



# OFFICE OF UNDERGRADUATE RESEARCH

ANNUAL REPORT 2017-18



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# OFFICE OF UNDERGRADUATE RESEARCH ANNUAL REPORT 2017-18

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## OUR TEAM

**Rachel Hayes-Harb**  
Director

**Cindy Greaves**  
Program Manager

**Megan Shannahan**  
Undergraduate  
Research Advisor

**Stephanie Shiver**  
Undergraduate  
Research Advisor

**Katie Sexton**  
Administrative Assistant

## 2017-18 AT-A-GLANCE STATISTICS

### UNDERGRADUATE RESEARCH ADVISING

**274** ADVISING APPOINTMENTS

### UNDERGRADUATE RESEARCH LEADERS

**1409** STUDENTS REACHED

### RESEARCH OPPORTUNITIES DATABASE

**95** CURRENT OPPORTUNITIES

### UNDERGRADUATE RESEARCH OPPORTUNITIES PROGRAM (UROP)

Fall 2017	<b>206</b>	(225 applications)
Spring 2018	<b>207</b>	(248 applications)
Summer 2018	<b>114</b>	(126 applications)
	<b>527</b>	UROP SCHOLARS

### SUMMER PROGRAM FOR UNDERGRADUATE RESEARCH (SPUR)

**31** 2018 PARTICIPANTS

### UNDERGRADUATE RESEARCH EDUCATION SERIES (URES)

Summer 2017	<b>462</b>	(10 events)
Fall 2017	<b>523</b>	(15 events)
Spring 2018	<b>418</b>	(14 events)
	<b>1403</b>	ATTENDEES

### UNDERGRADUATE RESEARCH SYMPOSIUM (URS)

**338** URS PRESENTATIONS

### UTAH CONFERENCE ON UNDERGRADUATE RESEARCH (UCUR) & NATIONAL CONFERENCE ON UNDERGRADUATE RESEARCH (NCUR)

<b>44</b>	UCUR presentations
<b>13</b>	NCUR presentations
<b>57</b>	UCUR/NCUR PRESENTATIONS

### RESEARCH ON CAPITOL HILL (ROCH)

**26** ROCH PRESENTATIONS

### SMALL & TRAVEL GRANTS

<b>35</b>	Small grants
<b>57</b>	Travel grants
<b>92</b>	GRANTS AWARDED

### UNDERGRADUATE RESEARCH JOURNAL (URJ)

**106** STUDENT AUTHORS

### UNDERGRADUATE RESEARCH SCHOLAR DESIGNATION (URSD)

<b>18</b>	Summer 2017
<b>17</b>	Fall 2017
<b>77</b>	Spring 2018
<b>112</b>	URSD RECIPIENTS

# WHY UNDERGRADUATE RESEARCH?

A thriving undergraduate research culture benefits:

## STUDENTS

When we involve our undergraduate students in research, we demonstrate that we view them as colleagues in our pursuit of knowledge. Involvement in research can give students a sense of belonging, with their work forming a physical and/or intellectual home within the University. This is especially important at large institutions, as students crave an experience that is personal and allows them to work closely with faculty and other members of the academic community. Undergraduate research opportunities thus leverage some of our greatest assets as a Research I institution to the benefit of the student experience. In addition, we know that the experience of undergraduate research with a faculty mentor is associated with student retention and persistence to graduation.



## FACULTY AND SCHOLARSHIP

The faculty experience is also enriched by research mentorship and collaboration with undergraduate students. Our undergraduate students bring new perspectives and enthusiasm for the work and they are the future of our fields. By investing in our students, we are investing in the next generation of scholars.

## OUR COMMUNITY AND SOCIETY

Through research, students learn to navigate the nuances inherent to serious scholarly investigation and to interpret data responsibly and within a context. By collaborating with our students, we welcome students “into the fold” of the scholarly community and a reflective and critical-thinking public contributes positively to the long-term health of our community.



## CONTRIBUTIONS TO THE COMMON GOOD

Our mission is to facilitate and promote undergraduate student/faculty collaborative research and creative works in all disciplines throughout the University of Utah campus.

Our office contributes to the primary goals of Undergraduate Studies as follows:

### **Every student belongs to a learning community.**

We are responsible for the Undergraduate Research Living and Learning Community. The Living and Learning Community helps initiate the feeling of belonging to the scholarly community by providing incoming students with a structured living environment and additional opportunities and resources to explore research at the University. It helps support students' self-identification as interested and engaged students and members of society and thereby reinforces their participation in the intellectual community at the University and society at large.

### **Every student has a deeply engaged learning experience.**

Our programs facilitate and promote student involvement in deeply engaged learning experiences. We provide support and guidance to undergraduate student researchers through every phase of the experience: discovery, research dissemination, reflection, and recognition.

### **Every student has a Plan to Finish and is supported by student success advocates, mentors, and advisors.**

Our Undergraduate Research Advisors are an available resource for students throughout the entire research process. By providing support and guidance throughout the students' involvement with our programs and by encouraging quality mentoring from faculty mentors, our office supports students' research and overall academic achievement. This in turn supports students' accomplishment of their Plan to Finish and bolsters retention and graduation rates.

“My undergraduate research experience was very positive. Not only did I have the opportunity to work on an innovative project I was interested in, but I also got to work and collaborate with others that are experts in the field that I could learn from and talk with.

— UROP Scholar

# SUMMARY OF ACCOMPLISHMENTS

## Collaborated with the Institutional Review Board to create the Institutional Review Board Specialist role in the Undergraduate Research Leader Program

The goal of this position is to provide students with professional development opportunities in collaboration with the IRB, including access to IRB onboarding, participation in IRB board activities, and campus education about research ethics and the IRB. This position will provide scaffolded and on-going educational opportunities for students through which they gain experience and mentorship in a regulatory setting, including developing an increased understanding of research ethics and compliance, and with both opportunity and incentive for students to be engaged with their campus IRB and research community through outreach and official service to the IRB. This position will be piloted Summer 2018.



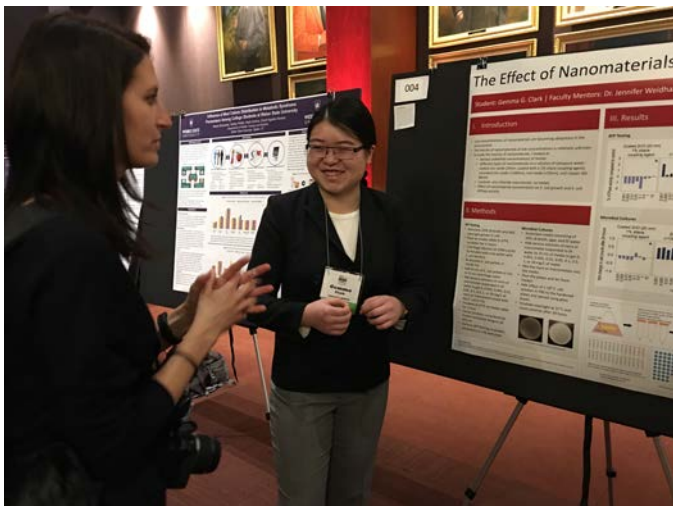
## Expanded and enhanced Summer Research Programs Partnership

The partnership now includes the HCI PathMaker Cancer Research Program. Together, the partnership is supporting more than 90 students in summer 2018. Program coordinators collaborate to offer events that complement and enhance participants' summer research experiences, and create a community of scholars among the participants. The summer closes with the Summer Symposium.



The networking aspect of SPUR was the most valuable to me because it gave me the opportunity to meet with fellow undergraduates from a vast array of disciplines and backgrounds, and this connection made it so that I was able to establish valuable networks.

— SPUR Scholar

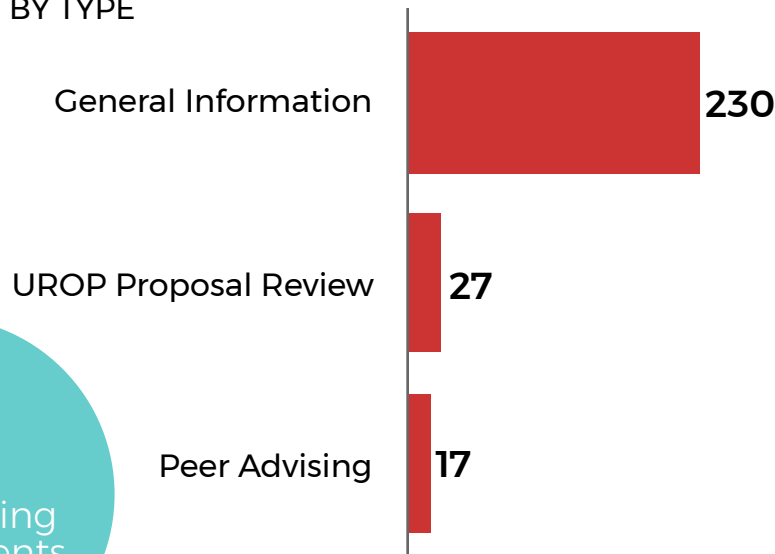


**+274**  
total advising appointments

# UNDERGRADUATE RESEARCH ADVISING

We provide comprehensive advising for students throughout the entire undergraduate research process. Advising is intended to provide a supportive environment for the student to become involved with research and to prepare the student for and guide the student through the many processes that undergraduate research will include, promoting a deeply engaged and high-quality research experience. With our support, the student will be prepared to pursue further research opportunities and careers.

## NUMBER OF ADVISING APPOINTMENTS BY TYPE



I would also like to single out Stephanie Shiver as a fantastic research advisor. Stephanie was always accessible and willing to help me with any minor problem, and made it clear they care about students on an individual level.

— UROP Scholar

# UNDERGRADUATE RESEARCH LEADERS

Since 2015, each year we have selected a new group of experienced undergraduate researchers to serve as ambassadors for our office.

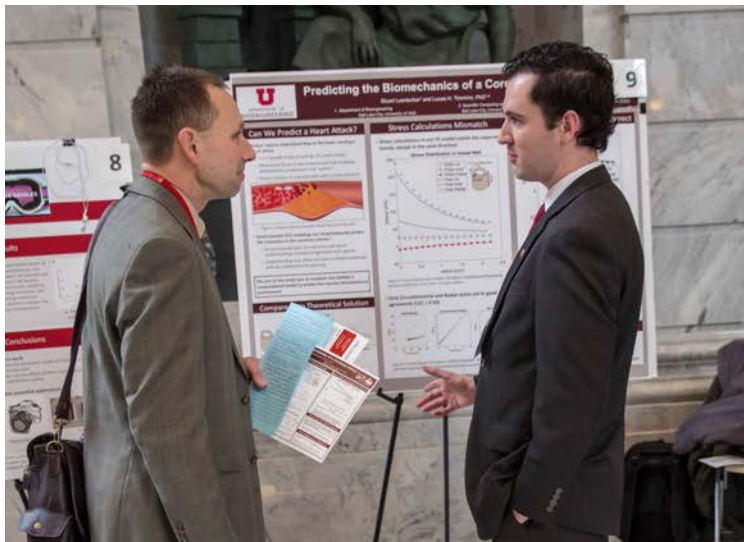
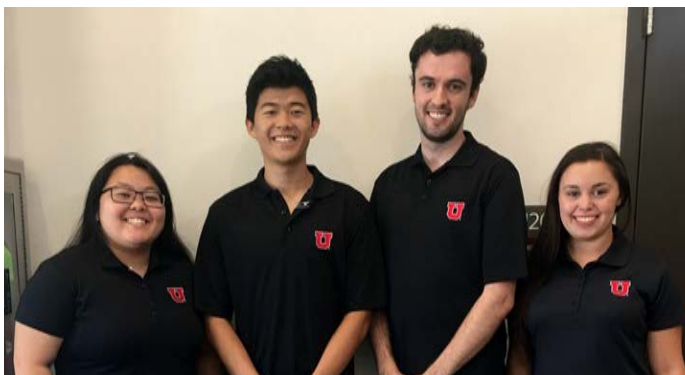
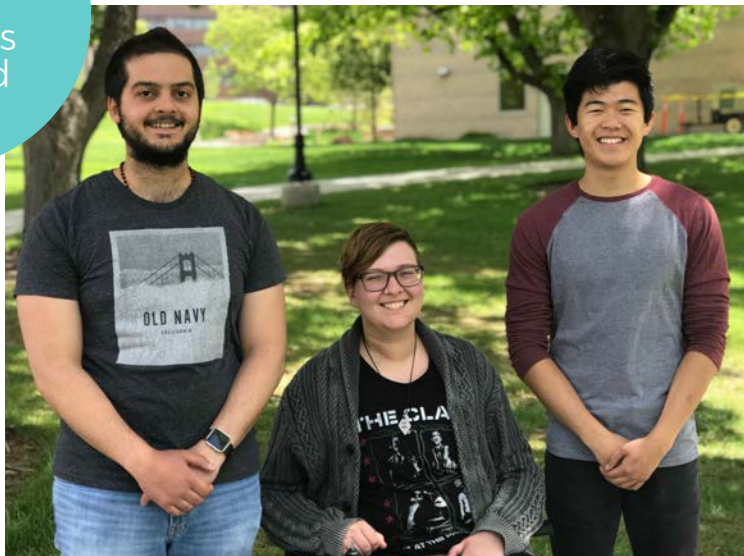
The Undergraduate Research Leaders assist the office and promote undergraduate student research through a variety of activities:

- + Office outreach and student recruitment
- + Student engagement
- + Peer advising
- + Program development (education programming and community building)
- + Small and travel grant reviews

+1,409 students reached

The Undergraduate Research Leader [program] has significantly enhanced my ability to professionally address wide ranges of audiences. ... In terms of impact on students, the OUR's programs work incredibly to provide a start-to-finish experience for undergraduate research: proposal, mentor relationships, presentation, peer mentoring, etc.

— Undergraduate Research Leader







## CAMPUS OUTREACH PARTNERS

Anthropology  
 + Architecture + Planning + Asia Center + Asian Studies + Block U + Business  
 Economics Society  
 + Chemistry + Civil & Environmental Engineering  
 + Communication + CSBS LEAP  
 + Education + History + Honors College + Innovation Scholars + Learning Abroad + Linguistics + Major Expo + Mechanical Engineering + Mines & Earth Sciences + Music + New & Transfer Student Orientation + Physics & Astronomy + Pre-Dental + Pre-Health + Pre-Med + Psi Chi + Psychology + Science Day + Social Work + Sociology + Theatre + Writing & Rhetoric

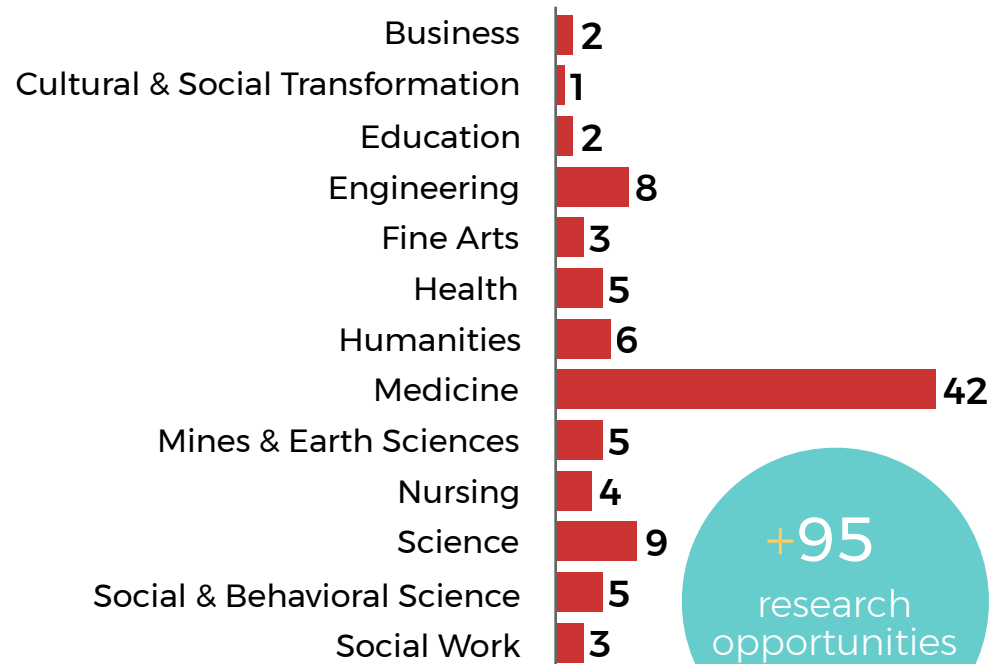
## OUTREACH

We engage in many student outreach activities throughout the year with the goal of increasing participation in undergraduate research. Our student outreach activities include tabling, information sessions, in-class presentations, and presentations to student organizations. Through our outreach activities, we hope to make students more aware of the multitude of research opportunities available to them, the benefits of participating in undergraduate research, and help them get started finding a fulfilling research experience.

We also maintain the online Research Opportunities Database, which informs students of ways in which they can get involved in undergraduate research at the U.

+2,100  
students reached at  
+92  
outreach events

## NUMBER OF RESEARCH OPPORTUNITY POSTINGS BY COLLEGE/SCHOOL OF THE FACULTY MENTOR



+95  
research opportunities posted



View the Research Opportunities Database at  
[our.utah.edu/opportunities](http://our.utah.edu/opportunities)

# UNDERGRADUATE RESEARCH OPPORTUNITIES PROGRAM (UROP)

UROP provides undergraduate students and faculty members the opportunity to work together on research or creative projects.

UROP recipients are hired by the Office of Undergraduate Research and are paid \$10.00 per hour for up to 120 hours of work during the semester of their award.



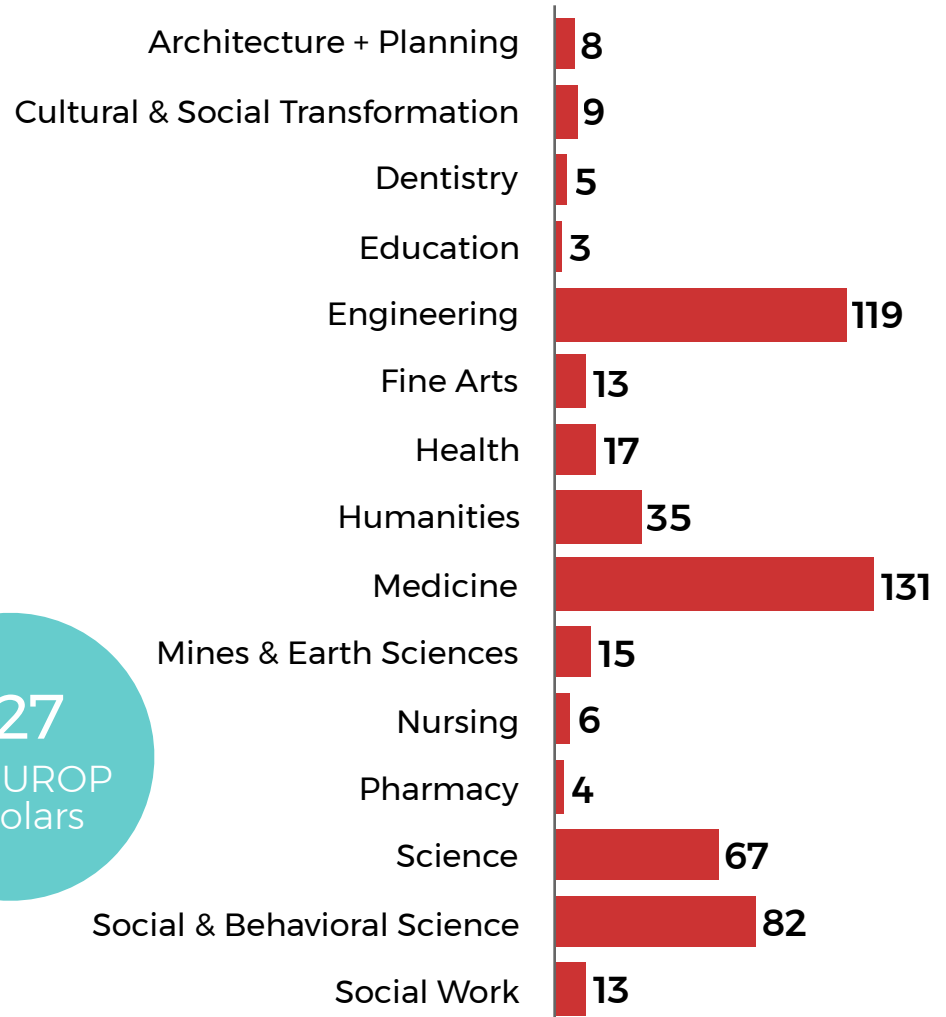
**+527**  
total UROP  
scholars

## UROP SCHOLAR STATISTICS

Fall 2017	<b>206</b>	(225 applications)
Spring 2018	<b>207</b>	(248 applications)
Summer 2018	<b>114</b>	(126 applications)

## NUMBER OF UROP AWARDS

BY COLLEGE/SCHOOL OF THE STUDENT'S FACULTY MENTOR



# SPECIAL UROP AWARDS

## CHEVRON FOUNDATION UROP SCHOLARS

Chevron's University Partnership Program (UPP) has partnered with the Office of Undergraduate Research to support female students working on STEM-specific projects.

**Kathryn Claittli** (Prof. Joshua Bonkowsky) *Behavioral Screen for Zebrafish Model of ALD*

**Moriah Henning** (Prof. Andrew Merryweather) *Developing 3D Printed Prosthetic Hand for Brain-Computer Interface Control*

**Chloe Lim** (Prof. Kimberley Evason) *Serotonin effects on liver size and hepatocellular carcinoma in transgenic zebrafish*

**Kailee Pinney** (Prof. Gabriel Bowen) *Origination of Isotopic Variance in Same Site Birds*

**Gabriella Rasmussen** (Prof. Alessandra Angelucci) *Tracing Monosynaptic Cortical Circuits of Feedforward and Feedback*

**Hanin Sheikh** (Prof. Sarah Franklin) *The Role of Smyd1 as a Histone Methyltransferase in Heart Disease*

## DEE FOUNDATION UROP SCHOLARS

The Lawrence T. Dee and Janet T. Dee Foundation was established for the purpose of promoting charitable activities in Ogden and the surrounding area.

**Sullivan Howard** (Prof. Akiko Kamimura) *Opioid Abuse Amongst Uninsured Patients Utilizing a Free Clinic*

**Dallin Romney** (Prof. Keunhan Park) *Efficacy of Passive Radiative Thermal Cooling Textiles for Human Application*

**Simran Saini** (Prof. Jessica Kramer) *Synthesizing Antifreeze Proteins Found in Nature to be used in Cryopreservation of Cells*

**Angela Zhu** (Prof. Yelena Wu) *Sun-protection Understanding (SUN) in Schools*

## PARENT FUND UROP SCHOLAR

Undergraduate Advancement is a mutual effort by Academic and Student Affairs to provide programs that both support and retain undergraduate students at the University of Utah.

**Jaz Hurley** (Prof. Akiko Kamimura) *Evaluation of Intimate Partner Violence Curriculum in Residency Training Programs*

## FRANCIS FAMILY FOUNDATION UROP SCHOLARS

The Francis Endowment Fund recognizes outstanding undergraduate researchers in the arts, social sciences, and the humanities.

**Charlotte Brickwood-Figgins** (Prof. Melissa Schaefer) *Comparing Behaviors of Western Lowland Gorillas [*Gorilla gorilla gorilla*] in Indoor and Outdoor Zoo Enclosures*

**TaCara DeTevis** (Prof. Leona Yi-Fan Su) *Organizational Crisis Management: Public Twitter Response Following E. coli Outbreak in Chipotle Restaurants*

**Chaise Edebiri** (Prof. Noel Voltz) *Storm at Southern: The Impact of Hurricane Katrina on Degree-Completion Rates at Southern University at New Orleans*

**Jordin Hartley** (Prof. Jennifer Watt) *Reconstructing a Fire History Record for a High Elevation Site in the Northern Rocky Mountains*

**Bridgett Johnson** (Prof. Jared Rawlings) *Critical Literature Review of Early Childhood Music Education*

**Elizabeth Kaiser** (Prof. Tanya Flores) *Phonological acquisition by Hispanic hearing-impaired children*

**Luciana Salmi** (Prof. Elisabeth Conradt) *Study of the contribution of social support in the effects of prenatal maternal anxiety and depression exposure on newborn neurobehavioral*

**Carly Shields** (Prof. Marissa Diener) *Needs of Youth with Autism Spectrum Disorder in Health Care Settings*

**Megan Tyler** (Prof. Maureen Mathison) *Gamification of Biology Literacy*



## MONSON ESSAY PRIZE

The Charles H. Monson Essay Prize honors Charles H. Monson Jr., who was a distinguished member of the University Philosophy Department from 1958 to 1974. Professor Monson earned his Bachelor's and Master's degrees from the University of Utah and received his Ph.D. from Cornell University. During his years at the University of Utah, he served as chair of the Philosophy Department and Associate Vice President for Academic Affairs. He received the University's Distinguished Teaching Award in 1970. In his honor, an annual prize is awarded to an undergraduate student who writes an outstanding essay on a subject having to do with social change.



### 2018 MONSON ESSAY PRIZE RECIPIENT

Rebeca Gonzalez-Rocha  
(Prof. Cheryl Wright)

*Supporting immigrant families through their involvement in early childhood education*

My research focuses on the importance of early childhood education and parent involvement in Latino families. ... We have interviewed 120 families to gain insight into culturally sensitive ways for immigrant families to be involved in education. Our research has also provided evidence for the importance of having high quality educational experiences for children of immigrants. In comparison to immigrant children who did not attend preschool, children who participated in preschool programs scored significantly higher on kindergarten readiness tests.

— Rebeca Gonzalez-Rocha, 2018 Monson Essay Prize Recipient

# SUMMER PROGRAM FOR UNDERGRADUATE RESEARCH (SPUR)

Generously funded by the Office of the Vice President for Research, SPUR provides undergraduate researchers with an intensive 10-week research experience under the mentorship of a University of Utah faculty member.

In addition to their intensive research experience, students attend summer URES events, submit to the Undergraduate Research Journal, and present at the Summer Symposium.



+31  
total 2018  
participants



## 2018 COHORT

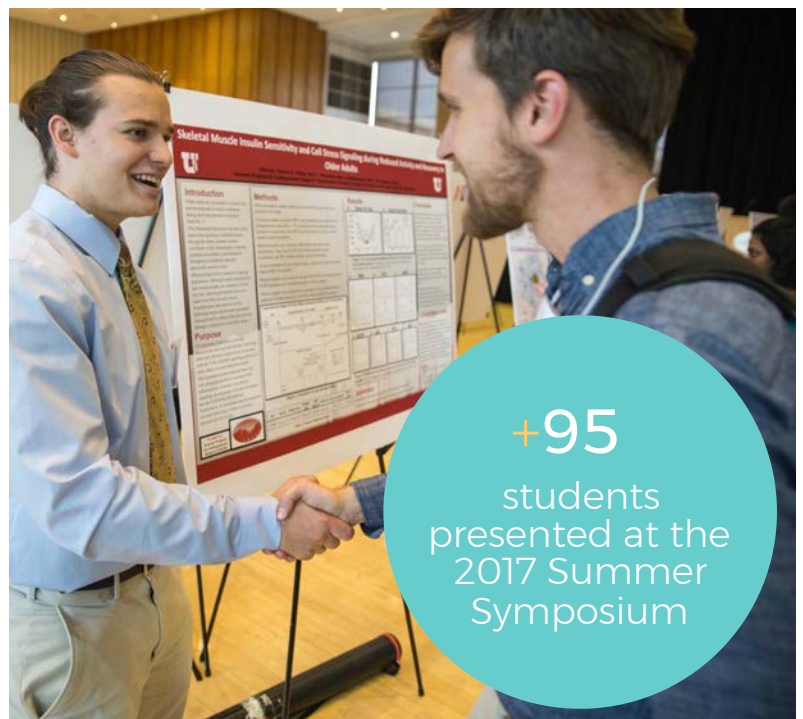
The 2018 cohort of 31 students includes students from the following institutions:

- + American University
- + Brown University
- + Carleton College
- + Indiana University Bloomington
- + McPherson College
- + New Mexico State University
- + The Pennsylvania State University
- + The University of Texas Rio Grande Valley
- + University of Utah
- + Utah Valley University
- + Washington University in St. Louis



## SUMMER PROGRAM PARTNERS

- + Chemistry REU
- + HCI PathMakers
- + Native American Summer Research Internship (NARI)
- + Physics & Astronomy REU



+95  
students  
presented at the  
2017 Summer  
Symposium

# UNDERGRADUATE RESEARCH EDUCATION SERIES (URES)

We offer educational lectures, panels, and workshops on topics of interest to undergraduate student researchers and their faculty mentors. These events are open to all and are designed with undergraduate students in mind.

+1,403  
total URES  
attendees



## RESEARCH EDUCATION PARTNERS

Through our Undergraduate Research Education Series, we have established a number of partnerships throughout campus.

Our partners include:

Career Services + College of Fine Arts  
+ College of Social Work + Department of Bioengineering + Department of Biology  
+ Department of Chemistry + Department of Education, Culture, & Society + Department of Materials Science & Engineering  
+ Department of Nephrology + Department of Ophthalmology + Department of Pathology + Department of Philosophy  
+ Department of Psychology + Department of Theater + Honors College + Institutional Review Board + Lassonde Institute + Marriott Library + School of Medicine + Technology & Venture Commercialization + Undergraduate Studies + Writing & Rhetoric Studies

## URES ATTENDANCE STATISTICS

Summer 2017	<b>462</b>	(10 events)
Fall 2017	<b>523</b>	(15 events)
Spring 2018	<b>418</b>	(14 events)

## URES EVENT LIST

Asking for Letters of Recommendation

Characteristics of Research Posters

Citation Management

Creating Effective Research Posters

Data Management

Discipline-Specific Writing

Doing Library Research

How to Read a Research Article

How to Translate Your Research into a Resume

How to Write a Personal Statement

Institutional Review Board

Leveraging Your Research Experience in Industry

Literature Reviews

People of Color in Research

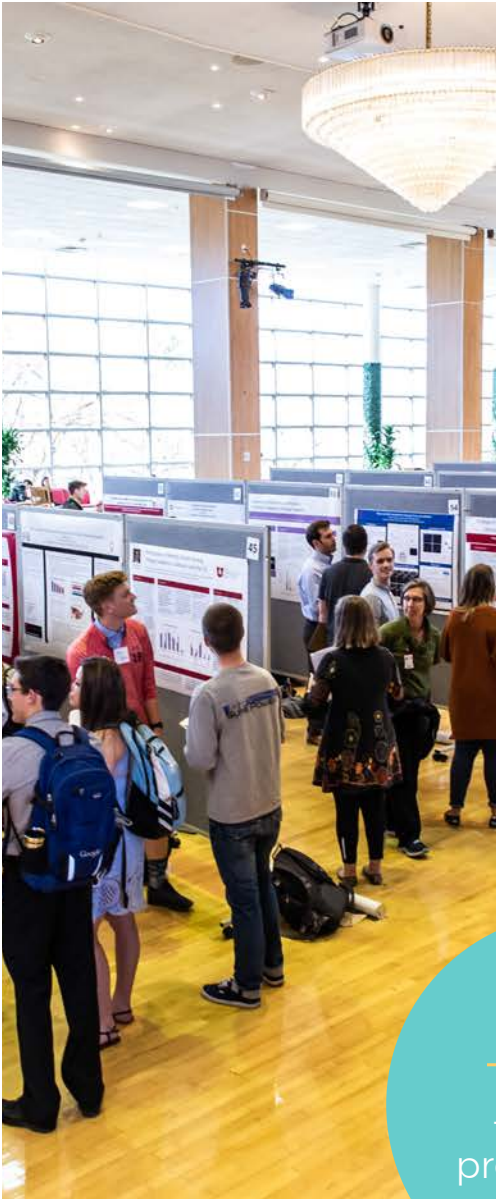
Public Speaking

Reflection as a Part of the Research Process

Translating Your Research to a General Audience

Technology & Venture Commercialization

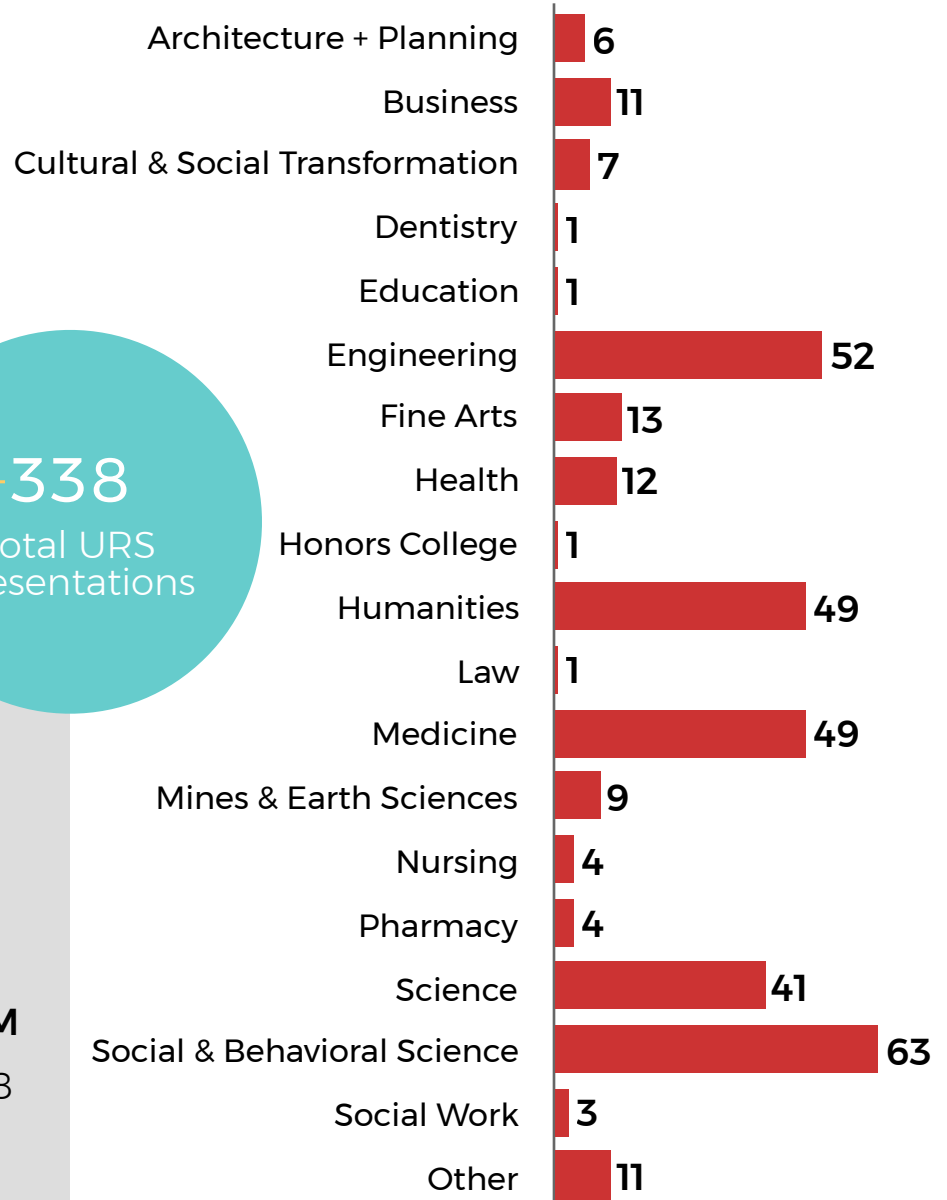
Writing an Abstract



# UNDERGRADUATE RESEARCH SYMPOSIUM (URS)

The Undergraduate Research Symposium (URS) provides an opportunity for students to present their work in a scholarly setting to students, faculty and other members of the University of Utah community. Undergraduate students from all disciplines are invited to present their research and creative work.

## NUMBER OF URS PRESENTATIONS BY COLLEGE/SCHOOL OF THE STUDENT'S FACULTY MENTOR



**+338**  
total URS presentations



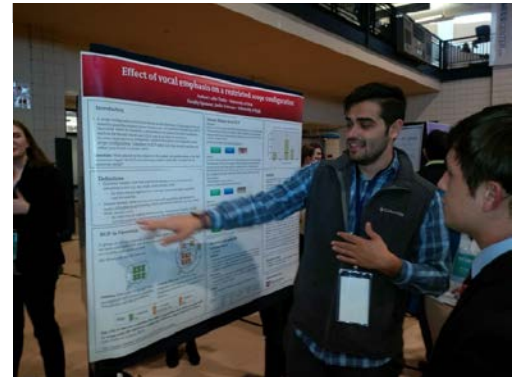
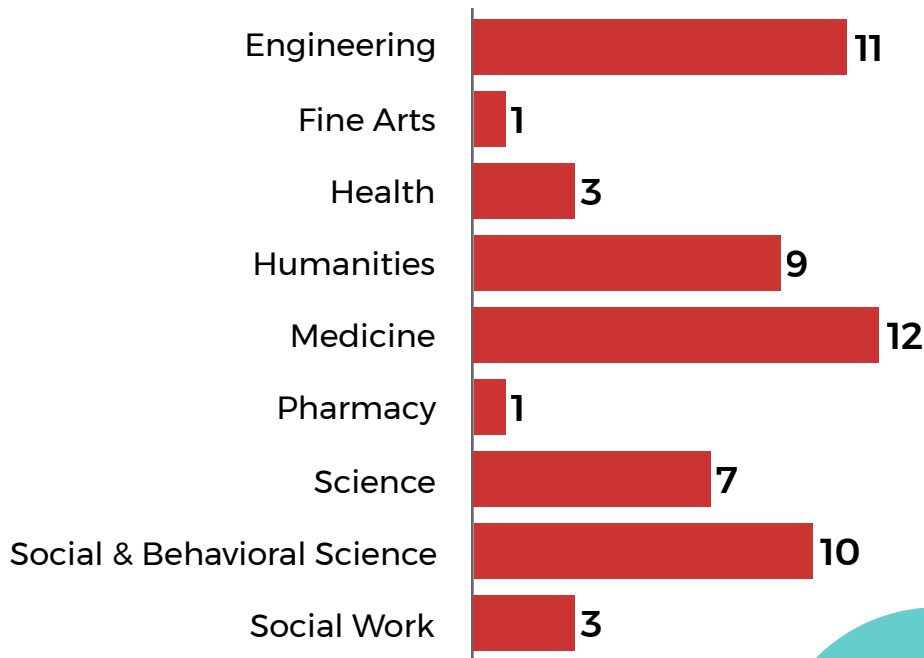
### 15TH ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

Wednesday, April 11, 2018  
Union Building

# UTAH CONFERENCE ON UNDERGRADUATE RESEARCH (UCUR) & NATIONAL CONFERENCE ON UNDERGRADUATE RESEARCH (NCUR)

Each year, the Office of Undergraduate Research facilitates attendance at UCUR and NCUR by organizing abstract submissions and supporting travel to the conferences. These conferences provide an opportunity for students to present their work to peers throughout the state and country.

## NUMBER OF UCUR/NCUR PRESENTATIONS BY COLLEGE/SCHOOL OF THE STUDENT'S FACULTY MENTOR



## UCUR/NCUR ATTENDANCE STATISTICS

44	UCUR presentations
13	NCUR presentations

**+57**  
UCUR/NCUR presentations



### UCUR 2018

Friday, February 9, 2018  
Southern Utah University  
Cedar City, Utah

### NCUR 2018

April 4-7, 2018  
University of Central Oklahoma  
Edmond, Oklahoma



# RESEARCH ON CAPITOL HILL (ROCH)

The Office of the Vice President for Research, the Office of Government Relations and the Office of Undergraduate Research select students each year to exhibit their work via posters to Utah State legislators. This event demonstrates the importance of undergraduate research and creative work from the two Research I universities in this state: University of Utah and Utah State University.



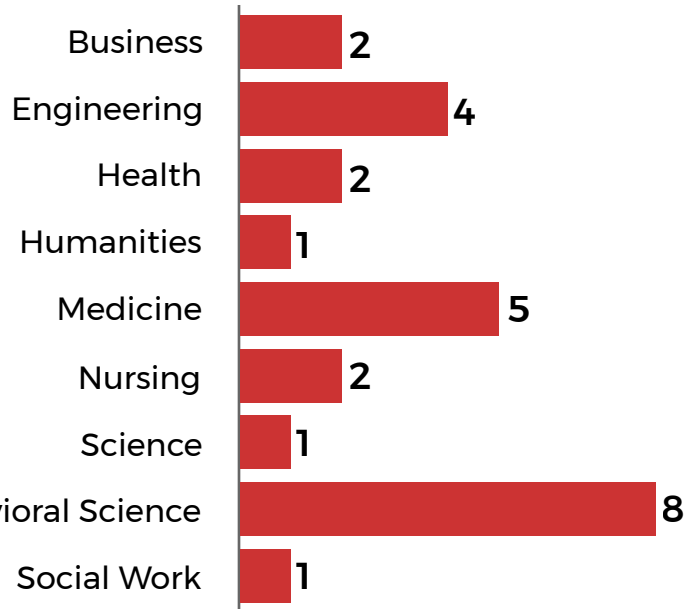
## 18TH ANNUAL RESEARCH ON CAPITOL HILL

Wednesday, February 28, 2018  
Utah State Capitol



+26  
capitol hill  
presentations

### NUMBER OF CAPITOL HILL PRESENTATIONS BY COLLEGE/SCHOOL OF THE STUDENT'S FACULTY MENTOR



My research related my interests in both medicine and pediatrics and allowed me to gain valuable hands on experience in these fields. It was incredibly rewarding to present my research this semester (most notably at the State Capital) and to share my important findings with others.

— ROCH Presenter



# SMALL & TRAVEL GRANTS

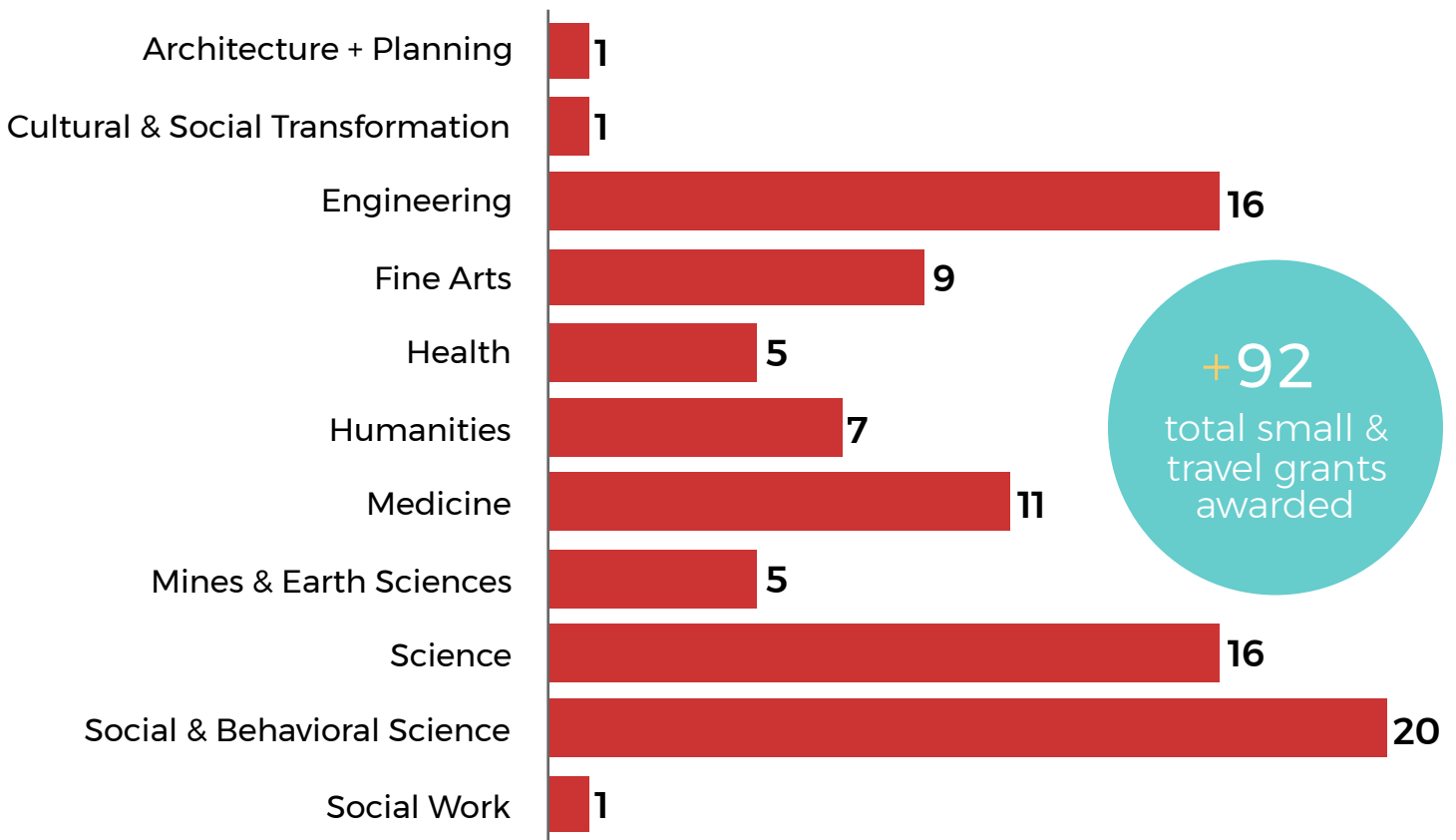
## SMALL GRANTS

Funding from the Small Grant program (maximum \$200) can help with future purchases of research supplies, training fees, or other research costs related to the student's work.

## TRAVEL GRANTS

Funding from the Travel Grant program (maximum \$500) might cover expenses for future airfare, lodging, conference registration, or gas/mileage for data collection or conference attendance.

### NUMBER OF SMALL & TRAVEL GRANTS BY COLLEGE/SCHOOL OF THE STUDENT'S FACULTY MENTOR



Before this [research travel], graduate school was a possibility on the horizon, but meeting people that I could potentially work with in graduate school and seeing all the fascinating research being done brought graduate school into a more tangible light.

— Travel Grant Awardee

# OUTSTANDING UNDERGRADUATE RESEARCH AWARDS (OURA)

In 2015, we introduced the Outstanding Undergraduate Researcher Award. We are delighted to recognize an outstanding undergraduate researcher from each college/school at the University of Utah. Faculty mentors are invited to nominate students and awardees are selected by committee. The criteria for the Outstanding Undergraduate Researcher Award are:

- + Record of sustained commitment to developing research skills and knowledge under the supervision of a faculty mentor
- + Evidence of independent and critical thinking
- + Active participation in research-related activities on campus
- + Positive contributions to the research culture of the Department, College, and University



## 2018 OUTSTANDING UNDERGRADUATE RESEARCH AWARDEES

**Carissa Pollock**

Prof. Ryan Smith  
Architecture + Planning

**Taylor Dove**

Prof. Davidson Heath  
Business

**Valeria Jimenez**

Profs. Edmund Fong & Jesus Valero  
Cultural & Social Transformation

**Elaine Cooke**

Prof. Melodie Weller  
Dentistry

**Carlie Haacke**

Prof. Lauren Liang  
Education

**Jayden Plumb**

Prof. Ashley Spear  
Engineering

**Cece Otto**

Prof. Robert Scott Smith  
Fine Arts

**Nikol Yonemura**

Prof. Micah Drummond  
Health

**Gemma Clark**

Prof. Jennifer Weidhaas  
Honors

**Lydia Morley**

Prof. Matt Haber  
Humanities

**Abbie Ireland**

Prof. Trudy Oliver  
Medicine

**Silvia Padilla**

Prof. Michael Simpson  
Mines & Earth Sciences

**Jia "Janny" Liu**

Prof. Jacqueline Eaton  
Nursing

**Zachary Barber**

Prof. Hamid Ghandehari  
Pharmacy

**Elom Amematsro**

Prof. Sophie Caron  
Science

**Hannah Samowitz**

Prof. Monisha Pasupathi  
Social & Behavioral Science

**Lauren Brocius**

Prof. Caren Frost  
Social Work

# UNDERGRADUATE RESEARCH JOURNAL (URJ)

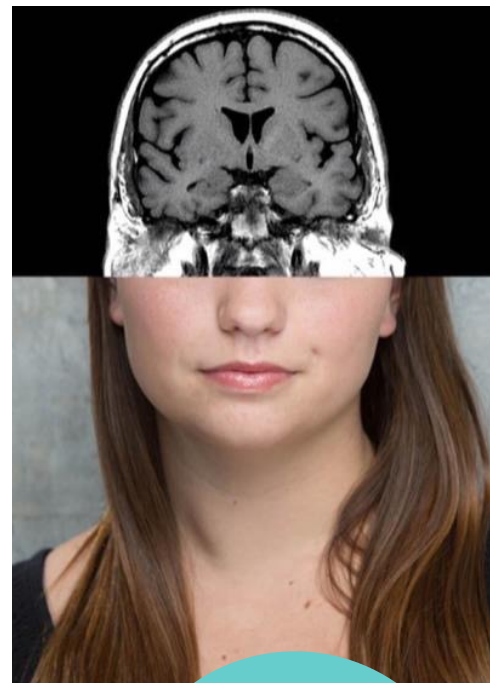
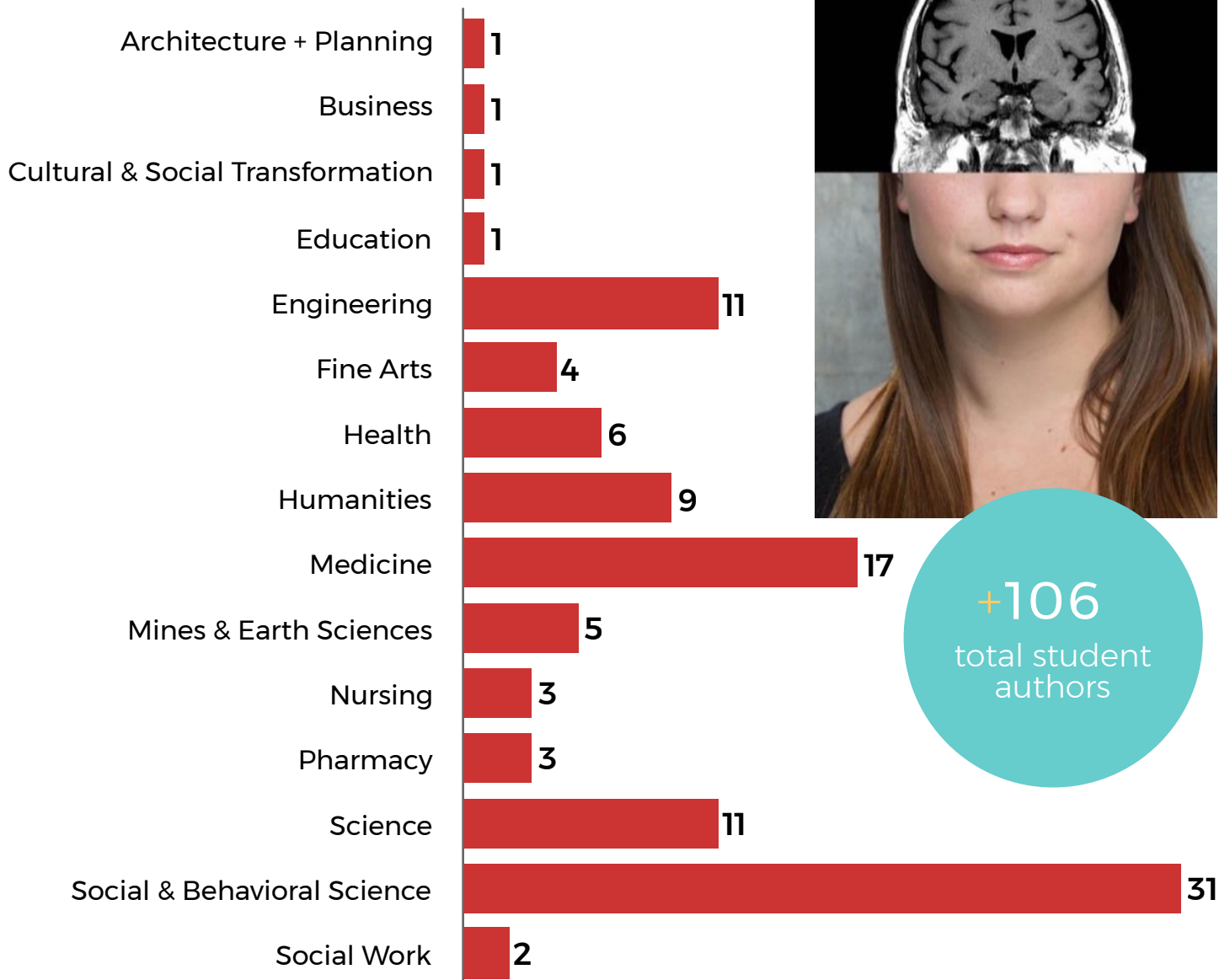
The *Undergraduate Research Journal's* primary mission is to make more visible the rich and diverse student contributions to research and creative work at the University of Utah. All undergraduate students involved in research at the University of Utah are strongly encouraged to submit summaries of their work for publication in this journal.

Starting in 2015, the *Journal* is published online thanks to an initial partnership with the Marriott Library.



View the  
2018 Undergraduate  
Research Journal at  
[our.utah.edu/urj2018](http://our.utah.edu/urj2018)

## NUMBER OF STUDENT AUTHORS BY COLLEGE/SCHOOL OF THE STUDENT'S FACULTY MENTOR



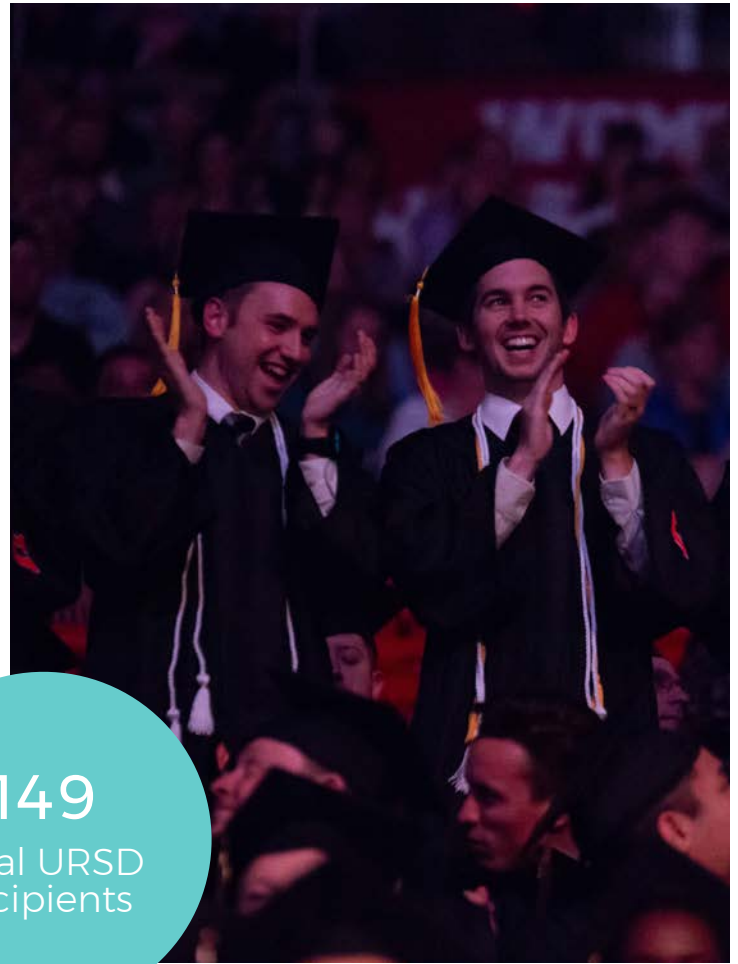
## UNDERGRADUATE RESEARCH SCHOLAR DESIGNATION (URSD)

The Undergraduate Research Scholar Designation (URSD) recognizes a student's commitment to their development as a researcher during their undergraduate career. The URSD appears in the awards section of the transcripts of graduating students. URSD recipients receive a white research cord from the Office of Undergraduate Research to wear at convocation and commencement.

### URSD RECIPIENT STATISTICS

Summer 2017	18
Fall 2017	17
Spring 2018	114

+149  
total URSD  
recipients



Through my undergraduate research, I was able to apply the knowledge attained in my university curriculum in an individual manner. I could more deeply explore ideas that I personally found important and create unique fusions. This research allowed me to emerge as a confident artist, researcher, critical thinker, problem solver, and scholar and further propel me toward my individual goals.

— UROP Scholar

# UNDERGRADUATE RESEARCH LEARNING OUTCOMES ASSESSMENT

Responding to recent trends on university campuses nationwide, we are committed to the assessment of the impact of our programs not only in terms of the numbers of students served, but also in terms of students' achievement of learning outcomes. Challenges associated with the development of high-quality assessment techniques for this purpose include:

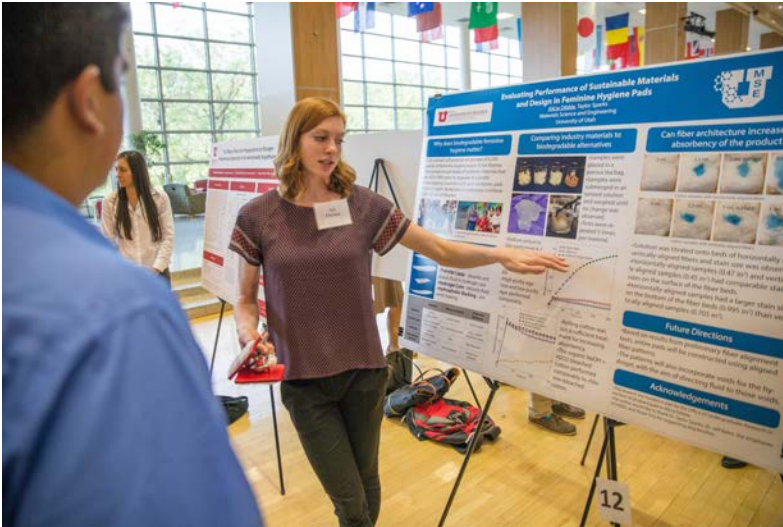
1. identifying discipline-general assessment criteria
2. accessing the artifacts that allow for direct assessment
3. large-scale implementation of an assessment protocol

In 2015, we developed a set of seven Undergraduate Research Learning Outcomes that address the traditions of research and mentoring in the wide range of disciplines on our campus:

- + Identify and utilize relevant previous work that supports their research
- + Articulate a timely and important research question or creative objective
- + Identify and utilize appropriate methodologies to address the research question or creative objective
- + Meet the relevant field's standards for the responsible conduct of research and effectively navigate challenges that arise in the research process
- + Work collaboratively with other researchers, demonstrating effective communication and problem-solving skills
- + Present the research effectively in a conference setting and a written publication
- + Reflect constructively on their research experience, identifying what was learned, personal strengths and opportunities for growth, and how the experience informs their future educational and career goals

We have since periodically assessed and reported students' attainment of these outcomes by means of self-ratings. This Spring, we launched a new effort: to assess students' achievement of these outcomes in the context of our annual institution-wide Undergraduate Research Symposium. We developed a poster presentation evaluation rubric that aligns with these outcomes, and deployed graduate student, post-doc, and faculty attendees of the Symposium as ad hoc raters. We are currently in the data entry and analysis phase of this project and will prepare a formal report in the next few months. By looking at individual students' achievement with respect to these learning outcomes in light of undergraduate research experience data from our office, in addition to enrollment and other institutional data, we will be able to better understand the impact of our programming and the research experiences available to University of Utah students on their academic achievement.





Through my undergraduate research, I was able to apply the knowledge attained in my university curriculum in an individual manner. I could more deeply explore ideas that I personally found important and create unique fusions. This research allowed me to emerge as a confident artist, researcher, critical thinker, problem solver, and scholar and further propel me toward my individual goals.

— UROP Scholar

## GOALS FOR 2018-19

### Enhancing undergraduate research learning outcomes assessment

FY 2018 has seen a substantial increase in activity around undergraduate research learning outcomes assessment, as described previously. In FY 2019, we will continue to work with campus partners to enhance our ability to assess the efficacy of our programs in the year to come.

### Increasing visibility of and access to our programs

FY 2019 will again be a year dedicated to understanding the barriers to participation in undergraduate research across the University of Utah campus. With the addition of a second Undergraduate Research Advisor, whose duties will include outreach to underserved populations, we hope to plant the seeds for increases in participation in our programs by students who are typically underrepresented in undergraduate research. These include students who transfer to the University of Utah, students with disabilities, LGBT students, and students from diverse racial and ethnic backgrounds, among other groups. We additionally view the introduction of the Summer Program for Undergraduate Research as a way to increase the accessibility of undergraduate research. In particular, our plan is to recruit incoming and transfer students and students from underrepresented backgrounds into the summer program, an opportunity to provide them with an intensive mentored research experience.

