



ORONO, MAINE • AY2015–16 • FALL 2015–16

Important dates

| Program | Dates |
|--|--|
| 2015–16 Academic fellowship CFP submission | Oct. 16, 2015, 4 p.m. (EST) (Firm deadline) |
| 2015–16 Academic fellowship recipient announcement | Oct. 30, 2015 |
| 2015–16 Academic fellowship performance period | Nov. 1, 2015–May 1, 2016 |
| 2016 Annual showcase abstract submission | March 3, 2016, 4 p.m. (EST) (Firm deadline) |
| 2016 Showcase acceptance notifications | March 21, 2016 |
| 2016 Summer fellowship proposals submissions | March 25, 2016, 4 p.m. (EST) (Firm deadline) |
| 2016 Annual showcase | April 2016, TBA |

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2015–16 Undergraduate Research and Creative Activities Academic Fellowships

The Center for Undergraduate Research is pleased to announce the Undergraduate Research and Creative Activities Academic Fellowship ‘Call for Proposals’. Previously known as the Undergraduate Research and Creative Activities Fall Fellowship, this program was designed to support undergraduate student involvement in faculty supervised research. An undetermined amount of \$1000 Fellowships will be awarded for the 2015–16 academic 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.

Call for Proposals

Deadline:

Oct. 16, 2015, 4 p.m. (EST)

To apply: cugr.umaine.edu

**Academic Fellowship
Call for Proposals online link:**
goo.gl/forms/U7YZHrGWbN

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 2016.
2. Applicants need to describe the research, placing it in the context of scholarly activities, while presenting it in such a way that it is understandable to the reviewers from outside of the applicant's field.
3. Recipients must submit a report including technical and financial data by May 1, 2016 and are expected to present the product of their research at the Seventh Annual CUGR Showcase in April 2016.

RCR workshop

Important: Undergraduate students participating in CUGR Fellowship sponsored research are required to be trained in the *Responsible Conduct of Research*. In addition, undergraduate students participating in NSF, NIH and USDA-NIFA sponsored research are required to be trained.

Information regarding training for the Fall semester can be found at the ORSP News & Updates, umaine.edu/orsp/welcome/news. The workshop date is yet to be determined.

Pre-registration is required and students must be accompanied by a mentor (one per five students). Email sponsored@umit.maine.edu.

Direct questions to Amanda Ashe on FirstClass or call 207.581.1480. ■

Notice: Office location change

The Center for Undergraduate Research Office has moved. CUGR is now located in Crossland Hall, Room 207. Office hours are Monday–Friday, 8 a.m.–2:30 p.m. Feel free to stop by to address any questions or concerns you may have or even just to check us out. ■

Contact information:

207.581.3583 • CUGR@maine.edu • CUGR.umaine.edu

Responsible and Ethical Conduct of Research

The National Institutes of Health (NIH) define “Responsible and Ethical Conduct of Research” (RCR) as, “the practice of scientific investigation with integrity ... [involving] the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research.”

RCR Shared values

- **Honesty:** Conveying information truthfully and honoring commitments,
- **Accuracy:** Reporting findings precisely and taking care to avoid errors,
- **Efficiency:** Using resources wisely and avoiding waste, and
- **Objectivity:** Letting the facts speak for themselves; avoiding improper bias.

For more information: umaine.edu/orsp/compliance/responsible-conduct-of-research

CUGR announces summer fellowship recipients

2015 Summer Fellowship Recipients. Five students were awarded a \$3,000 Summer Research and Creative Academic Achievements Fellowship:

- **Spencer Desrochers of Biddeford, Maine**, “Optimizing Power Usage of Modern Computing Systems;” adviser: Vincent Weaver, electrical and computer engineering

- **Ailish Foley of Montville, Maine**, “The Effects of Collection Time, Auxin Concentration, and Wounding on Root Formation of Softwood and Semi-Hardwood Cuttings of *Rhododendron Canadense*,” adviser: Bryan Peterson, School of Food and Agriculture
- **Zachary Mason of Wells, Maine**, “Increasing Resolution of Tropical Last Glacial Maximum Record with Cosmogenic Surface Exposure-Dating,” Brenda Hall, Earth and Climate Sciences

- **Scott Mitchell of Haymarket, Virginia**, “Use of FAME Profiling to Detect Differences in Microbial Activity in Compost from Horses Treated with and without Antibiotics,” adviser: Robert Causey, School of Food and Agriculture
- **Jessica Moore of Bangor, Maine**, “Investigating a Link Between Inflammation and Invasive Candidiasis,” adviser: Robert Wheeler, molecular and biomedical sciences ■



CUGR Newsletter is published by the Center for Undergraduate Research.

Students, faculty and alumni are encouraged to submit information by contacting Alexandria Jesiolowski, 581.3583, CUGR@maine.edu.

Visit us online at cugr.umaine.edu

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150
Celebrating years

2015 Center for Undergraduate Research Showcase

Wells Conference Center hosted the Center for Undergraduate Research's Sixth Annual Research and Creative Activities Showcase on April 14. The showcase featured 229 University of Maine undergraduate students and their research across various disciplines. The showcase presented awards to those with the best exhibits, posters, and oral presentations. Summer fellowship awards were also presented.

Showcase Sponsors:

We would like to say thank you to the 2015 Showcase Sponsors. Last years event was sponsored by the Office of the Vice President for Research, UMaine Printing Services, the Department of Sociology, and the Orono Pharmacy/Layla's Bazaar.

2015 Showcase Award Winners:

(1st place: \$200, 2nd Place: \$150, 3rd Place: \$100)

1st Place Exhibit Award: Samuel Gates, Meghan Hurlburt, Advisor: Nicholas Giudice, School of Computing, Multi-Tag Radio Frequency Indication for use in Indoor Positional Tracking Systems.

1st Place Poster Awards: Eliza Kane, Advisor: Alice Kelley , Earth Science , The Geochemistry and Historical Ecology of a Burnt Mississippian House at the Lawrenz Gun Club Site in the Central Illinois River Valley.

2nd Place Poster Awards: Kai Hermansen, Abbie Gray, Evan Nadeau, Viktoria Staples, Roger Brasslett , Advisor: Elizabeth Bicknell, School of Nursing , Exercise Education at Brewer High School Health Class

3rd Place Poster Awards: Jacob Posik, Cameron Marcotte, Jacob Hatch, Harold Trey Stewart III, Adam Thibodeau, Robert Glover, Political Science, Confronting The Challenges of Studentification in Residential Orono Neighborhoods

1st Place Oral Presentation Awards: Danielle Walczak, Advisor: Melissa Ladenheim, Honors College, Forward, Not Back: Young people's search for farming and community in Maine

2nd Place Oral Presentation Awards: Vincent Digiovanni, Advisor: Matthew Brichacek, Chemistry, Chemical degradation and functionalization of Acarbose for the creation and study of novel alpha amylase inhibitors related to the Acarviostatin family of natural products ■

“It did not hit me how excited I would be about presenting my work at the showcase until I was walking towards the podium to give my presentation. It was fantastic and has made me look forward to my defense on April 29.”

– Josh Deakin '15, business

2015 showcase statistics

The CUGR Annual Showcase is open to any UG at the University of Maine and features presentations in the form of posters, oral presentations, and exhibits. Judges, who consist of faculty, graduate students, and community leaders, visit each randomly pre-assigned project and score them based on presentation quality, project quality, subject knowledgeability, etc. Awards are given to the top scoring presentation from each of the three presentation styles.

| | Student presentations | Faculty mentors | Total participants |
|------|-----------------------|-----------------|--------------------|
| 2010 | 68 | 40 | 108 |
| 2011 | 84 | 59 | 143 |
| 2012 | 118 | 87 | 205 |
| 2013 | 117 | 71 | 188 |
| 2014 | 150 | 69 | 219 |
| 2015 | 229 | 79 | 302 |

2015 Total Judges: 40

2015 Total Projects: 121

2015 Distribution by Type:

Posters: 92

Exhibits: 13

Oral Presentations: 16

“Every year this event sees more and more interest from students. This event gives students the opportunity to showcase their work and learn discipline through hands-on research, which makes them more attractive to employers. This is very much like a professional conference”

– CUGR Director, Dr. Ali Abedi



Contact us

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View CUGR news releases:

2015 Showcase and Summer Fellowship Award winners:

umaine.edu/news/blog/2015/04/21/2015-undergraduate-research-and-academic-showcase-winners

The Maine Edge:

umaine.edu/news/blog/2015/04/28/maine-edge-reports-on-undergraduate-research-and-academic-showcase-winners

Links to:

Fellowship CFP, 2015–16

Academic Fellowship CFP:

goo.gl/forms/U7YZHrGWbN

Travel Grant Application, UG Student Travel Grant

Application:

goo.gl/forms/s4odS64HBW

Showcase and Summer

Fellowship Award Recipients:

umaine.edu/news/blog/2015/04/21/2015-undergraduate-research-and-academic-showcase-winners

The Maine Edge:

umaine.edu/news/blog/2015/04/28/maine-edge-reports-on-undergraduate-research-and-academic-showcase-winners

CUR Biology Divisions

Travel Grant:

cur.org/governance/divisions/biology_student_travel_awards

2015 Travel Grant,

Gerald A. Soffen Memorial Fund:

SoffenFund.org

New: CUGR UG Student Travel Grants Program

CUGR is pleased to introduce a new program designed to help UG students travel to conferences and other venues of symposiums to present their research. This program is intended to help UG students gain skills aimed at professionalism and receive recognition for their hard work.

Undergraduate students who are enrolled at a degree program at UMaine and conducting faculty-mentored research are eligible to apply for this travel grant to present their research results at technical conferences or professional meetings. The review process is on a rolling basis and priority will be given to students who have presented at CUGR showcase. Anticipated award amount is \$300–500 per student.

Link to apply: goo.gl/forms/oROHnqXQwb

2015 Travel Grant: Gerald A. Soffen Memorial Fund

The Gerald A. Soffen Memorial Fund is pleased to announce the final 2015 Travel Grant application opportunity for undergraduate and graduate students pursuing studies in fields of space science and engineering.

The Travel Grants, in the amount of \$500, enable student recipients to attend professional meetings to present their research. The Fall 2015 Travel Grant application deadline is Oct. 1, 2015. Jerry Soffen, a biologist by training, led a distinguished career in NASA, including serving as the Project Scientist for Viking and as an architect for the NASA Astrobiology Institute. The Travel Grant continues Jerry's dedication to educating and involving future generations in space science and engineering pursuits.

The electronic application materials and instructions are located on the Soffen Fund website: SoffenFund.org

Questions regarding the application or application process may be sent to info@SoffenFund.org ■

CUR Biology Division travel awards

The Biology Division of the Council on Undergraduate Research (CUR) is offering a limited number of travel grants, up to \$250 each, for undergraduate students presenting original biological research results at a regional or national, discipline-specific meeting* during the fiscal year 2015–16.

Visit cur.org/governance/divisions/biology_student_travel_awards for more information and for a nomination application. ■

CUGR Internship Opportunities available!

Details can be found on the UMaine Career Center, CUGR.UMAINE.EDU, as well as the CUGR Facebook page.

How to Apply:

Please send your resume and qualifications to CUGR@maine.edu. CUGR will contact you to schedule an interview upon receipt. ■

Announcements of new Advisory Committee members

CUGR would like to welcome back Mimi Killinger, a previous Advisory Committee member who has returned from sabbatical and Nathan Stormer, the newest member of the committee.

Ali Abedi

Director, CUGR
Professor of Electrical and Computer Engineering

Alexandria Jesiolowski

Administrative Specialist
Email: CUGR@maine.edu

The Center for Undergraduate Research (CUGR) is located at 207 Crossland Hall on the UMaine campus in Orono. Please feel free to contact us with questions regarding CUGR.

Advisory Committee:

- Francois Amar, Dean, Honors College
- Mike Kinnison, Professor of Evolutionary Applications
- Timothy Cole, Associate Dean for

Academic and Student Services, CLAS

- Mimi Killinger, Associate Professor for Honors College, Rezendes Preceptor for the Arts
- Sara Lindsay, Associate Professor of Marine Sciences
- Sid Mitchell, Associate Professor of Education and Human Development
- Jeffrey St. John, Associate Provost for Academic Affairs
- Nathan Stormer, Chair, Communication and Journalism, Professor of Speech and Theatre
- Roberto Lopez-Anido, Professor of Civil Engineering
- Ebru Ulusoy, Assistant Professor of Marketing
- Karl Kreutz, Professor of Earth and Climate Sciences
- Stuart Marrs, Professor of Music
- Patricia Poirier, Associate Professor of Nursing ■

CUGR Student Stories

Julia Sell (Class of 2015) is a multiple CUGR Award recipient.

- NSF REU Site participant
- National Science Foundation Graduate Research Fellowship
- Multiple CLAS Fellowships
- Bath Iron Works Scholarships
- 2015 Edith Patch Award



Sell is a physics major, honors student and UG researcher at the Laboratory for Surface Science and Technology. She studied the structural and electrical stability of Pt-ZrB₂ nanolaminate thin films at temperatures above 1800 degrees F. The films have potential use as electrical contacts in a new generation of microelectronics that enhance the reliability and safety of high-temperature machinery, such as jet engines and industrial power plants. ■

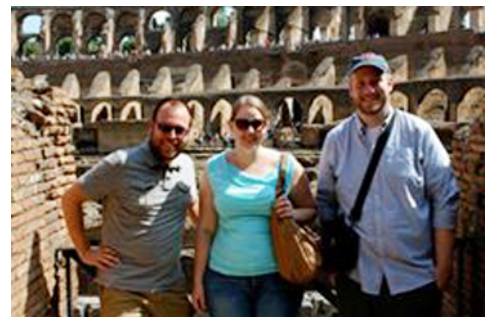
CUGR Student Stories

Gwendolyn Beacham, is a multiple CUGR Award recipient.

- UMaine Class of 2015 Valedictorian
- Barry Goldwater Scholarship, a national award given to rising undergraduate juniors and seniors in the STEM fields
- George J. Mitchell Peace Scholarship to study abroad in spring 2014 at University College Cork in Ireland
- National Science Foundation Graduate Research Fellowship
- National Phage Genomics Program, Howard Hughes Medical Institute
- Interned at the Boyce Thompson Institute for Plant Research, an affiliate of Cornell University
- Interned Mount Desert Island Biological Laboratory



Beacham's CUGR research focused on mycobacteriophages, which are viruses that infect bacteria of the genus Mycobacterium. In collaboration with Assistant Research Professor Sally Molloy, Beacham studied a particular phage named Ukulele that was isolated at UMaine in the Phage Genomics course Beacham took in her first year. Beacham's project focused on identifying which genes encode the proteins that are involved in regulating Ukulele's life cycles. Through internship opportunities her work expanded to focus on commercial algae biofuel production, and cilia differentiation in sea urchin and sand dollar embryos. ■



From left: Jordan LaBouff, Megan Dunphy, Robert Glover

Megan Dunphy (Class of 2015) worked on a project with UMaine Faculty, Robert Glover and Jordan LaBouff on attitudes towards immigration policies. Megan presented that work at the International Association for Political Psychology in Rome, Italy in the summer of 2014. ■



cugr.umaine.edu

2015 CUGR Summer Fellowship Experience

By Spencer Desrochers (Class of 2017), Electrical and computer engineering

My research project in a nutshell was to work on power measurement of computers. I worked with two desktops measuring their power from hardware and software. I worked with Intel's Running Average Power Limit software along with Nvidia's SMI software. They both allow measurements to be taken using software that takes into account system activity that it uses to predict power measurement. There are some papers that validate RAPL, but they are quite simple and not in depth. They also are missing integrated graphics processor measurements and DRAM measurements. My goal was to fully validate Intel's RAPL and Nvidia's SMI. The results helped build a background with which the next proposal will hopefully finish gathering results.

I became interested in undergraduate research because it was recommended by my advisor so that I could gain hands on experience. When I met with the Professor Weaver, I was impressed by his research and the flexible hours. It is the



perfect way to get your foot in the door so that you can use your summers wisely instead of working at a normal summer job that does not give you experience in your field.

I recommend taking the time to make a proposal. Talk to your advisor or a professor you might want to work with and they are very likely to point you in the right direction if they do not have any work for you. Take the effort to write a nice proposal and don't be shy to submit your proposal.

I am going to continue with schooling and I am currently unsure what I will be doing next summer. I definitely enjoyed this summer, but I may try to get an internship next year since I now have more experience and will have many more engineering classes under my belt.

CUGR has really changed my undergraduate experience by giving me an idea of what I want to do. I now know that I love my major, and that is a huge thing. UMaine is a great school, but CUGR really enhanced my experience by making me feel like an asset to the school. I was able to contribute to the school instead of the school just teaching me. I

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think CUGR is almost an essential part of UMaine.

Working with a professor gave me a sense of direction. Whenever I was stuck or confused, I was able to have my questions answered. Also, he gave me ideas of what to look into. Sometimes I would think of something and he would help me implement it. Most importantly though, having a mentor made it much easier to just try things. In a job, it is a lot less imaginative and I am unable to really go in my own direction like I was with this research. It definitely made me want to get a master's degree at some point in my life. ■