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
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<td><strong>Bog Lemming identification based on photography and color standardization of pellets</strong></td>
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<td><strong>Presenter:</strong> Rachel Amoroso '19</td>
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<td><strong>Majors:</strong> Marine Biology, Animal Behavior</td>
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<td><strong>A study of marine microalge growth patterns under varying of light intensities and photoperiods</strong></td>
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<td><strong>Advisor:</strong> Zachary Miller-Hope</td>
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<td><strong>Contributors:</strong> Michael Esty, Markus Frederich</td>
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<td><strong>Determining Affinity of Src Homology for various Peptide Binding Partners Using Intrinsic Fluorescence</strong></td>
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<td><strong>Presenter:</strong> Aleeza Barkas '18</td>
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<td><strong>Contributors:</strong> Robert Elliott, Laura Marvin</td>
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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

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**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

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**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

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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

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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

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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