

# RESEARCH

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CENTER FOR  
UNDERGRADUATE RESEARCH

**ACADEMIC YEAR 2017-18 PROGRAM DATES AND DEADLINES**

PROGRAM	DATE
2018 UMaine Student Symposium (UMSS18) Abstract Submission Deadline	Mar. 9, 2018
UMSS18 Acceptance Notifications	Mar. 19, 2018
2018 Summer Fellowship Application Deadline	Mar. 23, 2018
UMSS18 Poster Printing Deadlines	Apr. 9, 2018 (Free) Apr. 12, 2018 (50% off)
UMSS18 Event Date	Apr. 17, 2018

**FOR MORE INFORMATION: [CUGR.UMAINE.EDU](http://CUGR.UMAINE.EDU)**



Students, faculty and alumni are encouraged to submit information including student stories, and research opportunities for future newsletter editions by contacting Alexandria Jesiolowski, 207.581.3583, [CUGR@maine.edu](mailto:CUGR@maine.edu)

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# 2018 Student Symposium

Research and Creative Activity

The 2018 annual University of Maine Student Symposium (UMSS18) is held every spring and is open to ALL disciplines. This event involves student presentations in the form of posters, exhibits, or oral presentation to be judged by UMaine faculty, staff and community members. The Graduate Student Government and the Center for Undergraduate Research invite the submission of graduate and undergraduate research and creative activity projects accompanied by the endorsement of a faculty mentor. Submissions must be in the form of an abstract describing the focus, method or process, and outcomes of the project and submitted electronically at the provided link. Entries must be authored by one or more students from the University of Maine. All CUGR, MSGC, and CLAS Fellowship Award recipients are required to present at this event and must submit an abstract. For more information go to the UMSS18 website.

## 2018 RESEARCH AND CREATIVE ACTIVITIES SUMMER FELLOWSHIP

### CALL FOR PROPOSALS

The Center for Undergraduate Research (CUGR) is pleased to announce the Research and Creative Activities Summer fellowship program to support undergraduate student involvement in faculty mentored research. Several \$3000 Fellowships will be awarded for the 2018summer semester on a competitive basis; the competition is open to all UMaine undergraduate students from all majors. Each fellowship provides financial support for one student to conduct faculty-mentored research. The CUGR Advisory Committee will review research and creative activities proposals for clarity of objectives, importance to the field, proposed approach, appropriateness of the budget, and indication of the project feasibility.

#### Eligibility Criteria:

1. Any undergraduate student currently enrolled in a degree program at the University of Maine may submit a proposal in consultation with a faculty mentor. Preference will be given to students graduating in or after May 2018.
2. Applicants need to describe the research, placing it in the context of scholarly activities, while presenting in such a way that it is understandable to the reviewers from outside of the applicant's research field.
3. Award Recipients must submit a report including technical and financial data by September 15, 2018 and are expected to present the product of their research at the 3<sup>rd</sup> Annual UMaine Student Symposium: *Research and Creative Activity* (UMSS18) on April 17, 2018.

FOR MORE INFORMATION, [CUGR.UMAINE.EDU](http://CUGR.UMAINE.EDU)

Call for Abstracts Submission Deadline:  
3/9/18

Acceptance Notifications: 3/19/18

\* notifications will be communicated via email

Event Date & Time: Tuesday, 4/17/18  
10:00am-5:00pm

\*student presentation set-up: 9:00am-10:00am

Event Location: Cross Insurance Center, Bangor

**NOTICE: Departments, Centers, and Faculty**

**Interested in hosting a 'Special Session' at the UMSS18?**

For More Information & to Submit a Request go to:  
<https://tinyurl.com/UMSS18SESSION>

**\*to submit a request you must be signed into a valid @maine.edu account**

• • • • •  
• Welcome CUGR Fiscal Coordinator! •  
• Please join us in welcoming our new •  
• CUGR Fiscal Coordinator, Christina •  
• VonTorne. Christina is a recent •  
• transplant from the Seattle area in •  
• Washington State, with many years of •  
• fiscal and administrative experience in •  
• the private sector. She is very excited •  
• to be a part of the University of Maine •  
• staffing team. •

207.581.8867

Christina.Vontorne@maine.edu

Office. 207 Crossland Hall

**2018 Summer Fellowship Award Recipients will be announced at the 2018 UMaine Student Symposium Luncheon Award Ceremony on 04/17/18**

**SUMMER FELLOWSHIP APPLICATION DEADLINE: 3/23/18**

## 2017-2018 Academic Year Fellowship Award Student Recipients!

(sponsored by CUGR, COE Crowely Fund\*, CLAS)

The University of Maine's Center for Undergraduate Research (CUGR) has announced the CUGR 2017-2018 Academic Year Fellowship Student Recipients. The center's advisory committee selected 14 proposals from 70 student submissions to be awarded \$1,000 each during the academic year. Each proposal was reviewed by three reviewers and scored on clarity, research goals and objectives, importance to the field, timeline, budget and faculty commitment letters. Top proposals were then discussed at a panel. Four awards were supported by the College of Engineering Crowley Fund and the rest were sponsored by VP Research office.

In addition to 14 CUGR Fellowship awards, 12 undergraduate research projects were awarded by the College of Liberal Arts and Sciences (CLAS). Dean Emily Haddad is pleased to announce the student recipients of the 2017-18 Academic Year CLAS Undergraduate Fellowship Award. These fellowships were developed to enhance and increase undergraduate student involvement in faculty supervised research and creative activity.

### CUGR Fellowship Award Student Recipients

### CLAS Fellowship Award Student Recipients

(Student Name, Academic Focus, Project Title, Faculty Mentor)

1. \*Christopher Albert, Chemical Engineering, Pulp Yield Improvement Via Meerwein-Ponndorf-Verley (MPV) Reduction, Prof. Thomas Schwartz
  2. Cole Butler, Civil Engineering, Population models on continuous-valued heterogeneous landscapes, Prof. David Hiebeler
  3. Jessica Champagne, Psychology, Maine Understanding Sensory Integration & Cognition (MUSIC) Project: Can music learning improve cognition in older adults?, Prof. Rebecca MacAulay
  4. Matthew Clark, Chemistry, Examination of the Effects of Processing Parameters on Bioactive Compounds in Maine Seaweeds, Prof. Barbara Cole
  5. Daniel D'Alessio, Mathematics, Lacunarity Within Mammograms, Prof. Andre Khalil
  6. Spencer DeBrock, Zoology, The Effect of the Hemlock Woolly Adelgid on Black-legged Tick Abundance and Lyme Disease Infection Prevalence in Maine, Prof. Allison Gardner
  7. Amy de Silva, Communication Sciences and Disorders, Lend me your ear: Context effects on ambiguous idiom comprehension in aphasia, Prof. Christopher Grindrod
  8. Cara Doiron, Finance, Constructing Identity through the Lens of Fashion, Prof. Samantha Jones
  9. \*Cody Gigac, Chemical Engineering, Synthesis of a Halo-tag Ligand; for targeted genetic studies of serotonin receptors, Prof. Michael Kienzler
  10. \*Mitchell Harling, Bioengineering, The Metabolic Behavior of M1-Like Macrophages when Treated with Extracts from Anti-Inflammatory Foods, Prof. Karissa Tilbury
  11. Cory Johnson, Biology, Effects of Dietary Fats on Brain-Adipose Communication, Prof. Kristy Townsend
  12. Angus Koller, Chemistry, Polyphenol Oxidase and Total Phenolic Content in Honeycrisp Apples Afflicted with Soggy Breakdown, Prof. Barbara Cole
  13. \*Chloe Lilly, Biological Engineering, Slippery paper diagnostic devices with agar based bacterial detection system, Prof. Caitlin Howell
  14. Calla Williams, Psychology, Women In Leadership: How Leadership Framing and Social Identity Theory Influence Women's Leadership Confidence, Prof. Shannon McCoy
1. Ariel Bouchard, psychology, "Hypoxemia in Obstructive Sleep Apnea Individuals as a Proposed Factor in the Detection of MCI," Prof. Marie Hayes
  2. Paul Caruso, physics, "Structural Studies of Nanostructured Thin Film Materials Using High Resolution X-ray Diffraction," Prof. Robert Lad
  3. Cassidy Gagne, psychology, "The effects of exercise on working memory," Prof. Fayeza Ahmed
  4. Gene Herrschaft, new media, "Facilitating Meaningful Interpersonal Connections Through a Virtual Space," Prof. Nicholas Giudice
  5. Zachary Kostusyk, psychology, "Priming Prosocial Behaviors Not: Effects of Different Reminders to Help," Prof. Jordan Labouff
  6. Johanna Lunn, human dimensions of climate change, "Maine's Culture of Thrift: On Meaning and Motivation," Prof. Cindy Isenhour
  7. Tessali Morrison, chemistry, "Synthesis of Hydrogel Containing Quaternary Amine Polymers Used for Anti-Biofouling," Prof. William Gramlich
  8. Kathleen Murphy, political science, "Policy Analysis of V-Notching in the Maine Lobster Fishery," Prof. Teresa Johnson
  9. Samantha Saucier, sociology, "Troubling Pornography: Tensions of pornography consumption habits," Prof. Jennie Woodward
  10. Cole Spike, psychology, "Peer Wellness Coaching," advised by Jordan Labouff
  11. Nathan Sprangers, music education, "The perceived benefit of homeogenous recorder instruction as reported by older adult novice musicians," Prof. Philip Edelman
  12. Catherine Tufts, chemistry, "The Synthesis and Application of Chiral Phosphate Mimics," Prof. Matthew Brichacek

## 2017-2018 Maine Space Grant Consortium (MSGC) Student Fellowships

The University of Maine's Center for Undergraduate Research (CUGR) is pleased to announce the 2017-2018 Graduate and Undergraduate Maine Space Grant Consortium (MSGC) Student Fellowships. During the 2017-2018 academic year 10 undergraduate student projects and 6 graduate students were selected for funding through the MSGC. The purpose of the MSGC fellowship and scholarship programs at UMaine is to provide research opportunities to undergraduate and graduate students in Aerospace Technology, SpaceScience, Earth Science, Human Exploration/Space Development, and other science- or engineering-related fields.

The focus of the funded projects must be aligned with the research priorities of NASA's Earth and space science strategic enterprises. The selected graduate students were awarded \$6,000 each and the selected undergraduate projects were awarded \$1,000 each.

### MSGC Graduate Fellowship Awards

(Student Name, Academic Program, Faculty Mentor)

1. Alison Chase, Ph.D. in Oceanography, Prof. Emmanuel Boss
2. Matthew Moyet, Ph.D. in Ecology and Environmental Sciences, Prof. Howard Patterson
3. Francis Barnes, Ph.D. in Chemistry, Prof. Howard Patterson
4. Aaron Nicholas, Ph.D. in Chemistry, Prof. Howard Patterson
5. Robert Morefield, master's degree in Zoology, Prof. Heather Hamlin
6. Adrienne Lovuolo, master's degree in Civil and Environmental Engineering, Prof. Shaleen Jain



### MSGC Undergraduate Fellowship Awards

(Student Name, Academic Focus, Project Title, Faculty Mentor)

1. Daniel Adams, Chemistry, Detection of Hazard Chemicals using Novel Mixed Copper-Lead Nanoparticles. Applications of Vapochromic Sensing Behavior, Prof. Howard Patterson
2. Samuel Borer, Physics, Measuring the Cross Section of Charge Current Quasi-Elastic Neutral Hyperons in ArgoNeuT, Prof. Saima Farooq
3. Chayton Boucher, Chemistry, Determination of Catalyst Mechanism Using NMR Spectroscopy, Prof. Brian Frederick
4. Rebeka Bullard, Biology, Enhancement of Metallophilic Copper(I)-Platinum(II) Emission by Cationic Substitution in Solid Crystals, Prof. Howard Patterson
5. Jason Alexander Dignan, New Media, Huskeh Tech - Mobile Makerspace, Prof. Gene Felice
6. Emma Lueders, Chemistry, Synthesis of Copper-doped Bismuth Oxyhalide for Photocatalysis of Harmful Herbicides, Prof. Howard Patterson
7. Andrew Nolan, Earth and Climate Sciences, Surge Glacier Dynamics of Turner Glacier, St. Elias Mountains, Alaska, Since 1984, Prof. Karl Kreutz
8. Stanley Small, Computer Science, Counting Peaks in Ice-Core Data, Prof. Sudarshan Chawathe
9. Ryan Warner, Chemistry, Photocatalytic Gas-to-Liquid Processing, Prof. Howard Patterson
10. Abigail Weigang, Bioengineering, Selective surface modification of paper substrates for controlled-adhesion diagnostic devices, Prof. Caitlin Howell

# NSF 2018 SUMMER UNDERGRADUATE RESEARCH FELLOWSHIPS

## *Sensor Science and Engineering*

Electrical and Computer Engineering Department  
Laboratory for Surface Science and Technology  
University of Maine

Highly qualified undergraduate students will participate in fundamental and applied sensor research under the guidance of various faculty in the area of sensor science and engineering. They will interact with faculty members, research scientists, and graduate students for guidance and consultation throughout the 10-week period. At the completion of the program, students will write a final report and give an oral seminar. This program is sponsored by the National Science Foundation, and awards the participating student an \$8,000 stipend. A subsistence award which will help defray expenses for lodging and meals is available for eligible students. Six undergraduate credits may be awarded to the students for their undergraduate research participation. Women, minorities and/or handicapped are strongly encouraged to apply .



### Eligibility

- U.S. citizen or permanent resident
- Current 1st, 2nd or 3rd year undergraduates



### Program Details

- 10 Week Program: June 4 - August 10, 2018
- **Apply Online:** [https://ece.umaine.edu/research/reu\\_sensors/](https://ece.umaine.edu/research/reu_sensors/)
- **Application Deadline: January 31, 2018**

### Possible Research Areas Include

- Nanoscale Materials for Sensors
- Piezoelectric Sensors
- Microelectromechanical Systems (MEMS), Nano Sensors
- Biological and Environmental Applications
- Biological and Chemical Sensors
- Wireless Sensor Networks
- Big Data: Sensor Data Fusion



#### **Contact Information:**

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## NSF REU SITE: SUMMER ENGINEERING RESEARCH EXPERIENCES IN TRANSPORTATION ELECTRIFICATION

The Electrical and Computer Engineering Department in collaboration with the University of Maryland Energy Research Center and the Institute for Systems Research offer undergraduate students an exceptional opportunity to participate in pioneering research on Transportation Electrification with faculty mentors from University of Maryland at College Park (UMCP). This Research Experiences for Undergraduates (REU) program is funded by the National Science Foundation (NSF).

### CUTTING EDGE, TEAM-BASED RESEARCH ELECTRICAL & COMPUTER ENGINEERING UNIVERSITY OF MARYLAND COLLEGE PARK SUMMER 2018: JUNE 4 - AUGUST 10

#### Program Highlights:

- \$5,000 stipend, room and board, and travel allowance.
- Tours of local industries and laboratories in Baltimore/Washington DC metropolitan area.
- Inspirational technical and professional development seminars.
- One-on-one training and mentoring by UMCP faculty members.
- Opportunities to publish and present research outcomes.
- Build a strong collegial community between participant undergraduate students, graduate student mentors, and involved faculty.

**Program Dates:** June 4, 2018 - August 10, 2018

**Application deadline:** **March 1st, 2018**

For more information: <http://reu.ece.umd.edu/>

Please apply through the A. James Clark School of Engineering REU Summer 2018 application at:  
<http://www.eng.umd.edu/html/survey/reu-engr>

## Did You Know?

### HIGH PERFORMANCE COMPUTATIONAL (HPC) RESOURCES



The **Advanced Computing Group (ACG)** is a part of the University of Maine System. *It focuses on the needs of researchers and educators across the State of Maine in terms of computational resources and support.* It provides computational and storage resources in the form of High Performance Computing (HPC), Local Cloud services, and a variety of storage solutions. It also provides services that help streamline grant proposal writing, collaborating, and data archiving. All ACG data is stored in redundant arrays of disks in a physically secure facility with redundant power on the Orono campus. All data is backed up nightly to Portland for disaster recovery. The High Performance Computational (HPC) resources, allows researchers to utilize hundreds of processing cores simultaneously, either utilizing traditional CPU resources or GPU resources. As of 2017 the resource is

approximately 4000 processing cores and growing. It can also support several thousand simultaneous virtual machines in its local cloud. These virtual machines can be accessed remotely as one would a physical machine, but can be instantiated on any hardware and is not tied to one particular computer. They can be easily snap-shotted, and archived as well. The ACG has a fee structure that allows it to bill grants and contracts for computational services, but urges interested faculty to contact the ACG regardless of ability to pay.

For more information visit <https://acg.umaine.edu/>

Become a **UMAINE RESEARCH** Scholar!



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