



# Undergraduate Research Fellows

## 2018-2019

A SURVEY OF OUR FELLOWS' ACHIEVEMENTS

IN THIS ISSUE

## Our Fellows: A Snapshot

There were 94 active URFs on campus for the 2018-2019 school year. We have URFs from every college at USU!

There were 22 major or minor changes this year, with many of you taking on more than one major at once.

- 3 majors were changed
- 1 minor was changed
- 4 majors were added
- 12 minors were added
- 4 majors were dropped
- 3 minors were dropped

We will have 100 active URFs on campus for the 2019-2020 school year, covering 144 majors and 60 minors.

Our most popular majors are Biological Engineering, Mechanical Engineering, and Biology. Our most popular minors are Computer Science, Chemistry, and Spanish.

Research was done on a variety of topics and many of the URFs presented at conferences all over the United States, ranging from university led (such as the Student Research Symposium or Hansen Life Science Retreat) to nationally organized (such as Posters on the Hill).



Finally, congratulations to the 25 of you that graduated this May! We celebrated those students as well as the end of another strong year in our final dinner at Crumb Brothers Artisanal Bread. Best wishes to our graduates:

*Agriculture & Applied Sciences:* Kyleigh Tyler, Anisa Samhoury, Michaela Brubaker, Jessica Christensen • *Engineering:* Robert McKay, Colton Lindstrom, Frost Mitchell, & Paden Thompson • *Humanities & Social Sciences:* Hannah Penner, Rachael Gulbrandsen, Mary Briggs Ott, & Morgan Sanford • *Science:* Abigail Longaker, Matthew Thompson, Johnny Hansen, Brennan McEwan, & Christian Peterson • *Education & Human Services:* Laura Delgado & Isabella Stuart • *Business:* Brayden O'Brien, Hayden Hubbard, & Zackry Dougher • *Natural Resources:* Anders Hart, Rylee Jensen, & Casey Trout.

### Publications

Publishing as an undergraduate student is no easy feat. Three fellows published works just this year!

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### Presentation Opportunities

Presenting your research is a critical component of both academia and the professional world. This year, fellows presented throughout the US!

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### Accomplishments

This year, the fellows won a variety of awards, grants, and honors. Check out some of our impressive student researchers!

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### Adventures

When you are not in the library studying or in the lab, you are out in the world doing spectacular things, from internships to summer research.

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# Publications

Publishing your research is an impressive accomplishment as an undergraduate student. This year, we had three fellows who had their work published!

Erin Butikofer, a junior fellow in the Wildland Resources Department, published an article entitled [Wildlife damage to crops: Perceptions of agricultural and wildlife leaders in 1957, 1987, and 2017](#) in the Wildlife Society Bulletin. Her research was on the perceptions of various wildlife leaders and how they view the impact of different wildlife species on agriculture.

Bailey McFarland, a junior fellow in Biological Engineering, published his work through ACS Omega. His publication was entitled [Silkworms with Spider Silklike Fibers Using Synthetic Silkworm Chow Containing Calcium Lignosulfonate, Carbon Nanotubes, and Graphene](#). His research focused on the effect of fortified silkworm chow on the consistency of spider silklike fiber quality.



Third, congratulations to Morgan Sanford, whose essay [Chascona](#) was accepted and published in the Evansville Review. This is an award-winning journal that includes a variety of literary works by emerging and successful writers.

All three of these fellows should be congratulated, as publishing their work is no small feat!

## PUBLICATION GOALS

Some disciplines encourage undergraduate publishing, while others offer fewer opportunities to do so. However, there are a number of journals that focus on undergraduate work across disciplines, so this is an achievable goal for all! Look through the website below to find a good fit for your research.

COUNCIL ON UNDERGRADUATE RESEARCH  
[https://www.cur.org/resources/students/undergraduate\\_journals/](https://www.cur.org/resources/students/undergraduate_journals/)



*Pictured here is Michaela Brubaker (ADVS), presenting her research at the USU Fall Student Research Symposium.*

*As fellow Hannah Penner (International Studies) said, "Find something you are passionate about. Don't feel like you need to research what the field 'demands' or what 'looks shiny' on paper."*

# Putting in the Hours

We asked you to estimate how many hours you put into your research per week. We can use this information to estimate the range of time commitments that incoming fellows' research may require of them, from looking at averages by year in the program to discipline- and even mentor-specific averages!

**Impressively, your cohort has reported an estimated 7 hours on research per week!**

- \*53 of you worked for a professor on their research
- \*38 of you worked on your own projects
- \*18 of you applied for research funding
- \*23 of you presented your research

You're also students, first and foremost. Your average spring semester GPA was 3.81, bringing your average cumulative GPA to 3.86!

That's impressive! Here is some wisdom from fellow Rylee Jensen:

*"You'll never learn new things and grow if you don't challenge yourself and try things outside of your comfort zone."*

Another piece of advice comes from Paden Thompson, who says:

*"When you have momentum on a project, keep at it!"*

PRESENTATION EVENTS



**FSRS**

The FSRS is a great opportunity for fellows that are graduating in December—it's one of the only fall presenting opportunity, and includes both oral and poster presentations across disciplines. Pictured here is Tucker Gamble, explaining his own research poster to a graduate student judge.



**ROCH**

This unique event is held early each spring and gives students from USU and the University of Utah an opportunity to speak directly to Utah lawmakers about their research and the impact that doing research has on undergraduate education. The event occurs each spring legislative session, and is open to the public. Here, the entire group of presenters stand with USU's president, a vice president from the U, and the governor of Utah.



**SRS**

This yearly event showcases all of the amazing research occurring on USU campus each year. All who apply are accepted to talk about their work, in poster or oral presentations. This year, Brennan McEwan (pictured) won the best undergraduate poster in Life Sciences at the SRS.

# Presentations at USU and Beyond

We have a lot of exciting presentation opportunities each year at USU. As URFs, you have the advantage of finding out about these deadlines and getting involved early enough in your undergraduate careers to take advantage of as many events as you want to. Many of you have done just that!

## Fall Student Research Symposium

This year, fellows Michaela Brubaker (ADVS), Jessica Christensen (ADVS), and Taya Godfrey (Sociology) presented their research to an audience of about 100 people.

## Utah Conference of Undergraduate Research

UCUR is hosted by a different Utah institute each year. In February, USU took a team of researchers to Weber State University to present to over 700 people. This team includes fellows Erin Butikofer (Wildlife Ecology and Management), Casey Trout (Statistics), Ethan Hammer (Wildlife Ecology and Management), Marin Easton (Dietetics), Matt Armbrust (Biological Engineering), Anisa Samhoury (Animal and Dairy Science), Kyleigh Tyler (Bioveterinary Science), Carlos Gutierrez (Political Science), and Rachel Sagers (Public Health). USU will host UCUR next year, and we hope you will present!

## Research on Capitol Hill

With only 25 posters selected, ROCH is a competitive opportunity for students to share their research at the Utah Capitol building. This year's team included Matthew Armbrust (Biological Engineering), Michaela Brubaker (ADVS), Haylee Downey (Psychology), Tucker Gamble (Human Movement Science), Taya Godfrey (Sociology), Ethan Hammer (Wildlife Ecology and Management), Hannah Penner (International Studies), Casey Trout (Statistics), and Kyleigh Tyler (Bioveterinary Science).

## National Conference of Undergraduate Research

NCUR is hosted by a different institution throughout the US each year; this year, we sent representatives from USU to the Kennesaw State University to showcase our best researchers. Fellows Kyleigh Tyler (Bioveterinary Science), Rachel Sagers (Public Health), Marin Easton (Dietetics), Michaela Brubaker (ADVS), and Matthew Armbrust (Biological Engineering) presented their work there.

## Student Research Symposium

Many of our fellows presented their research at USU's annual Student Research Symposium this year. This symposium allows students to showcase their research in a low-stress environment, providing a great opportunity to practice for larger, or maybe even professional conferences. Faculty and graduate students provide feedback on all aspects of undergrad presentations.

This year, presenters included fellows Michaela Brubaker (ADVS), Melissa Tinsley (Art), Kallen Brunson (International Studies), Anders Hart (Ecology), Bryce Frederickson (Maths), Melissa Rasmussen (Physics), Taylor Edwards (Biology), Sierra Julander (Biological Engineering), Brennan McEwan (Biology), Tucker Gamble (Human Movement Science), Gianna Patchett (Music), Anisa Rose Samhoury, Mary Briggs-Ott (Sociology), and Rachael Gulbrandsen (Sociology).

## Hansen Life Sciences Retreat

The Hansen Life Sciences Retreat is a collaborative event between several USU departments and is invitation-only for undergraduates. Fellows Matthew Armbrust (Biological Engineering), pictured, and Michaela Brubaker (ADVS) presented there!



## Other Opportunities

There are countless opportunities to present your research as an undergraduate. Many URFs took advantage of this and presented in a variety of conferences, meetings, lab groups, and more.

# Funding, Research, and Other Accomplishments

Once again, this year we have a very accomplished group of Undergraduate Research Fellows. There are many ways that these accomplishments can be showcased and enhanced. Get in contact with our office if any of these awards and grants interest you! We can point you in the right direction, provide feedback on application materials, and offer you emotional support.

## STUDENT SPOTLIGHT

Andrew J. Walters

AJ Walters (Biological Engineering) presented at Posters on the Hill, a prestigious and highly competitive honor in Washington, DC. He shared his poster [Characterization and Genetic Engineering of Bacteria for the Production of Fixed Nitrogen Fertilizers on Mars](#).

Congratulations, AJ, on this impressive accomplishment!

## Undergraduate Research and Creative Opportunities Grant

This URCO grant provides competitive funding for undergraduate student research. This year, nine URF projects were funded: Rachel Gulbrandsen (Sociology), Ethan Hammer (Wildlife Ecology and Management), Brennan McEwan (Biology), Bailey McFarland (Biological Engineering), Devan Kunzler (Biological Engineering), Casey Trout (Statistics), Tucker Gamble (Human Movement Science), Lexi Phillips (Biology), and Haylee Downey (Psychology). Each project will be funded for about a year, at which point they will report and present their findings.



## Undergraduate Transcript Designations

This transcript designation signifies extensive involvement in undergraduate research. To earn this title, students must complete two semesters of research under faculty supervision and present at a conference. This is within reach for all of you as URFs! Fellows are automatically considered after submitting their reports each semester and earn the designation as soon as they qualify. This year we had 14 URFs formally recognized as Undergraduate Research Scholars!

## Undergraduate Research Travel Award

The Office of Undergraduate Research helps to partially fund travel associated with disseminating undergraduates' research in professional conferences regionally, nationally, and internationally. This year, 18 URFs won an Undergraduate Research Travel Award. These fellows travelled all around the United States to present their findings.

*Ethan Hammer (Wildlife Ecology & Management) as seen from a wildlife camera trap. Ethan conducted research in the Cedar Breaks National Monument, monitoring and creating an inventory of wildlife, and he was able to identify five previously unconfirmed species in the area last summer! Ethan will continue his work at the Monument this year.*

*"Don't be afraid to explore and get creative with your research!" –Esther Davis (Mechanical Engineering)*

## Peak Summer Research Fellowship

The Peak Summer Research Fellowship is a new opportunity that is funded by David and Terry Peak for those highly engaged and motivated researchers within either the College of Science or the College of Humanities and Social Sciences. Fellows AJ Walters and Taya Godfrey were accepted to be a part of this program for the 2019 summer. We wish them luck with their research endeavors as they complete intensive 10-week research projects.

## Undergraduate Researchers of the Year 2019

The Undergraduate Researcher of the Year Award began in 2004 and is currently endowed by David and Terry Peak. One student from each college is chosen every year. This year, three fellows were awarded this honor. Bryce was also chosen as the university-wide winner of Undergraduate Researcher of the Year, which is an impressive accomplishment!



Rachel Gulbrandsen from the College of Humanities and Social Sciences graduated in Sociology this May.



Rylee Jensen from the College of Natural Resources graduated in Wildlife Ecology & Management, also this May.



Bryce Frederickson is a junior from the College of Science and is majoring in Mathematics.

## STUDENT SPOTLIGHT

[Bryce Frederickson and Ethan Hammer](#)



The Barry Goldwater Scholarship and Excellence in Education Foundation recognizes exceptional sophomores and juniors throughout the United States that are pursuing research careers in STEM fields. Becoming a Goldwater Scholar a very prestigious and highly competitive distinction, as less than 300 are chosen nationally each year. Congratulations to fellows Bryce Frederickson (Mathematics) and Ethan Hammer (Wildlife Ecology and Management) who were chosen to receive this honor!

# URF Adventures

URFs aren't just researchers. You spend your summers hiking, serving, learning, getting married, and going on amazing trips just like regular people! One thing we love about this program is how different you all are, and how you strengthen the fellowship as a whole through that diversity. One common trait, though, is how involved and driven you are! Take a look at some of your peers' upcoming summer activities.

## Travel

Katie Miner: Spontaneous art & museum trip to Spain

Matt Armbrust: Yearly family vacation in Idaho

Erin Butikofer: Research trip to Belize

Michaela Brubaker: A month of hiking, backpacking, and camping

Marin Easton: Study Abroad trip to Thailand

Brennan McEwan: Pre-grad-school trip to China

Gianna Patchett: Family visit in Pennsylvania

Taya Godfrey: Humanitarian trip to Ecuador

Cambry Dickson: Humanitarian trip to marine conservation center in San Bartolo, Peru

Rylee Jensen: Post-graduation safari in Masai Mara, Kenya

Tucker Gamble: Harry Potter World (FL) and a cruise to the Bahamas

Kenen Goodwin: Study Abroad trip to Heron Island, Australia to learn about coral reefs



## Internships

Weston Craig: Sandia National Labs, Albuquerque, NM

Paul Consalvo: Utah Department of Transportation Data Analysis, SLC

Katie Miner: Working with the RNC in Washington, DC

Haylee Downey: Publications Intern for the USU Center for Student Analytics

Esther Davis: Website Design Intern with USU Extension Sustainability

Hannah Penner: Global Support and Acquisitions Intern with the Church of Jesus Christ of Latter Day Saints Historical Library

Michaela Brubaker: Best Friends Animal Society, Kanab, UT

Annika Burkhardt: Berkshire Botanical Garden and Naumkeag Estate, Stockbridge, MA

Savannah Daines: NordicTrack Product Development at ICON

Hannah Johnson: USGS Plant/Soil Intern, Moab, UT

Emily Rice: Working on an independent project on theatre revenue in Sandy City

Ethan Hammer: Collecting bighorn sheep disease data in Nevada

Rylee Jensen: Surveying Idaho for grey wolves

Kenen Goodwin: US Geological Survey for sensitive frog species in Oregon

Anders Hart: Natural resources management for Utah National Guard

Jake Gottschalk: US Fish & Wildlife research in either Hawaii or Alaska

Marissa Rasmussen: Assistant software engineer at the Space Dynamics Lab

## Other

Alek Nelson: Writing for the Statesman

DC Harrell: National Science Foundation REU

Bryce Frederickson: NSF REU

Katherine Van Wagoner: Working at Brighton Girls Camp

Sarah Waddoups: Ran the Boston Marathon

# 2018/19 URF Ambassadors



Paul Consalvo (Civil Engineering)



Kyleigh Tyler (ADVS)



Rachel Gulbrandsen (Sociology)



Ethan Hammer (WILD)



Hayden Hubbard (Economics)



Nicole Kearl (Nursing)



Katie Miner (Political Science)



Aleksander Nelson (Journalism)



Rachel Sagers (Biology)



Kenen Goodwin (WATS, WILD)



Fiona van Leewen (Chemistry)



AJ Walters (BE)

## Undergraduate Research Team

Our URF Ambassadors and office staff are here to help you! The ambassadors represent you in guiding us as we develop and change the program, and we work year-round for our fellows. Stop by and say hello to our staff any time in Old Main 164!

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