



UNIVERSITY OF NEW ENGLAND

**COLLEGE OF ARTS AND SCIENCES
SUMMER UNDERGRADUATE
RESEARCH EXPERIENCE SYMPOSIUM**

Saturday, September 30, 2017
9 a.m. - 12:15 p.m.



UNIVERSITY OF
NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

Research at UNE

On behalf of the College of Arts and Sciences, it is my pleasure to welcome you to the 2017 Summer Undergraduate Research Experience (SURE) Symposium. This annual event features posters and talks by more than 30 students that have performed research at our home campus in Biddeford and regions throughout the Northeast United States. During this summer, our students have worked closely with faculty to build on the knowledge they have acquired through their coursework, to explore advanced realms of understanding and to prepare for more continued study in their fields.

Students from disciplines ranging from Medical Biology and Marine Science to Animal Behavior and Psychology have tackled projects identifying species of Bog Lemmings by studying pellets, examining the effects of photoperiod and light intensity on microalgal growth rates, and researching metacognitive ability and the preference for traditional textbooks as compared to e-readers. These projects are the basis for future scholarly work in the field of research through articles, presentations, manuscripts, and more.

Please join us in celebrating the hard work and dedication performed by our summer undergraduate research students. I invite you to learn more about their fascinating work and appreciate their accomplishments.

Sincerely,



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

Summer Undergraduate Research Symposium

Saturday, September 30, 2017 | 9 a.m. – 12:15 p.m.

9 a.m.

Poster Presentations
Multi-Purpose Rooms
Campus Center

10:30 a.m.

Jeanne A.K. Hey,
Dean of the College of Arts and Sciences

James D. Herbert
President, University of New England

10:45 a.m.

Oral Presentations
Multi-Purpose Rooms
Campus Center

12 p.m.

Closing Remarks
Charles Tilburg



Poster 1

Bog Lemming identification based on photography and color standardization of pellets

Presenter: Rachel Amoroso '19

Majors: Marine Biology, Animal Behavior

Advisor: Zachary Olson

Poster 2

A study of marine microalge growth patterns under varying of light intensities and photoperiods

Presenter: Caleb Arnold '18

Major: Marine Science

Minors: Aquarium and Aquaculture Sciences

Advisor: Zachary Miller-Hope

Contributors: Michael Esty, Markus Frederich

Poster 3

Determining Affinity of Src Homology for various Peptide Binding Partners Using Intrinsic Fluorescence

Presenter: Aleeza Barkas '18

Major: Biochemistry

Minors: Biological Sciences and Applied Mathematics

Advisor: Eva Rose Balog

Contributors: Robert Elliott, Laura Marvin

Poster 4

BAutophagy activation by USA300 in RAW264.7 macrophages

Presenter: Avery Bond '19
Major: Medical Biology
Advisor: Kristin Burkholder

Poster 5

Assessing the favorable conditions that promote the invasive success of *Phragmites australis* over native *Spartina*

Presenter: Hannah Buckley '18
Major: Environmental Science
Minor: Climate Change Studies
Advisors: Greg Zogg, Steven Travis
Contributor: Tessa Dowling

Poster 6

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

Presenter: Kayla Burgess '18
Major: Marine Biology
Minor: Applied Mathematics
Advisor: James Suikowski
Contributor: David Koester

Poster 7

Annual Fluctuations of Fish Species Assemblage in the Saco River Estuary, Gulf of Maine

Presenter: Jordan Carey '18

Major: Marine Biology

Advisor: James Sulikowski

Poster 8

Preliminary Investigation into the Use of Abandoned Lobster Traps for Shelter by Atlantic Cod (*Godus morhua*)

Presenter: Hannah Crull '19

Major: Marine Biology

Minor: Chemistry

Advisors: Kathryn Ono, James Sulikowski

Poster 9

Time Point and Stability Analysis of Coastal Maine *Saccharina latissima* Extracts That Have Antimicrobial Properties

Presenter: Amber Cusson '18

Major: Biochemistry

Minor: Applied Mathematics

Advisor: Amy Deveau

Contributors: Zach Miller-Hope, Kristin Burkholder

Poster 10

Implementation and Construction of Near Shore Plankton Methods

Presenter: Ariella Danziger '19

Majors: Marine Science, Elementary Education

Advisor: Markus Frederich

Poster 11

Trophic shifts in the Saco River Estuary that occur with the arrival and summer residence of the striped bass (*Morone saxatilis*)

Presenter: Andrew Davidsohn '18

Major: Marine Biology

Minors: Aquaculture and Aquarium Science

Advisor: Carrie Byron

Poster 12

Does Divorce Increase Reproductive Success of Grassland Songbirds in Vermont Hayfields?

Presenter: Kylee DiMaggio '19

Majors: Marine Biology, Environmental Science

Advisor: Noah Perlut

Poster 13

The Effects of Antalarmin during Neonatal Trauma on the Subsequent Trauma-Induced HPA Axis in Adult Rats

Presenter: Ethan Harris '18
Majors: Medical Biology, Neuroscience
Advisor: Michael Burman
Contributor: Seth Davis

Poster 14

Preliminary age estimates of the female southern stingray (*Dasyatis americana*) captured in southeast Florida, USA

Presenter: Abigail Hayne '19
Major: Marine Science
Advisors: James Sulikowski, Angela Cicia

Poster 15

Quantification of Indicator Bacteria on the Surface of Sugar Kelp *Saccharina latissima* in proximity to anthropogenic sources

Presenter: Mary Hollandbeck '18
Major: Marine Biology
Advisors: Carrie Byron, Adam St. Gelais
Contributors: Kristen Burkholder, Gretchen Grebe

Poster 16

*Investigating the presence and prevalence of wasting disease in Gulf of Maine sea stars, *Asterias forbesi* and *Asterias rubens*, through histology and DNA analysis*

Presenter: Michaela Kenward '19

Major: Marine Science

Advisors: Angela Cicia, Markus Frederich

Poster 17

Collaborative shark research projects in 2017

Presenter: Jennifer Knotek '20

Major: Marine Biology

Advisor: James Sulikowski

Poster 18

Biological Controls of Mosquitos on UNE's Biddeford Campus

Presenter: Katherine Kos '18

Major: Animal Behavior

Advisor: Noah Perlut

Poster 19

*Regulation of salinity stress tolerance in the European green crab, *Carcinus maenas**

Presenter: Pierce Lancor '18

Major: Marine Science

Minor: Mathematics

Advisor: Markus Frederich

Poster 20

Investigating the Role of Jag1 Ligand in Adipogenesis using mutant AdCre-Jag129 Murine cells

Presenter: Audrie Langlais '18

Major: Biochemistry

Advisor: Amy Keirstead

Contributor: Deena Small

Poster 21

The effects of e-readers on Generation Z: A comparison of expository and narrative text comprehension

Presenter: Ellie Leighton '19

Major: Psychology

Minor: MHRTC and Education

Advisor: Jennifer Stiegler-Balfour **Contributor:** Ellie Leighton

Poster 22

Modeling DNA microarrays – comparison of molecular coarse-grained models

Presenter: Carolyn Lucy '19

Major: Biochemistry

Minor: Mathematics

Poster 23

Flow Imaging Technology for Evaluation of Elastin-like Polymer Assembly

Presenter: Laura Marvin '20

Majors: Biochemistry, Biology

Advisor: Eva Rose Balog

Poster 24

DNA Analysis of Small Mammal Pellets and Water Samples

Presenter: Faith Paglierani '17

Major: Animal Behavior

Minor: Environmental Studies

Advisor: Zach Olson, Mike Esty

Poster 25

Determining the impacts of spatial diet shifts on the farmed blue mussel

Presenter: Katie Perry '18

Major: Marine Biology

Minor: Applied Mathematics

Advisor: Carrie Byron

Poster 26

Neonatal Pain and its Later effects on Corticosterone Expression

Presenter: Jacob Rudlong '18

Major: Neuroscience

Minor: Applied Mathematics

Advisor: Michael Burman

Contributors: Michael Burman, Seth Davis, Joshua Schultz, Melissa Ertman

Poster 27

Age and growth analysis of Gulf of Maine region rainbow smelt (*Osmerus mordax*) populations

Presenter: Molly Sisk '18

Major: Marine Biology

Advisor: James Sulikowski

Contributors: Jordan Carey, Austin Flannigan

Poster 28

Exploration of Schiff-Base Additions to 2,7-methylcarboxaldehyde-1,8-naphthyridine

Presenter: Elija Tuell '19

Major: Biochemistry

Advisor: Stephen Fox

Contributors: Stephen Fox, Ryan Conger

Poster 29

*Ca²⁺ flux from surfaces of the blue mussel, *Mytilus edulis*, shell*

Presenter: Angel Waters '18

Major: Marine Science - Oceanography

Minor: Applied Mathematics

Advisor: Joseph Kunkel

Poster 30

Using cost-effective wave height sensors to accurately monitor coastal areas

Presenter: Ethan Wester '17

Majors: Marine Science, Mathematics

Advisor: Charles Tilburg

Poster 31

The Predicted Stability of DNA Duplexes from the Addition of the Labels BHQ2, QSY7, and TAMRA on the 3' end

Presenter: Bill White '19

Majors: Medical Biology, Biochemistry

Minor: Chemistry

Advisor: Kaushik Dutta

Contributor: John Stubbs

Poster 32

Coarse grain model for the simulation of cation-membrane

Presenter: Jessica White '19

Major: Biochemistry

Minor: Applied Mathematics

Advisors: Amy Deveau, Woon Yuen Koh

Contributors: Kathryn Chalmers, Ronald D Hills Jr

Poster 33

Using underwater vehicles to investigate underwater ecosystems in the Saco River estuary before dredging

Presenter: Lauren Hayden '18

Major: Marine Science

Advisors: Stephan Zeeman PhD, Michael Esty

Poster 34

Reproductive Benefits of Natal Philopatry in Bobolinks and Savannah Sparrows

Presenter: Kylie Denny '18

Major: Animal Behavior

Minor: Environmental Science

Advisors: Glenn Stevenson, Noah Perlut

Poster 35

Antimicrobial compounds extracted from locally collected red and brown macroalgae species

Presenter: Andrea Call '19

Major: Biology

Advisors: Ursula S.R. Roese, Kristin M. Burkholder

Contributor: Katharina H.C. Roese

Poster 36

Antimicrobial compounds extracted from locally collected red and brown macroalgae species

Presenter: Katharina Roese '21

Major: Medical Biology

Advisors: Kristin M. Burkholder, Ursula S.R. Roese

Contributor: Andrea Call

Poster 37

A Histological Condition Assessment of Farmed Blue Mussels (*Mytilus edulis*) in Casco, Maine Using Reproductive and Storage Tissue Analysis

Presenter: Michele Condon '19

Majors: Marine Biology, Environmental Science

Advisors: Carrie Byron, Adam St. Gelais

Contributors: Katie Parker, Connor Jones

Poster 38

Molecular Dynamics Simulation Aiding in Conformational Analysis of Chondroitin Sulfate

Presenter: Hanna Sihler '18

Major: Oceanography

Minors: Biophysics and Applied Mathematics

Advisor: Olgun Guvench

10:45—11:00: *An Assessment of Stress and Post Release Mortality in Atlantic cod caught in the Commercial Lobster Fishery*

Presenter: Riley Austin '18
Major: Marine Biology
Minor: Applied Mathematics
Advisor: James Sulikowski

11:00 – 11:15: *Expression of soluble Vascular Endothelial Growth Factor 121 and design of VEGF-SH3 fusion proteins*

Presenter: Robert Elliott '18
Major: Biochemistry
Minors: Applied Mathematics, Biological Sciences
Advisor: Eva Balog

11:15 –11:30: *Importance of the Saco River Estuary to winter flounder (*Pseudopleuronectes americanus*) life stages*

Presenter: Lars Hammer '18
Major: Marine Biology
Minor: Applied Mathematics
Advisor: James Sulikowski

11:30 – 11:45: *A histopathological survey of pathogens found in farmed blue mussels (*Mytilus edulis*) in Casco Bay, Maine*

Presenter: Katherine Parker '18

Major: Marine Biology

Advisors: Carrie Byron, Adam St. Gelais

11:45 – 12:00: *Designing a novel stimuli responsive biomaterial: Fusion of elastin like polymers with a lobster carapace carotenoid protein*

Presenter: Mano Senthil '18

Major: Medical Biology

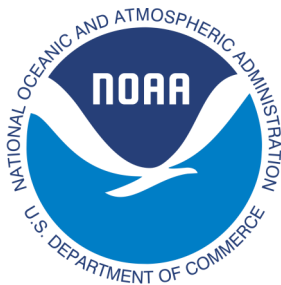
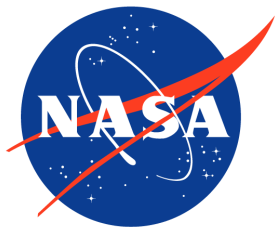
Minors: Chemistry, Bio-Physics, Health, Law & Policy

Advisor: Jeffrey Parmelee

Contributor: Eva Balog

Directory of Poster Presenters

Name	Poster	Name	Poster
Rachel Amoroso	1	Michaela Kenward	16
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Thank You!

The College of Arts and Sciences would like to thank the National Aeronautics and Space Administration, 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 Mary Johnson for all of her hard work on the summer program as well as organization of this symposium.

Thanks,

Dr. Charles Tilburg



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