tune they are with humans and their emotions.

1:25-1:45: *Songbird response to playback: how visual and vocal displays are affected when exposed to local versus non-local predator calls, conspecific vocalizations, and vocalizations of multiple species at a time.*

Carolyn Wawrzynowski '18 | Teresa Dzieweczynski, PhD

Wild songbirds were exposed to recordings of predator calls, conspecifics, and other species of songbirds with the purpose of determining how they react visually and vocally. Response calls were recorded, analyzed using Raven lite, and compared to typical calls of selected focal species and physical responses to playback were also recorded.

1:50-2:10: *Quantifying personality in the domestic rabbit: is boldness affected by body size and pair dynamics?*

Haley LaMonica '18 | Teresa Dzieweczynski, PhD

The aim of this study is to answer two research questions: are larger rabbits bolder and do rabbits respond differently to novel situations when in their bonded pair VS when they are alone? I hypothesize that the larger rabbits will be bolder, while smaller rabbits are shyer and that individuals, regardless of size, will be bolder when in their bonded pair. This is important because domestic rabbit behavior is remarkably similar to wild rabbits and can potentially be applied to conservation efforts .

2:15-2:35: *The Effects of Music on Egg Laying Behaviours in Domesticated Chickens*

Hannah Gato '18, Amanda MacDonald '18 | Teresa Dzieweczynski, PhD

This study will look at how music (classical and dubstep) affect egg-laying behaviours in chickens. This will be specifically seen in the sizes of the eggs lain each week, after the presence or absence of the particular type of music. This is important because the results of this study will show if music does in fact affect reproductive behaviours.

2:40-3:00: *Domestic feline stress: testing whether common calming tactics actually decrease stress signs In sheltered cats*

Jami Frigoletto '18 | Teresa Dzieweczynski, PhD

What may help cats calm down when faced with stressors, particularly cats in animal shelters? This research study puts cat treats, cat music, and cat pheromones to the test against a vacuum, wolf urine, and a small animal carrier.

3:05-3:25: *Surface Activity Variation of Calves Within Associations of Humpback Whales (Megaptera novaeangliae)*

Kaitlin Drumheller '18 | Teresa Dzieweczynski, PhD

By comparing variations in association size and level of surface activity of Humpback whales in different feeding grounds along the Gulf of Maine, I hope to better understand the function of surface active behaviors observed during the feeding season from May to October. This project is extremely important in understanding the function of surface active behaviors found in Humpback whales during their feeding season, giving researchers a better understanding on further protection of these species.

Decary Hall Room 206

3:30-3:50: *Does personality affect learning ability in cats?*

Meghan Saunders ’18 , Katherine Kos ’18 | Teresa Dzieweczynski, PhD

In out study, we assessed the personalities of 10 cats using the Feline 5, which measures Agreeableness, Neuroticism, Dominance, Impulsiveness, and Extraversion. We give them a learning task: giving their paw using successive approximations, with treats as their reward, and compared personality scores with speed of learning. The importance the study is it will look at cat personality in a way is not through the owner's eye and shows us whether personality has an effect on learning.

Decary Hall Room 207

1:00-1:20: *Volume of crickets' calling song in response to anthropogenic noise.*

Courtney Gautreau '18 , Tamika Baldwin '18 | Zachary Olson, PhD

This research project serves to determine how male crickets change their vocal calling songs in response to increased levels of anthropogenic noise. It is hypothesized that the male crickets will concurrently increase the volume/intensity of their calls as the surrounding anthropogenic noise infringes upon their acoustic space.

1:25-1:45: *Cricket Call Volume in the Presence of Background Noise*

Duncan Camlin-Irving '18, Alicia Bruno '18 | Zachary Olson, PhD

This project aims to study how crickets modify their calls in the presence of background noises of varying volumes.

1:50-2:10: *A Cricket's Response to Different Sized Predators*

Emily Provencher '18, Emily Thibodeau '18 | Zachary Olson, PhD

Cricket predation risk is analyzed through the use of a novel object test, in which the subjects are presented with novel objects in resemblance to predators. Behaviors including time to approach, time to interact, and time in motion are observed and recorded in order to prove/disprove our hypothesis that when a large novel object is present, the cricket will be less likely to approach than when a small novel object is present.

2:15-2:35: *Anthropogenic Noise Effects on Male Cricket Calling Song*

Gabi Sylvia '18, Jaymi Wood '18 | Zachary Olson, PhD

This presentation will focus on the effects of anthropogenic noise on the male cricket calling song. Both high and low amplitudes of traffic noise and aircraft intrusion noise will be displayed to male crickets and the resulting rate of calling songs will be measured. Findings from this study will provide further information into the effects that anthropogenic noise has on acoustic communication.

Decary Hall Room 207

2:40-3:00: *Antipredatory Behaviors in Response to Visual and Mechonsensory Cues in the House Cricket*

Kylie Denny '18 , Karie Bilodeau '18 | Zachary Olson, PhD

The project was conducted in our Advanced Methods class over the course of the semester. Our goal was to determine how House Crickets respond to different visual and mechanosensory cues, as well as a combination of the two. We expected to find that mechanosensory cues elicited a greater response than visual cues, and a combination resulted in a greater response compared to Individual presentation of the cues.

3:05-3:25: *Effects of Local Traffic Noise on Cricket Songs*

Mara Perkins '18 , Lisa Jacoby '18, Nicholas Paine '18 | Zachary Olson, PhD

The study aims to show how Male field crickets produce calling songs to attract mates at different rates depending on their surrounding soundscape; they will produce the highest rate of calling songs in a soundscape of a lower amplitude versus and soundscape of a higher amplitude.

3:30-3:50: *The effect of noise on the ability to produce a mate call in the male cricket*

Michaelin Jaggers '18 , Alyssa Kaufold '18 | Zachary Olson, PhD

We tested to determine if a male cricket will still produce a mate calling song when presented with natural and anthropogenic noise compared to no noise.

Decary Hall Room 208

1:00-1:20: *Preliminary age estimates for female southern stingrays (Hypanus americanus) from southwest Florida, USA*

Abigail Hayne '19 | James Sulikowski, PhD

The southern stingray (Hypanus americanus) is a dasyatid important to Caribbean ecotourism, and is captured within southern fisheries. Despite this, there are significant gaps in crucial life history information for the species. Therefore, the objective of the present study was to interpret gross vertebral band counts in wild captured female southern stingrays to provide preliminary age estimates. Based on these data, it appears the southern stingray is a large, long-lived species similar to other elasmobranchs sensitive to fishing pressures.

1:25-1:45: *Preliminary Investigations into the Abiotic Factors Driving Movement and an Initial Population Estimate of Atlantic Sturgeon Within the Saco River Estuary*

Austin Flanigan '19, Sarah Hylton '16, Joseph Langan '15 | James Sulikowski, PhD

This study seeks to look into Atlantic sturgeon's usage of the Saco River estuary, investigating the abiotic factors that drive their movement and location within the system. Also, a preliminary population estimate was constructed for the number of fish that are reliant on the river system each year.

Decary Hall Room 208

1:50-2:10: *An Assessment of Stress and Post Release Mortality in Atlantic cod Caught in the Commercial Lobster Fishery*

Riley Austin '18, Brett Sweezey '18 | James Sulikowski, PhD

Atlantic cod were opportunistically sampled aboard a commercial lobster vessel during the 2016 and 2017 summers by assessing severity of injury, testing vitality using species-specific reflexes, and quantifying biomarkers and hormones in the blood associated with stress. These parameters were analyzed to gain a comprehensive understanding of the effects that capture in lobster gear has on cod mortality and overall fitness.

2:15-2:45: Honors Thesis
Using telemetry to monitor movements and habitat use of juvenile winter flounder (Pseudopleuronectes americanus) in a southern Maine estuary

Lars Hammer '18 | Nathan Furey, PhD; James Sulikowski, PhD

Heavy fishing pressure and habitat destruction has produced substantial declines in winter flounder stocks in the Gulf of Maine (GOM). Identifying essential fish habitats is necessary for the recovery of this species in the GOM. To understand the importance of the Saco River Estuary to winter flounder, 17 juveniles (115-170mm) were tagged with Vemco V7-2x acoustic transmitters and monitored using acoustic telemetry over a three-month period. Further analysis describing these movements will be discussed herein.

Decary Hall Room 209

1:00-1:20: *Faculty Attitudes Around Electronic Publishing and Open Access Research*

Anne Carbonier '18 | Michael Cripps, PhD

This project aims to explore the ways in which viewpoints have changed in terms of open access, peer review, electronic publishing, and experimental multimedia publishing. This project will compare attitudes of faculty from different disciplines as well as faculty in various positions of their academic careers.

1:25-1:45: *Fixing Fake News*

Meghan O'Brien '18 | Brian Duff, PhD

My senior thesis regarding a new paradigm shift that looks critically at news and media through a non profit/ for profit lens.

1:50-2:10: *Water You Doing World to These Poor Girls*

Clancy Phillips '18 | Brian Duff, PhD

Presentation on Thesis for Political Science Department. Thesis discusses the through line connection between Women, Lack of Clean Water, and Violent Conflict.

2:15-2:45: Honors Thesis *Senior Thesis*

Megan Hall '18 | Brian Duff, PhD

I will be presenting my Political Science Senior Thesis which focuses on State and Cultural failures in protecting women from domestic abuse.

Decary Hall Room 210

1:00-1:20: *Heroin's Teratogenicity on fetuses in Utero*

Alexandra Higgins ’18, Matthew Day ’18, Chantal Avard ’18 | David Sandmire, MD

Our presentation will focus on heroin's direct teratogenicity on the fetus in utero, resulting post delivery complications, and the primary treatment options. Given the epidemic of heroin usage it is important to fully understand the fetal systems affected to provide more effective treatment in utero and post delivery. Additionally, knowledge and awareness of particular consequences may help mothers afflicted with addiction provide a better environment for the fetus in utero.

1:25-1:45: Neuronal dysfunctions with Fragile X syndrome that underlie associated seizures.

Sara Clemens ’18, Morgan Rodway ’18 | David Sandmire, MD

In our presentation we will discuss the embryological ties to Fragile X syndrome and different theories of why seizure activity is seen in children with Fragile X syndrome.

1:50-2:10: In vivo Effects of Adipose-Specific Deletion of Jagged 1 in Mice Administered a High Fat Diet

Audrie Langlais ’18 | Deena Small, PhD

Adipose tissue is a site of lipid metabolism and hormone secretion that works synergistically to regulate whole body homeostasis. Abnormalities in adipose development are linked to metabolic disease. The Notch receptor regulates adipocyte differentiation but the role of its activating ligands remain poorly understood. To address this, we measured changes in adipose function and metabolism in adipoq-Jag1tm2Grid mice conditionally null for Jagged 1. Our findings support a role for Jagged 1 in proper adipose metabolism under nutritional stress.

2:15-2:45: *Engineering a VEGF fusion protein for use with an artificial extracellular matrix with programmable binding affinities*

Robert Elliott '18 | Eva Rose Balog, PhD

Here we show the molecular cloning and bacterial expression of a Vascular Endothelial Growth Factor fusion protein composed of a soluble VEGF isoform and the protein domain Src Homology 3 (SH3). When combined with an artificial extracellular matrix possessing SH3 binding sites of variable affinity, this novel fusion protein will allow us to study the effects of matrix anchorage on VEGF signaling.

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*moved from poster session

Thank You!

The 19th 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 serve as judges for today's presentations. Appreciation is also extended to UNE Institutional Advancement and Conference Services for their help in executing our event.

Several agencies have sponsored the students' research through fellowships and grants, including the National Science Foundation, the National Institute of Health, the National Oceanic and Atmospheric Administration, Pratt and Whitney, Bristol Seafood, the UNE Office of Research and Scholarship, the UNE Marine Science Center, and the UNE Center for Excellence in the Neurosciences. Thank you for your investment in our students.

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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