UNE

UNIVERSITY OF
NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

UNIVERSITY OF NEW ENGLAND

COLLEGE OF ARTS AND SCIENCES
SPRING RESEARCH SYMPOSIUM

Friday, May 5, 2017
9:30 a.m. - 4: 00 p.m.
Campus Center and Decary Hall, Biddeford Campus

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WELCOME
Research at UNE

On behalf of the College of Arts and Sciences Dean's Office, it is my pleasure to welcome you to the 2016-2017 College of Arts and Sciences Spring Research Symposium. This event features posters, oral presentations, and art work from more than 100 students working with our dedicated faculty throughout the University. Inside you will find projects ranging from sonar mapping of the Saco River Estuary to the effects of art therapy on stress levels to art displays focusing on butterfly and flower studies!

Please join us in celebrating the hard work performed by our students and learning more about their fascinating research!

Sincerely,

Dr. Charles Tilburg
Associate Dean and Professor of Marine Sciences
College of Arts and Sciences

PROGRAM

18th Annual Student Research and Scholarship Symposium

Friday, May 5, 2017 | 9:30 a.m. – 4:00 p.m.

9:30 – 11:30 a.m.
Poster Presentations
Multi-Purpose Rooms
Campus Center

11:30 a.m. – 12:30 p.m.
Lunch and Awards Presentation
Campus Center Gym

1:00 – 4:00 p.m.
Oral Presentations
Various Rooms
Decary Hall

Poster 1: *Making An OWHL: The Tie Between Oceanography, Math, And Ecology*

Ethan Wester '17 | Charles Tilburg, PhD

Presenting on recent progress on making a cost-effective wave height sensor.

Poster 2: *GIS mapping of the Saco River Estuary combining multibeam sonar data and captured images*

Lauren Hayden '18 | Stephan Zeeman, PhD; Michael Esty

In this project we will incorporate recent multibeam data into an analysis of the tidal portion of the Saco River to identify sites for further research.

Poster 3: *Building and using remotely operated vehicles for underwater investigation at the University of New England*

Lauren Hayden '18, Allison Truttling '19 | Stephan Zeeman, PhD; Michael Esty

We are building several underwater vehicles, with a focus on the Blue Robotics BlueROV2, for use in marine science research. These ROVs have various sensors and high definition video.

Poster 4: *Morphological distinction between populations of the European Green Crab (Carcinus maenas) via digitizing carapaces.*

Lauren Duffin '17 | Markus Frederich, PhD; Joseph Kunkel, PhD

This project focused the determination of morphological distinctions between populations of the European Green Crab from Iceland, Nova Scotia, and Maine by digitizing their carapaces.

Poster 5: *Designing and Building an Underwater Vehicle at UNE*

Dylan Turner '17, Nick Vespa '17 | Jeri Fox, PhD

We are designing and building a low cost, remote underwater vehicle, for use in marine science research. This is being custom built and designed by students.

Poster 6: *Eukaryotic elongation face 2-mediated activity-dependent inhibition in mouse sensory neurons: Impact of metformin and ptersilbene*

Charlotte Esancy '18 | Derek Molliver, PhD

Eukaryotic elongation factor2 kinase (eEF2K) used in the process of transcription by helping promote translocation of tRNA from the A to the P site in the ribosome. It is activated by increases in intracellular Ca2+ and AMP kinase therefore playing a protective role by suppressing translation during cellular stress. It also enhances translation of a select genes that have internal ribosomal entry sites (IRESs) suggesting and IRES-mediated translation is promoted by eEF2 phosphorylation.

Poster 7: *Effects of river discharge, tidal cycle, and wind velocity and direction on the salinity of the Saco River, Maine*

Cassandra Elmer '17 | Charles Tilburg, PhD

Salinity and depth data was collected in the Saco River from the Cataract Dam to outside the jetties for selected dates in the years 2009-2013, as well as the corresponding river discharge, tidal cycle, and wind velocity and direction. A model for the location of the leading edge of the Saco River
estuary plume was then developed.

Poster 8: *Romantic potential and the self-concept*

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

This research explores how the potential for a new romantic relationship influences the self-concept.

Poster 9: *Tissue turnover rates of bivalves to assess the species interactions linked to aquaculture*

Katie Perry '18 | Carrie Byron, PhD

The purpose of this project was to establish a baseline from which to measure trophic dynamics, organic matter sources, and general nutrition of shellfish across aquaculture farm sites to understand the impact of aquaculture on marine coastal food webs.

Poster 10: *Atlantic sharpnose shark (Rhizoprionodon terraenovae) age and growth in the Gulf of Mexico*

Alicia Brown '17 | James Sulikowski, PhD

Determining age and growth characteristics of the Atlantic Sharpnose shark in the Gulf of Mexico using vertebral band counts to update life history parameters of changing populations. This study is important for updating previous outdated and conflicting studies, and ultimately aiding in establishing improved policies and management of this commercially exploited species.

Poster 11: *The Relation Between Perception of Time and Task Difficulty*

Crystal Nason '17, Carolyn Wawrzynowski '18, April Ater '17 | Jennifer Stiegler-Balfour, PhD

The purpose of this study was to gain a better understanding of how time is perceived while completing an easy task compared to a complex task. To answer this research question, participants were asked to complete either an easy or difficult puzzle followed by a questionnaire assessing how long they felt it took to complete, as well as a brief assessment of their current level of stress to determine whether there was an interaction between stress and perception of time.

Poster 12: *The effects of attachment style on roommate satisfaction*

Emily Provencher '18, Hannah Farrington '18, Hailey Pollard '17, Tamika Baldwin '18 | Jennifer Stiegler-Balfour, PhD

The purpose of this study was to explore the relationship between attachment style and roommate satisfaction. Participants were randomly assigned to one of two roommate scenarios from which they had to rate their overall satisfaction; followed by completing a personal attachment style questionnaire to assess whether there was an interaction between the participants' attachment style and the scenario.

Poster 13: *Age biases in the medical profession*

Jillian Pattershall '18, Mackenzie Anderson '18, Amanda Anderson '17, Kelley Pearson '17 | Jennifer Stiegler-Balfour, PhD

The purpose of the study was to examine the effects of a physician's age on the level of confidence a patient has in their ability to correctly diagnose a medical condition. To test this a survey was administered, each containing a scenario with either an older doctor or a younger doctor providing a diagnosis of either a major illness or a minor illness. Participants were then asked to rate their confidence in the physician's diagnosis on a scale from 1-7.

Poster 14: *Friendly Faces: A look at how Self-Esteem and Neuroticism Influence Ratings of Attractiveness*

Courtney Gautreau '18, Deanna Mansfield '18, Marlie Perkins '18, Lilah Quinn '18 | Jennifer Stiegler-Balfour, PhD

The goal of the study was to test the effect of a warm smile versus a stoic face on ratings of attractiveness, trustworthiness, friendliness, confidence, and intelligence, with regards to an individual's reported self-esteem and personality type. To test this we showed participants one of two different pictures of a male, subsequently asking participants to rate the individual on the various traits. The participants' self esteem and personality type were also taken into account.

Poster 15: *Not All E-Reading Is Created Equal: The Interaction Between Reading Mediums and Reading Skill*

Abby LaChance '18, Zoe Roberts '18 | Jennifer Stiegler-Balfour, PhD

The goal of the current study was to expand on the existing literature by further investigating how electronic texts affect reading comprehension of readers of varying reading skill and to use free recall to assess comprehension. Specifically, the current study examined differences in reading times and the amount of information correctly recalled for different reading skill levels when using three different reading mediums: iPad, computer and printed text.

Poster 16: *An Assessment of Stress and Post Release Mortality in Atlantic Cod Caught in the Commercial Lobster Fishery*

Riley Austin '18 | James Sulikowski, PhD

Blood metabolites and the primary stress hormone, cortisol are quantified from blood drawn from the caudal vein of cod caught in lobster traps using radioimmunoassay. Concentrations of circulating hormone and metabolites will provide physiological evidence of fitness following exposure to multiple stressors (eg. capture, handling, thermal, pressure, and interaction with organisms in traps) which can then be related to mortality after release.

Poster 17: *Break-up related threats influence inclusion of others in the self-concept*

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

This research examined how levels of relationship commitment influence self-expansion following a relationship threat manipulation. Results revealed that relationship commitment levels influence the amount of self-space that individuals designate to their close others.

Poster 18: *The effect of oxybenzone exposure on phytoplankton growth rates*

Katherine Parker '18, Mary Hollandbeck '18, Angel Waters '18 | Carrie Byron, PhD

The presentation will discuss results from an experiment exposing dinoflagellate species Dunalia tertiolecta to different concentrations of oxybenzone. Oxybenzone is a chemical found in sunscreen that is becoming known for its toxic affect on marine environments.

Poster 19: *Development and application of a histological protocol for the age*

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

Current methods of monkfish age determination generate imprecise results and lead to inaccurate stock assessments. My research seeks to develop a new protocol for ageing this commercially important species.

Poster 20: *The Impact of Gender on Negative Emotions*

Brianna Lippitt '19, Nicholas Paine '18 | Christina Leclerc, PhD

This study aims to investigate the impact of gender on the perceptions of emotional intensity on two types of emotional images. The current study hypothesizes that females will report more intensely emotional reactions to negative images, but no significant differences between the genders are expected in the emotional intensity ratings of the neutral images.

Poster 21: *Effects of Service Personnel's Visible Tattoos in the Workplace on Consumer Perceptions*

Emma Wuerdeman '18, Emily Cote '18, Lisa Jacoby '18 | Christina Leclerc, PhD

This study aims to explore the perceptions of personnel within the workforce who openly display their tattoos, and whether consumer perceptions differ based on the professions of the personnel (blue collar versus white collar workers). In addition, we aim to investigate whether these perceptions differ based on the gender of personnel holding the positions. We hypothesize that there will be a negative perception of professionalism in the workforce for personnel displaying visible tattoos in white collar professions, but not in blue collar professions and women will face more negative

Poster 22: *Effects of Art Therapy on Stress Levels*

Rebecca Sherrier '19, Monica Stewart '18, Courtney Hebert '18 | Christina Leclerc, PhD

The current study aims to test the hypothesis that performing in an artistic task, such as coloring, can decrease stress levels in college students. In addition, this study further aims to examine whether the relationship between stress and artistic activities is differentially affected by whether or not the participant participates in an athletic sport at the collegiate level.

Poster 23: *The Effects of Negative or Positive Words on Perceptions of Neutral Stimuli*

Serena Valle '18, Katherine Kos '18 | Christina Leclerc, PhD

Words can have a profound effect on people's moods and how they see the world. The current study aims to investigate whether induced positive or negative moods will change participants' perceptions of a neutral stimulus like an inkblot. Participants will be induced into positive and negative moods using Velten's (1967) sentence technique and they will be asked to rate 10 black and white inkblot patterns.

Poster 24: *Effects of Positive and Negative Media Content on Stress Levels of College Students*

Jessica Sarro '19, Michaelin Jaggers '18 | Christina Leclerc, PhD

The current study examines the effects of positive and negative media exposure on the mood of college students. We hypothesize that exposure to a negative video stimuli will increase the likelihood of participants reporting negative perceptions about the political climate, whereas those participants who view a positive video will report more positive feelings about the political climate.

Poster 25: *Impact of Political Affiliation and Gender on Attitudes towards Members of Other Political Parties*

Sarah Hutchins '18, Cynthia Guesford '18 | Christina Leclerc, PhD

This study aims to investigate the impact of gender and political party affiliation on attitudes towards members of an opposing political party. We hypothesis that males will show more dislike or aggression toward members of the opposite political party compared to females.

Poster 26: *Effectiveness of Three New Trap Designs in Catching Small Mammals in York County*

Faith Paglierani '18 | Zachary Olson, PhD; Michael Esty

Few studies have examined the behavior and population densities of the northern bog lemming, and those that have attempted this are only able to collect small sample sizes. Therefore, we have developed three new trap designs that incorporate aspects from commonly used traps, with improvements, in order to catch more individuals and get a more accurate measure of their population health.

Poster 27: *Gaining Access to Spatial Information in Written Discourse*

Ellie Leighton '19, Madison Kenny '20 | Jennifer Stiegler-Balfour, PhD

The present study sought to further investigate the cue-based mechanism underlying the tracking of spatial information that was proposed by Smith and O'Brien (2012). In two experiments, naming times for probes were used to more directly examine the conditions in which readers maintained target objects from a spatial location active in memory. Experiments 1 and 2 demonstrated that explicit spatial cues reactivated the target objects associated with the protagonist, whereas implied spatial cues did not.

Poster 28: *Photophysical Characterization of Luminescent Group 14 Metalloles that Display Aggregation Induced Emission*

Nikki Mathewson '17 | Jerry Mullin, PhD

Siloles, a type of group 14 metallole, are of interest due to their unusual photoluminescence characteristics. They display aggregation-induced emission, which allows the compound to demonstrate enhanced fluorescence (emission) which can be potentially helpful for use in optoelectronic devices and biochemical sensors.

Poster 29: *The Importance of Protecting Seeded Soft Shell Clams (Mya arenaria) in the Presence of European Green Crabs (Carinus maenas) in Southern Maine Tidal Mudflats*

Andrew Davidsohn '18 | Carrie Byron, PhD

Soft shell clams (Mya arenaria) are an economically important species holding upwards for 4% of the seafood market value Maine. The effectiveness of the use of nets to protect seeded juvenile soft shell clams was assessed in this project.

Poster 30: *The Role of CRF in Neonatal Pain-Induced Anxiety and Stress Disorders*

Erik Holmqvist '17, Ethan Harris '18 | Michael Burman, PhD; Seth Davis, PhD

This behavioral experiment was performed to examine the effect of corticotropin releasing factor (CRF) in stress induced neurologic dysfunction, causing subsequent anxiety and stress. To test this, rat pups were exposed to neonatal stress, along with one of three treatments: antalarmin hydrocholride - a CRF1 antagonist, saline, or no treatment. In early childhood, the rats went through classical fear conditioning and pain testing.

Poster 31: *Modular Fibonacci Subsequences*

Brea Rivard, Jessica White | James Quinlan, PhD

Identification and plotting of Fibonacci subsequences (mod m) via programming using Matlab.

Poster 32: *Impact of DNA Strand Length on Duplex Stability in Solution and in a Microarray Environment Via Molecular Simulation*

Brea Rivard '19 | John Stubbs, PhD

25-base DNA strands were studied using a course-grained model and Monte Carlo molecular simulation with varied strand lengths. The effect of temperature, strand length, location of complementarity, and surface binding were investigated.

Poster 33: *Prior Voluntary Wheel Running Reverses Pain-Related Weight Asymmetry and Modulates Trabecular Bone Parameters in a Rat Model of Osteoarthritis.*

Sarah Couture '18, Janell Lanpher '17, Abigail Kinens '17, Philomena Richard '18, Emily Payne '19, Rebecca Brackin '19, Kylee Harrington '20 | Glenn Stevenson, PhD

These results indicate that voluntary exercise may protect against osteoarthritis pain, and that this effect varies as a function of prior exercise duration. Exercise (but not sedentary condition) was associated with distinct modifications to trabecular bone in both lateral and medial compartments.

Poster 34: *Interactions between Delta and Mu Opioid Agonists in Assays of Pain-Depressed Operant Responding and Schedule-Controlled Rate Suppression*

Philomena Richard '18, Janell Lanpher '17, Abigail Kinens '17, Sarah Couture '18, Emily Payne '19, Rebecca Brackin '19, Kylee Harrington '20 | Glenn Stevenson, PhD

These studies characterized in vivo delta and mu opioid receptor interactions in rodents on relevant therapeutic and side effect behaviors. Results can be used to inform opioid drug design for human and veterinary populations that enhance therapeutic efficacy while attenuating side effects.

Poster 35: *Neonatal inflammatory pain and its effects on fear conditioning and nociception*

Jacob Rudlong '17, Seth M. Davis, PhD | Michael Burman, PhD

Past studies, in Dr. Burman's lab and elsewhere, have demonstrated that neonatal pain affects fear conditioning later in life. Such studies have primarily used acute pain models, while this project focuses instead on a chronic pain model using the inflammatory agent carrageenan, to observe potential differences in fear conditioning and nociception, between inflammatory models, vehicle (saline) models, and undisturbed rats.

Poster 36: *Bog Lemming Identification Based on Shape and Color of Pellets Using Photography and a Photo Light Box*

Rachel Amoroso '19 | Zachary Olson, PhD; Michael Esty

Our objective is to determine if we can discriminate among species of small mammal based off of pellet characteristics. Specifically we hope to address the assumption that bog lemming species have bright green pellets that differ from other small mammal species.

Poster 37: *Intertidal Biodiversity in Maine*

Halli Bair '18, Drew Collins '17, Thomas Sniady '17 | Carrie Byron, PhD

MAR350 Marine Ecology course requirement: Students designed research projects in small groups quantifying species biodiversity across sites in Maine.

Poster 38: *Intertidal Biodiversity in Maine*

Brianna Belske '17, Jordyn Cote '17, Thomas Luttrell '18 | Carrie Byron, PhD

MAR350 Marine Ecology course requirement: Students designed research projects in small groups quantifying species biodiversity across sites in Maine.

Poster 39: *Intertidal Biodiversity in Maine*

Bailey Farris '18, Alison Higgins '18, Tricia Zwolinski '19 | Carrie Byron, PhD

MAR350 Marine Ecology course requirement: Students designed research projects in small groups quantifying species biodiversity across sites in Maine.

Poster 40: *Intertidal Biodiversity in Maine*

Michail Bilek '18, Sophie Donnelly '18, Liz Beattie '17 | Carrie Byron, PhD

MAR350 Marine Ecology course requirement: Students designed research projects in small groups quantifying species biodiversity across sites in Maine.

Poster 41: *Intertidal Biodiversity in Maine*

Racheal Sylvester '17, Bethany Lewis '17, Christian Eldridge '17 | Carrie Byron, PhD

MAR350 Marine Ecology course requirement: Students designed research projects in small groups quantifying species biodiversity across sites in Maine.

Poster 42: *Age-specific differences in body condition and migratory timing of blackpoll warblers (Dendroica striata)*

Emily Filiberti '17 | Noah Perlut, PhD

Assessing stopover body conditions and timing of migration between adult and juvenile blackpoll warblers in coastal forests throughout northern New England.

Poster 43: *Mating under the influence: male Siamese fighting fish prefer EE2-exposed females*

Rebecca Cram '17, Jaslynn Lawrence '19 | Glenn Stevenson, PhD

Countless pharmaceuticals and endocrine disrupting chemicals (EDCs) exist on the market and these compounds, when excreted, are not removed during the wastewater treatment process. While 17 α–ethinylestradiol a common EDC found in birth control pills has been found to have physiological and behavioral effects in aquatic organisms, the main objective of this study was to determine if exposing female Siamese fighting fish, Betta splendens, to EE2 affected the mate choice decisions of male conspecifics.

Poster 44: *Lactic acid bacteria reduce infectivity of Salmonella Javiana and modulate host cell inflammatory response*

Dylan Fletcher '17, Arnold Kandolo, Lauren Gileau '17, Ryan Camire | Kristin Burkholder, PhD

Lactic acid bacteria (LAB) are nonpathogenic microbes found in fermented foods like yogurt, and which have positive effects on human gastrointestinal health. Here we report that several strains of LAB reduce the damage inflicted by Salmonella Javiana on human intestinal epithelial cells, and alter the host inflammatory response to infection.

Poster 45: *Temporal changes in the southern Maine black-capped chickadee (Poecile atricapillus) population do not correlate with changes in nearby resident and migrant songbird populations*

Jessica Kane '17 | Noah Perlut, PhD

The black-capped chickadee leads the movements of other resident and migratory songbirds in mixed-species flocks. The purpose of the current study is to determine whether black-capped chickadee populations correlate with those of nearby songbirds and whether we can use this ubiquitous species to study those other species indirectly.

Poster 46: *Antiandrogen effects on boldness behavior in male Siamese fighting fish*

Jessica Kane '17, Jaslynn Lawrence '19 | Glenn Stevenson, PhD

Flutamide and Vinclozolin are pharmaceuticals that block the production of androgens in the endocrine system and can be found in aquatic ecosystems as a result of pharmaceutical pollution. This study tested the effects of exposure of these compounds on the boldness behavior of male Siamese fighting fish.

Poster 47: *Currents and Contraceptives: 17α-ethinylestradiol turns the tide on mummichog boldness*

Nicole Greaney '17 | Glenn Stevenson, PhD

This study examined dose-dependent effects that the estrogen mimic EE2 has on boldness in common mummichogs from an anadromous population.

Poster 48: *Giving up densities measured under altering environmental conditions*

Courtney Dumont '20, Karie Bilodeau '18 | Zachary Olson, PhD

Foraging theory suggests that animals make decisions to balance risks they incur while foraging, like the risk of predation, and the rewards of finding and acquiring more or better quality food items. We measured risk perception by small mammals under experimental conditions in the field in which we altered the amount of visual obstruction around foraging stations. Our hypothesis was that increased visual obstruction alone would lower perceived predation risk and foster increased foraging by small mammals.

Poster 49: *Claw force measurements in different populations of Carcinus maenas and Hemigrapsus* sanguineus

Jessica Stumper '18 | Markus Frederich, PhD

Force exerted by claw pinching was measured and compared between four different invasive east coast populations of Carcinus maenas, as well as between C. maenas and Hemigrapsus sanguineus populations in Maine.

Poster 50: *The effects of Pain and Stress on Neonatal Expression of Corticosterone Releasing Factor (CRF) in the Rat Amygdala and Hypothalamus*

Victoria Eaton '18, Ashley Stienis '18 | Michael Burman, PhD

This project examines the effects of early life pain experiences on the immediate expression of corticosterone releasing factor (CRF) mRNA in the amygdalar and hypothalamic brain regions of neonatal rats. Given that CRF is a major part of the brain's stress system, neonatal changes in this system may be one way in which early life pain affects anxiety levels later in life.

Poster 51: *Early life pain affects later sensory responding in the rat*

Makaela Rice '19 | Michael Burman, PhD

This experiment uses a rodent model to examine the effects of different levels of neonatal trauma on responding to sensory stimuli later in life. Our preliminary data suggest that neonatal pain produces a tactile hypersensitivity in the equivalent of early childhood.

Poster 52: *Detecting moose brainworm infection from moose carcasses using eDNA-based methods*

Austin Coco '17 | Zachary Olson, PhD

We developed and tested a novel approach to diagnosing moose brainworm (P. tenuis) infection in recovered moose carcasses.

Poster 53: *Chemical Analysis and Antimicrobial Activity of Maine Ulva lactuca After Prolonged Storage*

Jessica Woolf '17 | Amy Deveau, PhD; Zach Miller-Hope, BS; Kristen Burkholder, PhD

We have studied whether the antimicrobial activity for dried and solution phase extracts of Ulva lactuca, a Maine macroalgae, changes over a nine-month period. Additionally, the chemical composition of antimicrobial agents in U. lactuca were also investigated using HPLC and mass spectrometry.

Poster 54: *Enrichment in a captive breeding program for Allegheny Woodrats*

Jaymi Wood '18 | Zachary Olson, PhD

Captive management of wild animals is challenged by the many differences between wild and captive environments. Environmental enrichment techniques are used by captive managers to close the gap between stimuli available to animals in the wild and stimuli available in captive environments. We tested the efficacy of running wheels to increase activity levels of Allegheny woodrats held as part of a larger captive breeding effort using video footage from their cages.

Poster 55: *Detecting Northern Bog Lemmings in Maine using non-invasive genetics*

James Welch '19, Adrianna Leiske '17 | Zachary Olson, PhD

Two species of bog lemming exist in Maine, New Hampshire, and potentially other states in the northeastern U.S.: the relatively abundant Southern bog lemming (Synaptomys cooperi) and the little known and state threatened (in Maine) Northern bog lemming (S. borealis sphagnicola). We collected small mammal pellets from three historically-occupied Northern bog lemming sites in Maine, we assayed the pellets for species identity, and analyzed pellet color and physical dimensions as they relate to species of origin in an attempt to confirm Northern bog lemming presence and identify physical pellet features characteristic of the species.

Poster 56: *Determining the feasibility of supercritical carbon dioxide + water for extracting organic compounds in extraterrestrial environments: A Monte Carlo simulation study*

Kenneth Mei '17 | John Stubbs, PhD

The focus of this project is the utilization of molecular simulations to determine how soluble certain organic compounds are in supercritical carbon dioxide and water. Organic compounds of focus are centered around those that are suspected to be available in extraterrestrial environments and would have solubilities capable of detection.

Poster 57: *Development and Application of Green Organic Synthesis Methods*

Anderson Sinde ’19, Nikolai Fernandez ’19, Mackinnley Hammill ’19 | Amy Deveau, PhD

CHE 251 University Organic Chemistry course requirement: Students designed research projects in small groups.

Poster 58: *Development and Application of Green Organic Synthesis Methods*

Wynter Paiva ’19, Jessica White ’19, Brea Rivard ’19 | Amy Deveau, PhD

CHE 251 University Organic Chemistry course requirement: Students designed research projects in small groups.

Poster 59: *Development and Application of Green Organic Synthesis Methods*

Elija Tuell ’19, Riana Lincoln ’19, Billy White ’19 | Amy Deveau, PhD

CHE 251 University Organic Chemistry course requirement: Students designed research projects in small groups.

Poster 60: *Development and Application of Green Organic Synthesis Methods*

Kelsey Springer ’19, Bethany Taylor ’18 | Amy Deveau, PhD

CHE 251 University Organic Chemistry course requirement: Students designed research projects in small groups.

ART 1: *No Butterflies Were Harmed in the Making*

Rebecca Sherrier '19 | Stephen Burt, MFA

My art project is focused on butterfly and flower studies, along with a large piece that encompasses both butterflies and flowers.

ART 2: *Great Snowy Owl*

Lara Murnik '18 | Sarah Gorham, MFA

6.5'x1' wood carved owl painted in acrylic with a surreal wintry background

ART 3: *The Human Life*

Alivia Morton '20 | Jeffrey Parmelee, PhD

My pieces aim to investigate not only what makes us alive, but also what makes us human. This exhibit is an exploration of the characteristics of life and the characteristics of humanity.

ART 4: *A Week in February*

Tori Denis '17 | Tim Greenway

Photographs of southern Maine landscapes during a single week in February.

ART 5: *Intertwined*

Sarah Libby '18 | Stephen Burt, MFA

A graphite and charcoal portrayal of how public and environmental health are inherently intertwined.

ART 6: *My Inspiration*

David Rubenstein '17 | Stephen Burt, MFA; Charles Thompson, MFA

Simple drawings of people in my life.

ART 7: *Scientific Illustration Drawings*

Lindsey Thomsen '17 | Stephen Travis, PhD

Project done in Scientific Illustration class. Multiple hand drawn pieces.

ART 8: *Natural Imperfection*

April Ater '17 | Stephen Burt, MFA

Natural Imperfection draws attention to the most beautiful things that are imperfect. These imperfections are praised around the world, yet many people seek perfection when the most sought after beauty is imperfect.

Decary Hall Room 205

1:00—1:20: *Dominance Hierarchies and Their Effect on Foraging Behaviors*

Leah Stutz '17, Dominique Jeffers '17, Nicole Belknap '17, Sarah Raymond '17 | Zachary Olson, PhD

Discussing research on crayfish, Procambarus clarkii, determining the effects that their position within a dominance hierarchy has on their willingness to forage.

1:25—1:45: *The effect on dominance status on shelter occupancy in crayfish (Procambarus clarkii)*

Faith Paglierani '18, Samantha Smith '17, Hannah Debeljak '17 | Zachary Olson, PhD

This study examines how the dominance hierarchy in a crayfish species determines other factors, such as resource use. We look at shelter occupancy specifically as shelter occupation can increase survivability and help to maintain their position in the hierarchy.

1:50—2:10: *The Acute Effects of 2, 4-D Amine on Crayfish Aggression*

Rebecca Cram '17, Erika Ackerman '17 | Zachary Olson, PhD

Large agricultural industries today utilize herbicides in access and the runoff from such vast quantities may have potential threats to the overall success of many species, of both marine and terrestrial wildlife, that are facing direct contact with these waste products. In this study, we examine the acute effects of the chemical, 2, 4-Dichlorophenoxyacetic acid known as 2, 4-D Amine, a common herbicide used by agricultural farmers in Southern states of the U.S., on a native species Crayfish and their aggressive behaviors which are vital to the species survival.

2:15—2:35: *Diet Quality and Aggression in Crayfish (Procambarus clarkia)*

Samantha Ainsworth '17, Amisha Malhotra '17 | Zachary Olson, PhD

We are going to be looking at pairs of crayfish and determining if the aggression level changes based on how nutritious the food they receive is. One third of the dominant pairs will receive high protein food and one third of the submissive pairs will receive the high protein food, while the last third will be our control which will eat spinach.

2:40—3:00: *Costs and Benefits of Crayfish Foraging*

Caitlin Kamenelis '17, Adrianna Leiske '17 | Zachary Olson, PhD

Our study looks at the risks that crayfish are willing to take in order to obtain food in the presence of a mimicked predator.

3:05—3:25: *Location Familiarity on Predator Response Time in Crayfish*

Nicole Belknap '17, Madison Ruopp '17 | Zachary Olson, PhD

Observant behaviors are important for an animal's survival, as vigilance leads to detection of predators. Our research examines whether familiarity of a location influences predator response time in crayfish.

3:30 –3:50: *Predicting the effects of regional climate change on aggregation behavior in a terrestrial isopod (Armadillidium vulgare)*

Kayla Eustace '17, Jessica Kane '17 | Zachary Olson, PhD

This study measured the time spent aggregating by pill bugs in an experimental setting in which temperature, humidity, and the density of pill bugs were manipulated.

Decary Hall Room 206

1:00—1:20: *The Production and Propagation of the Other Throughout American History: Race, Religion, and Ideology*

Austin Coco '17 | Ali Ahmida, PhD

My senior thesis project, this presentation will focus on how the "other" has been formed throughout American history, by looking at various case studies. This research intends to analyze the commonalities between the case studies, through Foucault's discussion of discipline, the delinquent, and delinquency, as well as through Scott's discussion of the hidden transcript.

1:25—1:45: *Let's Not Sugarcoat: Science, Politics and the Modern Ascetic*

Dylan Fletcher '17 | Ali Ahmida, PhD

The field of scientific research, once considered an unassailable, objective field is increasingly coming under scrutiny. The German philosopher Friedrich Nietzsche called science the "modern ascetic": life denying and seeking to make the natural world neat and orderly. Using the case of the Harvard sugar scandal I will be examining how science embodies the modern ascetic and understand how those who deny scientific research are in a way "ascetic heroes."

1:50—2:10: *Capitalism In World Football*

Ryan Stephens '17 | Ali Ahmida, PhD

The presentation will describe the problems and solutions associated in World Football. It will address topics such as Capitalism, Socialism, and Mercantilism.

2:15—2:35: *Surveillance, Social Mobilization And The Politics Of The Internet, Edward Snowden And The 2011 Egyptian Revolution*

J.T.Oliver '17 | Ali Ahmida, PhD

It is on the effects that technology and the internet have had on societies. Also, how the internet acts as a disciplinary mechanism.

2:40—3:00: *International Recognition Matters*

Cameron Armstrong '17 | Ali Ahmida, PhD; Ken Courtney, PhD; Bradley Goodwin,

Using a case-study analysis through a historical lens, an examination of the theories of statehood will be discussed.

3:05 –3:25: *Discussing the Political Hegemony: The Two-Party System in America*

Justin Gover '17 | Ali Ahmida, PhD; Ken Courtney, PhD; Brian Duff, PhD

Politics in America have been dominated by two parties taking turns in power for hundreds of years. This presentation will discuss how a political hegemony was formed in the United States, what the effects of it are, and what it could mean going forward.

Decary Hall Room 207

1:00—1:20: *Importance of The Saco River Estuary to winter flounder (Pseudopleuronectes americanus) life stages*

Lars Hammer '18 | James Sulikowski, PhD

A multifaceted study assessing the importance of this Northern nursery ground to winter flounder, a species currently facing the detrimental effects of overfishing, habitat loss, and climate change.

1:25—1:45: *Assessing reproductive steroid hormone concentrations in three Carcharhinidae species captured off the coast of Southern Florida*

Nora Wells '18 | James Sulikowski, PhD

My research utilizes the non-lethal radioimmunoassay technique to determine the gestation state of sandbar (Carcharhinus plumbeus), lemon (Negaprion brevirostris), and blacktip (Carcharhinus limbatus) sharks captured off the coast of Southern Florida.

1:50—2:10: *Synthetic Models of Enzyme Active Sites*

Ryan Conger '17 | Stephen Fox, PhD

A new class of bi-nuclear copper coordination complexes were synthesized modeling an enzyme active site.

2:15—2:35: *The Etiology and Pathophysiology of Fetal Alcohol Syndrome*

Aidan McGowan '17 | David Sandmire, MD

This presentation will discuss the etiology of fetal alcohol syndrome as well as the physical changes associated with it and how said changes influence fetal development.

2:40—3:00: *Origin of taste bud cells during embryonic tongue development*

Bryant Bonaiuto '18, Lam Puk '18 | David Sandmire, MD

How taste buds develop during embryonic growth.

Decary Hall Room 208

1:00—1:20: *Place Attachment Theory: The Effect of Social Capital and Aesthetic Beauty on Population Mobility in the Year-Round and Seasonal Residents of the Islands of Maine.*

Melissa Klemt '17 | Samuel McReynolds, PhD

Social capital and aesthetic beauty have been found to be two central components of place attachment theory. This study uses these concepts as predictor variables for population mobility patterns, and the goal is to determine the effect these predicting variables have on population mobility in the year-round resident and seasonal resident populations living in the fourteen year-round islands of Maine.

1:25—1:45: *Functionalism and The Obesity Epidemic: An Alternative Theoretical Approach to Understanding a Global Health Problem*

Christina-Claire Georges '17 | Samuel McReynolds, PhD

This presentation attempts to provide a Functionalist understanding of the obesity epidemic.

1:50—2:10: *Irish Americans visiting Ireland: A "return home"?*

Mary Ellen Travers '17 | Eric Zuelow, PhD

This presentation is the Liberal Studies Capstone that focuses on why Irish Americans wish to visit Ireland for diasporic reasons. Diasporic tourism is when people "return home" to a place where their ancestors have come from. This presentation will also address how this diasporic tourism impacts the identity of the Irish American visiting Ireland.

2:15—2:35: *"Our real lives are our precious secret": Teaching about Slavery in the Elementary Classroom*

Katie Perreault '17 | Jennifer Tuttle, PhD

Ashley Bryan's Freedom Over Me converts slave auction records into a children's book that aims to restore humanity to people objectified by slavery and written out of history. This presentation analyzes his book and recounts how it is being used to introduce a new perspective on slavery to the elementary classroom.

2:40—3:00: *The Mediating Effect of Experiential Avoidance on Distress in Female Rape Victims*

Benjamin Katz '17 | Patricia Long, PhD

Sexual violence is a significant problem in society. While research indicates a relationship between victimization and distress, there are likely many mediators of this relationship (Briere & Jordan, 2004). This study examined experiential avoidance (EA) as a mediator. Results revealed that there was a direct effect of victimization on distress, and that for five of the six subscales of EA there was an indirect effect of victimization on distress through EA. Implications will be discussed.

3:05—3:25: *The Effect of Olfactory and Visual Cues on Agonistic Behavior in Crayfish*

Adrienne Bowie '17 | Zachary Olson, PhD

In this study, we examined the effect on agonistic behavior in crayfish by manipulating visual and olfactory cues. This study was accomplished by comparing behaviors to a mirrored surface and plexi-glass with a conspecific on the other side in both scent and no-scent conditions.

Decary Hall Room 212

Due to a scheduling conflict, the schedule for this room has been changed. Please see the Revised Schedule of Oral Presenters on page 21.

1:00—1:40: *Telling a Woman's Story: Visions, Voices and Narrative Values in Hardy, James and Wharton*

Monica Stewart '18, Anne Carbonier '18, Megan Hall '18 | Cathrine Frank, PhD

This panel explores questions about gender and representation in three turn-of-the-century novels: Tess of the D'Ubervilles, The Turn of the Screw, and The House of Mirth.

1:45—2:45: *Heart of Darkness: White Masks, Black Keys, and Joseph Conrad's Narratives of Empire*

Kalvin McKinnon '17, Amisha Malhotra '17, Aidan McGowan '17, Richard Dragon '18 | Cathrine Frank, PhD

This panel analyzes Conrad's literary experiments with narration in the context of commodity culture and Britain's colonial project.

2:50—3:30: *Violence and Representation in Thomas Hardy's Tess of the D'Urbervilles*

Will Drury '17, Autumn Stupca '19, Rob Campbell '18 | Cathrine Frank, PhD

This panel discusses Hardy's revisions of this controversial novel as well as its complex narrative tone as evidence of the author's cultural criticism and the challenge of producing it.

3:35—3:55: *(Re)Reading James Joyce's "The Dead"*

Kyle Sillon '18 | Cathrine Frank, PhD

This paper approaches James Joyce's "The Dead" (1914) from a reader-response critical perspective that discusses the effects of modernist style on the experience of reading and re-reading and on practices of literary analysis.

Directory of Poster Presenters

Name	Poster	Name	Poster
Rachel Amoroso	36	Christian Eldridge	41
Amanda Anderson	13	Cassandra Elmer	7
Mackenzie Anderson	13	Charlotte Esancy	6
April Ater	11	Hannah Farrington	12
Riley Austin	16	Bailey Farris	39
Halli Bair	37	Nikolai Fernandez	57
Tamika Baldwin	12	Emily Filiberti	42
Liz Beattie	40	Dylan Fletcher	44
Brianna Belske	38	Courtney Gautreau	14
Michail Bilek	40	Lauren Gileau	44
Karie Bilodeau	48	Nicole Greaney	47
Rebecca Brackin	33, 34	Cynthia Guesford	25
Alicia Brown	10	Mackinnley Hammill	57
Kayla Burgess	19	Kylee Harrington	33, 34
Ryan Camire	44	Ethan Harris	30
Austin Coco	52	Lauren Hayden	2,3
Drew Collins	37	Courtney Hebert	22
Emily Cote	21	Alison Higgins	39
Jordyn Cote	38	Mary Hollandbeck	18
Sarah Couture	33, 34	Erik Holmqvist	30
Rebecca Cram	43	Sarah Hutchins	25
Andrew Davidsohn	29	Lisa Jacoby	21
Seth Davis, PhD	35	Michaelin Jaggers	24
Sophie Donnelly	40	Arnold Kandolo	44
Lauren Duffin	4	Jessica Kane	45, 46
Courtney Dumnt	48	Madison Kenny	27
Lacey Durkee	8, 17	Abigail Kinens	33, 34
Victoria Eaton	50	Katherine Kos	23

Name	Poster	Name	Poster
Abby LaChance	15	Zoe Roberts	15
Janell Lanpher	33, 34	Jacob Rudlong	35
Jaslynn Lawrence	43, 46	Jessica Sarro	24
Ellie Leighton	27	Rebecca Sherrier	22
Adrianna Leiske	55	Anderson Sinde	57
Bethany Lewis	41	Thomas Sniady	37
Riana Lincoln	59	Kelsey Springer	60
Brianna Lippitt	20	Monica Stewart	22
Thomas Luttrell	38	Ashley Stienis	50
Deanna Mansfield	14	Jessica Stumper	49
Nikki Mathewson	28	Racheal Sylvester	41
Kenneth Mei	56	Allison Symonds	8, 17
Crystal Nason	11	Bethany Taylor	60
Faith Paglierani	26	Allison Truttling	3
Nicholas Paine	20	Elijah Tuell	59
Wynter Paiva	58	Dylan Turner	5
Katherine Parker	18	Serena Valle	23
Jillian Pattershall	13	Nick Vespa	5
Emily Payne	33, 34	Angel Waters	18
Kelley Pearson	13	Carolyn Wawrzynowski	11
Marlie Perkins	14	James Welch	55
Katie Perry	9	Ethan Wester	1
Hailey Pollard	12	Jessica White	31, 58
Emily Provencher	12	Billy White	59
Lilah Quinn	14	Jaymi Wood	54
Makaela Rice	51	Jessica Woolf	53
Philomena Richard	33, 34	Emma Wuerdeman	8, 17, 21
Brea Rivard	31, 32, 58	Tricia Zwolinski	39

Please refer to the Revised Schedule of Oral Presenters on Page 21.

Schedule of Oral Presenters

	Decary 205	Decary 206	Decary 207	Decary 208	Decary 212
1:00	Stutz, Jeffers, Belknap, Raymond	Coco	Hammer	Klemt	Stewart, Carbonier, Hall
1:05					
1:10					
1:15					
1:20					
1:25	Paglierani, Smith, Debeljak	Fletcher	Wells	Georges	
1:30					
1:35					
1:40					
1:45					McKinnon, Malhotra, McGowan, Dragon
1:50	Cram and Ackerman	Stephens	Conger	Travers	
1:55					
2:00					
2:05					
2:10					
2:15	Ainsworth and Malhotra	Oliver	McGowan	Perreault	
2:20					
2:25					
2:30					
2:35					
2:40	Kamenelis and Leiske	Armstrong	Bonaiuto and Puk	Katz	
2:45					
2:50					Drury, Stupca, Campbell
2:55					
3:00					
3:05	Belknap and Ruopp	Gover		Bowie	
3:10					
3:15					
3:20					
3:25					
3:30	Eustace and Kane			Sullivan and Hackett	
3:35					Sillon
3:40					
3:45					
3:50					

Thank You!

The College of Arts and Sciences would like to thank the National Science Foundation, the National Oceanic and Atmospheric Administration, the National Institute of Health, the American Chemical Society, the UNE Office of Research and Scholarship, the UNE Marine Science Center, the UNE Center for Excellence in the Neurosciences and many others for sponsoring the students' research.

This scholarship could not be completed without their generous support. However, we would most like to thank the faculty members whose generosity of time and effort has allowed the students to complete truly remarkable work.

I would like to thank Erinn Stetson for all of her work on the organization of the symposium.

Thanks,

Dr. Charles Tilburg

THANK YOU!

Revised Schedule of Oral Presenters

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3:00					
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3:10					
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3:25					
3:30	Eustace and Kane			Sullivan and Hackett	
3:35					Sillon
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