

# URSA UNDERGRADUATE RESEARCH & SCHOLARLY ACTIVITY

*Undergraduate research is a high-impact practice that enhances student engagement, retention, completion, and success.*

## URSA Activities

- URSA Student Project Awards**  
 Funding for original research and creative scholarly projects pairing undergraduates with faculty mentors at all UAF campuses.
- URSA Student Travel Awards**  
 Funding for travel by undergraduates to support or present their original research.
- URSA Mentoring Awards**  
 Funding for mentors (faculty, postdoctoral researchers, graduate students) to enhance or develop opportunities for undergraduate research, especially recurring opportunities.
- Curriculum Support and Development**  
 Development of curricular opportunities for undergraduate research through creation of URSA courses and assistance developing departmental courses such as the Museum Research Apprenticeship Program (MRAP).
- UAF Research and Creative Activity Day**  
 An annual celebration and presentation of research by undergraduate students at UAF.

## URSA Impact

- Presentations by undergraduates of their research at national and international meetings.
- Publications co-authored by undergraduates in peer-reviewed professional journals.
- Acceptance of UAF baccalaureate graduates to top graduate programs, professional schools and employment locally and nationally.

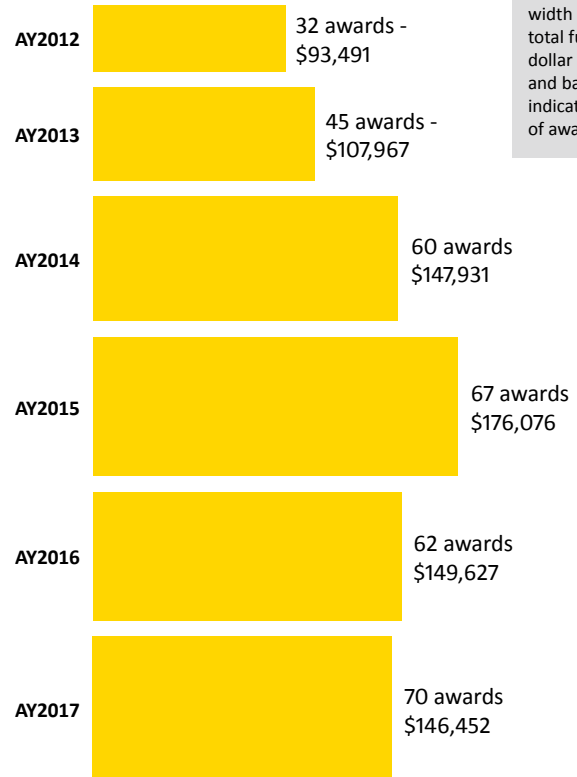
## Selected Performance Indicators

UAF undergraduates enrolled in 1 or more research courses

	Fall	Spring	Summer	Total
AY2012	137	210	15	362
AY2013	148	186	31	365
AY2014	134	205	31	370
AY2015	127	226	55	408
AY2016	107	217	47	371
AY2017*	298	338	28	664

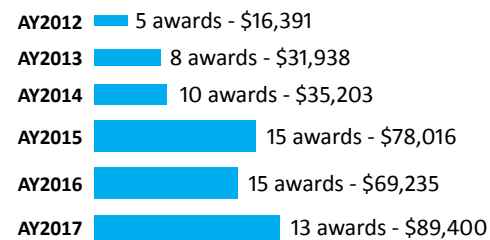
\*The significant increase in research courses reflects a change in the research course designation process.

## URSA Student Awards



For all graphs, bar width indicates total funding dollar amount and bar height indicates number of awards.

## URSA Mentoring Awards



## URSA Innovative Technology and Education (ITE) Awards



All URSA student and mentoring awards derive from UAF's reinvestment of 1% ICR into student research. ITE awards derive from 20% of the student technology fee.



UAF is an AA/EO employer and educational institution and prohibits illegal discrimination against any individual: [www.alaska.edu/ttitleXcompliance/nondiscrimination](http://www.alaska.edu/ttitleXcompliance/nondiscrimination). UAF photos by Todd Paris.

**University of Alaska Fairbanks**  
**Undergraduate Research and Scholarly Activity (URSA)**  
**Annual Report AY 2016-17**

The mission of the University of Alaska Fairbanks (UAF) office of Undergraduate Research and Scholarly Activity (URSA), which was established in 2011, is to support, develop, and institutionalize UAF's diverse and robust undergraduate research and scholarly activity programs. This activity refers to student-faculty collaboration in the creation of discipline-specific and interdisciplinary knowledge. The primary means by which URSA fulfills its mission are as follows:

1. Provide funding for undergraduate students and faculty who collaborate on research and creative projects and activities;
2. Serve as a clearinghouse for projects that offer undergraduate students and faculty opportunities to collaborate in research or creative projects and activities;
3. Assist UAF faculty and staff who strive to create or maintain undergraduate research and creative scholarly programs;
4. Create regular events that serve as venues for students to present their research and creative projects and activities;
5. Catalog and archive UAF undergraduate student participation in research and creative projects, as well as the outcomes and products of those projects; and
6. Facilitate UAF undergraduate student recruitment and retention initiatives through program-specific initiatives.

Through these programs and initiatives, URSA aims to improve skills in critical thinking, creative problem solving, communication and methods of inquiry and to engender a culture of life-long learning for all students, as well as enhance preparation and education of undergraduates who will fill the needs of Alaska's 21<sup>st</sup> century workforce and society. URSA is UAF's resource for the development and promotion of experiential learning activities that engage undergraduate students, regardless of discipline, in support of UAF's goal to be a leading student-oriented research university. Based on the 2016 National Survey of Student Engagement (NSSE) for High-Impact Practices, UAF seniors scored higher than peer institutions on "working with a faculty member on a research project". In this age of ever-increasing information and access to that information, research literacy is a required competence for the entire populace, not just UAF students. Thus, offering opportunities for undergraduate students to participate in research and creative scholarship is a noted best practice in higher education. Building on existing efforts and capacities, URSA attracts, retains, and enables UAF students to pursue varying levels of research and scholarly activity engagement from independent study investigations to senior theses including scholarly exhibits and presentations, performances, or research endeavors.

**University of Alaska Fairbanks**  
**Undergraduate Research and Scholarly Activity (URSA)**  
**Major Accomplishments**

1. URSA Administration
  - a. Trent Sutton, UAF Fisheries Department continues as the URSA Director (18% of time year-round).
  - b. Kate Pendleton continues to serve as the full-time URSA Coordinator during the academic year and half-time during the summer.
  - c. The URSA Advisory Board was expanded to include the following UAF faculty: Brian Hemphill and Charles Mason from CLA, Nicole Cundiff and Josh Lupinek from SOM, Carie Green and JoAnne Healy from SOE, Steffi Ickert-Bond and Kris Hundertmark from CNSM, Sunwoo Kim and Xiangdong Zhang from CEM, David Valentine and David Verbyla from SNRE, Andrew Seitz from CFOS, and Alexandra Fitts, Vice-Provost.
  - d. The URSA Review Panel includes the following UAF faculty: Sine Anahita, Andrea Bersamin, Wendy Croskrey, Hector Douglas, Greg Finstad, Alexandra Fitts, Javier Fochessato, Carie Green, Jennifer Guerard, Brian Hemphill, Falk Huettman, Ute Kaden, Sun Woo Kim, Ilana Kingsley, Ellen Lopez, Charles Mason, Joy Morrison, Josh Reuther, Andrew Seitz, Sarah Stanley, Dave Verbyla, Peter Webley, and Peter Westley.
  - e. The URSA Innovative Technology and Equipment (ITE) Review Panel was created and consisted of the following individuals: Alexandra Fitts (Vice-Provost), Andres Dajles and John Smelter (staff), Andrew Seitz and Sveta Yamin-Pasternak (faculty), Elizabeth Molina (graduate student), and Deidre Neeley and Jenny Dale (undergraduate students).
2. Funding Awards
  - a. The total funds awarded through URSA in FY2016-17 were \$291,002 (93 awards total).
  - b. A total of \$225,100 was allocated during AY2016-17 for undergraduate research (fall/spring projects and Summer Undergraduate Research), undergraduate travel, Research and Creative Activity Day awards, and mentoring awards. The funding for these awards derive from UAF's reinvestment of 1% ICR into undergraduate student research and creative activity. Funding was allocated as follows:
    - i. Fall and Spring Undergraduate Project Awards (26 awards [89 applicants] totaling \$61,343)
    - ii. Undergraduate Student Travel Awards (20 awards [58 applicants] totaling \$32,108)
    - iii. Summer Undergraduate Research Awards (10 awards [38 applicants] totaling \$49,221)
    - iv. Mentoring Awards (13 awards [37 applicants] totaling \$89,400)
    - v. Research and Creative Activity Day Awards (14 awards [109 applicants] totaling \$3,780)
  - c. Innovative Technology and Equipment (ITE) Awards (10 awards [20 applicants] totaling \$55,150). The ITE Awards represented a funding line (former UAF Technology Advisory Board [TAB] funds) through URSA starting in 2015, which was used to support equipment and associated software in support of undergraduate and graduate education and research at UAF. These funds derive from 20% of the student technology fee.
3. Clearinghouse for Undergraduate Student Opportunities
  - a. URSA continues to serve as UAF's clearinghouse for undergraduate student opportunities to engage in unique projects conducting research or creative scholarly activities. However, the process is informal (reliant on passive communication) and thus quantifying URSA's role as clearinghouse or student-faculty matchmaker is difficult because URSA is not a student program; rather, URSA is an embodiment of UAF's institutional support for undergraduate student and faculty collaboration in research and creative projects.

- b. Nineteen UAF students enrolled URSA and MRAP (Museum Research Apprenticeship Program) courses during AY2016-17 (see 5. Curriculum Development below).
  - c. Fifty-two UAF students received URSA funding in support of research or creative scholarship during the fall, spring, and summer of AY2016-17, and another 132 students applied but did not receive funding. Some of these students may have been matched with their project either directly by URSA or indirectly through URSA's request for proposals. In addition, walk-in students seeking advice with respect to identifying research opportunities and/or mentors are frequent in the URSA office (weekly at a minimum and daily in the weeks at the beginning of a semester and around an URSA application deadline date). URSA has not tracked or followed up with these ad hoc advisees because they do not all apply for funding and, as a result, are not entered into the database.
4. Student Tracking and Project Cataloging
- a. The URSA database currently has 1,806 UAF undergraduates that have been involved in research and creative activity since its creation in 2012.
  - b. The 2013-2014 UAF accreditation report stated that 41% of UAF undergraduate students have participated in an academic research experience over the course of their baccalaureate studies. Further, the 1,806 students in the URSA database support that quantification of undergraduate student participation in research. Not included in the accreditation documents and not yet included in the URSA database are undergraduate students who are employed as research assistants. URSA has been working with UAF Human Resources and the UAF Office of Planning, Analysis, and Institutional Research (PAIR) to identify a means to include such students in the database.
  - c. An online version of UAF Research and Creative Activity Day has been created within the Institutional Repository, which is a joint effort of URSA and Library Sciences Staff.  
<https://scholarworks.alaska.edu/>.
  - d. Gary Hagestead in the Office of PAIR continues to work on streamlining the process of populating the URSA database to allow for more detailed and comprehensive tracking and reporting of undergraduate student research and creative scholarly activities. URSA worked with the UAF Deans to identify research-focused undergraduate courses in their respective academic programs to generate more accurate and comprehensive data on the involvement of undergraduates in research and creative activities at UAF.
5. Curriculum Development
- a. URSA (Undergraduate Research and Scholarly Activity) courses offered in AY2016-17
    - i. URSA 295 BLaST Bootcamp (Instructor: Natalia Podlutsky; Enrollment: 9 students)
    - ii. URSA 388 Undergraduate Research and Scholarly Activity I (Instructor: Trent Sutton; Enrollment: 3 students)
    - iii. URSA 488 Undergraduate Research and Creative Scholarship II (Instructor: Trent Sutton; Enrollment: 4 students)
  - b. MRAP (Museum Research Apprentice Program) courses offered in AY2015-16
    - i. MRAP 288 Museum Research Apprenticeship I (Instructor: Patrick Druckenmiller; Enrollment: 1 student)
    - ii. MRAP 488 Museum Research Apprenticeship II (Instructors: Steffi Ickert-Bond, Joshua Reuther; Enrollment: 3 students)
- b. Research and Creative Activity Day
- i. The UAF Research and Creative Activity Day was held on 25 April 2017; a total of 138 UAF undergraduate students presented or hosted displays at the event.
  - ii. Dean's Choice Awards (\$250 per school/college) were given for each college or school; the awardees and their poster title for each college/school were as follows:

- a. College of Engineering and Mines (CEM) – Sage Tixier, Jonah Jeffries, Taylor Thompkins, Michael Fehrenbach, Kenley Scarlett, Kyle Scarlett, and Paul Palombi Jr. (A Design Project to Build a 10 Watt Wind Turbine)
- b. College of Liberal Arts (CLA) – Aleksandra Milanovich (Examining Roles of Boredom Proneness, Self-determination, Intrinsic Motivation and Gender on a Persons’ Experience of Boredom)
- c. College of Natural Science and Mathematics (CNSM) – Amir Raz (Tsunami Waves in Asymmetric Narrow Bays)
- d. School of Education (SOE) – Jordan Wilson (Parent Involvement with Low Socioeconomic and Minority Families)
- e. College of Fisheries and Ocean Sciences (CFOS) – Stephanie Jump (Bottom Trawling for Chinook Salmon Smolts in the Tanana River)
- f. School of Natural Resources and Extension (SNRE) – Jessica Herzog (Trophic Niche Partitioning between Male and Female Golden Eagles in Western Alaska)
- g. College of Community and Rural Development (CRCD) – Loni Weggel (Analysis of Factors that Influence Talkativeness Among Adults)
- h. School of Management (SOM) Pomi Chafin (The 80/20 Experience: An Analysis of NHL Salaries and Why Ice Hockey is The Ultimate Team Game)
- iii. Three awards were given for the top three posters of the day; the awardees, their college/school, poster title, and dollar amount for their respective award were as follows:
  - a. First place – Jessica Herzog (Trophic Niche Partitioning between Male and Female Golden Eagles in Western Alaska) \$1,000
  - i. Second place – Amir Raz (Tsunami Waves in Asymmetric Narrow Bays) \$500
  - j. Third place – Stephanie Jump (Bottom Trawling for Chinook Salmon Smolts in the Tanana River) \$250

## 9. Student Highlights

- a. Katherine Aikens (CEM - Mechanical Engineering ) - Katherine attended the Society of Women Engineers 2016 conference. “Some of sessions I attended included "How NASA is empowering women in the workforce", "Interviewing do's and do not's" (one of my favorite!), "Managing your stress", and "Beyond Robots and Jet Packs: The Next decade of Engineering.” Probably the most beneficial aspect of this conference was the career fair. There were over 200 companies there which gave me the opportunity to have face-to-face contact and conversations with companies that I never would have gotten the opportunity to talk to otherwise. Because of this, I was able to interview with and get an internship offer to work with The Boeing Company for the summer of 2017. This trip has given me confidence in myself and given me lots of ideas to bring back to the UAF SWE student section on how we can improve ourselves and empower other women in the community.”
- b. Kate Clancy (CEM - Mining and Geological Engineering) - Kate studied the interaction of water tracks with soil piping to prevent future subsidence in Alaskan soils. “This experience has been extremely beneficial for my degree and future career. I have already learned some surveying techniques and data analysis that will be very useful. I'm very happy to have had this opportunity, and I'm looking forward to collecting more data for my research project.”
- c. Cynthia Nelson (CFOS - Fisheries) - Northern Pike, an invasive species south of the Alaska Mountain Range (native north of the Alaska Range), were introduced in the 1950’s. They have severely impacted some salmon populations, while having little impact on others, raising the question of why. “Can salmon adapt fast enough to persist in the face of a pike invasion?” is the question Cynthia spent the summer trying to answer through by using traditional fisheries techniques such as minnow trapping and gillnetting in the field followed by behavioral analyses to quantify behavior.

- d. Noah Khalsa (CFOS - Fisheries). Khalsa sought to understand the relatively unknown distribution of Chinook salmon that has led to management issues in response to their recent population decline. He tested 200 water samples taken from the flats for traces of Chinook salmon DNA to identify locations where Chinook salmon overwinter in the flats. The data was recorded and compiled in R software and results will be used to determine the population density and distribution at sample sites.
- e. Gina Rotermund (CLA - Foreign Languages) - Gina has career aspirations of becoming an interpreter and translator for biomedical personnel. In this project, she assisted researchers working on a project study on the effects of environmental mercury toxicity in La Paz, Mexico, with scientific translations.
- f. Seth Blohm (CLA - Music) - Seth accompanied the Alaska Chamber Chorale under the direction of Dr. Byron McGilvray on a tour of Italy where the group performed a selection of American choral pieces. "My travel experience was fantastic! As a future music educator, it is highly possible that I will be required to coordinate music department trips, especially if I am teaching high school. This trip gave me valuable insight on some dos and don'ts not only on conducting but also on music trip coordination. I had a once in a lifetime chance to learn music in a country that has made great contributions to the classical music genre."
- g. Aleksandra Milanovich (CLA - Psychology) - Aleksandra attended the Association for Psychological Science Annual Convention. "The opportunity to listen to lectures by authorities in the field has been an incredible perk of the already important moment in my student career; the one when I for the first time presented my research. In addition to networking and motivation for further research pursuits, the conference gave me experience of attending the conference with a mentor, who drew my attention to format of the convention so that I understand the importance of planning attendance at lectures of interest ahead of time, to ask questions, to approach people of interest, and to critically evaluate the information presented. Finally, presentation of my research poster at the conference has been an invaluable experience that stands out in my resume and gives me better chances of entering a graduate program of my liking. Conducting my own research, and presenting it at the conference in Boston is my greatest accomplishment to date."
- h. Alisha O'Brien (CNSM - Chemistry) - Alisha is part of an ongoing research project in the Howard Laboratory in the Department of Chemistry & Biochemistry at UAF, where they exploring the reactions of organometallic compounds containing platinum. "My research project is part of a larger umbrella that covers the assessment of organometallic platinum complexes as anticancer drugs. This semester, I made a new compound using our previous as the starting material. It is the goal to test the efficacy of this compound in leukemia cells. This is exciting academically, because, to our knowledge, no organometallic platinum anticancer drugs have been reported or described in the scientific literature. Before the start of summer, there were no students in the Howard lab working on platinum organo-metallic chemistry. Now, we have two graduate students and two undergraduates working on anti-cancer organo-metallic research."
- i. David Warner (CNSM - Chemistry) - David conducted a research project involving coal-fly ash from the UAF Power Plant. "Coal-based power plants produce roughly 750 million tons of coal-fly ash globally per year, and the storage of this waste, in the case of Fairbanks, often goes unregulated. Coal-fly ash from the UAF Power Plant was reacted with multiple water samples, which will allow us to identify metal(loid) solids that could harm the environment, animal, and public health."
- j. Alexandra Keller (CNSM Biology) - Keller examined permafrost thaw on changing soil dynamics and the correlation between soil pH and species density in Alaska using soil pH as a key indicator of ecosystem health. Her project introduced soil microbial inoculate to subsistence berries, Alaskan blueberries (*Vaccinium uliginosum*) and lingonberries (*Vaccinium vitis-idaea*), to monitor pH fluctuations to test her hypothesis that increased permafrost thaw depth results in microorganisms producing more acidic soil conditions, resulting in decreased *V. uliginosum* and *V. vitis-idaea* fitness. "There were many bumps along the road from a pH probe stopped working and I had to wait

for a replacement to freezing weather making it impossible to do any field work. This being my first research project I've ever done, I really had to think to solve all these problems.”

- k. Jessica Herzog (SNRE - Natural Resource Management) - Jessica studied niche partitioning among Alaskan golden eagles to better understand how males and females avoid competing with each other. She analyzed diet samples (i.e., uneaten prey remains and regurgitated pellets) collected from golden eagle nest sites on the Seward Peninsula, Alaska, in 2014 and 2015. Herzog went on to win First Place Overall at the 2017 UAF Research and Creative Activity Day for her research poster from this project.
- l. Trisha Levasseur (SNRE - Natural Resource Management) - Trisha presented a poster at the National Environment and Recreation Research Symposium in Maryland. “I was accepted to present my research poster: Visitation to and Through Federal Public Lands in Alaska: Further Analysis of the Collaborative Visitor Transportation Survey, which was an amazing experience and more than I could have imagined. It has given me insight to a side of the research world. I met and networked with wonderful professionals in my field and look forward to getting more experience like this.”
- m. Pomi Chafin (SOM - Business Administration) - Pomi presented at the Global Sport Business Association (GSBA) Conference on her research, The 80/20 experience: An Analysis of NHL Salaries and Performance Success.

#### 10. Mentor Highlights:

- a. Daisy Huang (CEM - Mechanical Engineering) - Daisy mentored a team of mechanical and electrical engineering undergraduate students to design, build, and test a small (10 Watt) wind turbine to take to the national Collegiate Wind Competition sponsored by the U.S. Department of Energy and National Renewable Energy Laboratory. The students learned engineering design, manufacture, planning, working cooperatively, networking, and supply chain management. Funding was used for supplies and to support travel for the students.
- b. Trent Sutton (CFOS - Fisheries) - Trent supervised five undergraduate students on a project to evaluate different hard structures used to age burbot, a recreationally important fish species in Interior Alaskan rivers. This study was an offshoot of a project that was recently completed involving collaborators from the Russian Academy of Sciences to examine the role of the Bering Land Bridge in the post-glacial colonization of burbot in Russia and Alaska. “While we talk in class about the nuts and bolts of collecting data, getting students into the lab to learn techniques that they will use in a professional setting is important. In addition, students get to learn that straightforward concepts, such as aging fish (this project) are really not that straightforward after all. So it is a good learning experience for them to see how not only to apply classroom-taught techniques and practices to real situations to collect data, but then also to have to critically think to troubleshoot when practice does not line up with theory. The reality is that real-world data collection is rarely textbook.”
- c. Frank Boldt (CLA - Justice) - The UAF Justice Department is developing a ground-breaking research pilot project, in partnership with the State of Alaska Court System, called the Fairbanks Community Restorative Justice Initiative (FCRJI), a pre-trial diversion program. “The program began, with its first undergraduate student intern, during the summer of 2017. As a department, we have focused heavily on student success by demonstrating theory to practice knowledge through undergraduate student internships. With the FCRJI pilot project, we are determined to integrate students into the exceptional opportunity to actively participate in the program and being a critical part of research within the justice system. In order to integrate student internships with the FCRJI, we need to train students and community members on Restorative Mediation practices.” The group held a week-long training workshop in the spring and funded the summer student intern. Three additional student interns will begin in the fall 2017.
- d. Amy May (CLA - Communication and Journalism) - Amy set out to test the effectiveness of the Oculus Rift (a VR device recently released to mass market) as a tool to reduce speech anxiety among

- undergraduate students in an entry-level public speaking course at the UAF. Funding was used to purchase the Oculus Rift, corresponding software applications, and provided salary support for the undergraduate student working on the project. “Current research suggests virtual reality (VR) may be an effective intervention strategy for treating anxiety disorders (Luiselli & Fischer, 2016); however, no studies have explored the feasibility of VR as a tool to reduce speech anxiety.”
- e. Maryanne Evans (CNSM - Biology and Wildlife) - This project investigated the potential impact of the Alaskan soil microbiome on plant biomass production in relation to climate change, primarily permafrost thaw. “My project used the microbial community obtained from soil cores at the Fairbanks Permafrost Experimental Station to experimentally inoculate growing vegetation in the Institute of Arctic Biology greenhouse. My research required collecting samples at the Fairbanks Permafrost Experimental Station throughout last year. The field work was demanding and I was thankful to have the ability to fund undergraduates willing to endure extremely challenging weather conditions. I started out with two undergraduates, Alexandra Keller and Jason Foreman. Alexandra expressed interest in starting a project of her own, so I mentored her through writing her first independent project grant with URSA (and she was successful!). When she obtained her own funding, I was able to take on another undergraduate. I thought that scenario was an excellent example of URSA mentoring and funding at its best. I love teaching and mentoring, and this experience has been a highlight of my graduate experience at UAF. I will always value the impact I believe I had on these students, and their experience at UAF.”
  - f. Mike Whalen (CNSM - Geology) - This award was instrumental in helping to initiate research on the core collected during International Ocean Discovery expedition 364 to the Chicxulub impact crater. Funding was used to produce the initial thin sections made for microscopic examination and for stable isotopic analysis of organic matter from the samples. The student involved in the project, Bryan Bosserman, was trained in sample preparation for both of these tasks and his assistance was key to conducting the proposed research. The samples prepared for stable isotopic measurements eventually produced evidence of extraordinary atmospheric changes that occurred during the impact event. In addition, Bryan documented key changes in composition of impact breccias that will be crucial to understanding depositional processes post-impact. Bryan put together a poster that he presented at the UAF Research & Creative Activity Day back in April.
  - g. Mark Melham (SNRE - Natural Resource Management) - Mark took three undergraduate students into the Brooks Range to develop a localized understanding of Dall sheep to provide pertinent research skills inherent to wildlife research and natural resources. The research team developed maps of Dall sheep range, remote sensing shrub expansion, and delineating snowpack shifts in alpine areas. In the field, they gained skills such as non-invasive sampling, boreal and arctic shrub and herbaceous plant identification, and backcountry and navigational skills. “My interest in mentoring undergraduates stems from a desire to share how amazing conservation work can be. It's easy for students to get lost in the tedium of academia before realizing its applications. These students will write many reports and take many tests before they really get to experience the real-life applications of the work they are learning to do. I want to provide an experience that inspires them to keep working hard. I was fortunate enough to have that experience performing brown bear research on Kodiak Island. When in doubt, I look back on that time as a reason for persevering. I want this project to serve them in the same vein.”
  - h. Jan Dawe (SNRE - Natural Resource Management) - OneTree is a year-round STEM (Science, Technology, Engineering Math) to STEAM (STEM plus Arts) program that uses the local boreal forest as a springboard for active, project-based learning. OneTree builds bridges between area K-12 students and teachers and the UAF community, with an emphasis on university students serving as informal educators (or service learners') in K-12 classrooms as well as on the UAF campus. This award supported undergraduate students throughout the spring semester 2017 in 1) K-12 education research, 2) two citizen science initiatives, 3) forest product development, and 4) development of the



OneTree Alaska STEM to STEAM Studio as an informal science center and K-12 field trip destination.

- i. Joe Little (SOM - Economics) - This award supported two undergraduate student research positions with two research trips directly related to the School of Management's National Park Service (NPS) and Ocean Alaska Science Learning Center (OASLC) research. The undergraduate researchers of this project gained experience in the NPS Office of Management and Budget (OMB) research approval process, social network analysis (SNA) methodology, data collection, and data analysis.

**University of Alaska Fairbanks**  
**Undergraduate Research and Scholarly Activity (URSA)**  
**AY 2017-18 Challenges and Goals**

**1. Continue to raise the profile of undergraduate research and scholarly activity at UAF.**

A fundamental aspect of URSA's mission is to ensure that UAF students, faculty, and staff are aware of the opportunities available for undergraduate research and creative scholarly activities. To accomplish this goal, there remains an increased efforts to promote URSA funding opportunities via email (e.g., directed emails to each college/school, UAF-sponsored communications such as The Cornerstone), strategically placed announcements throughout campus, presence and participation in UAF events (e.g., Inside Out, New Student Orientation, We Are CLA, UA Scholars night, etc.), periodic, directed communications with the Deans of the various colleges/schools, revision to the URSA website, attendance and participation in UA and UAF administrative meetings (e.g., Board of Regents, Provost Council, Dean's Council, etc.), and completion of an annual report each year. URSA will also be developing additional means of raising its profile, including student profile postcards, student-mentor videos for display on the URSA website, and meeting with UAF administrators, faculty, and staff during regularly scheduled meetings (e.g., Recruitment Admissions Meeting, Coordinator Meeting, etc.) and impromptu meetings (e.g., Deans, student focus groups, etc.). The ultimate goal of these efforts is to not only better inform the UAF community on URSA's mission and activities, but to also raise awareness and interest for undergraduate research (as well as research in general) at UAF. To facilitate this goal, URSA will print posters for any undergraduate student presenting their research or creative activity at a workshop, meeting, or conference, regardless of their source of funding. In addition, URSA also has dozens of portable display boards for exhibiting posters which are available for any research event taking place on the UAF campus. From the UAF perspective, URSA serves as a student engagement tool; as such, promoting and showcasing undergraduate research and creative scholarship should be a key component of all UAF student events recruitment and retention events since UAF is the leading research institution in the UA system. Ultimately, these efforts will not only yield an increase in the percentage of undergraduates involved in research and creative scholarship at UAF, but will also diversify the types of scholarly activities funded by URSA across the UAF colleges/schools.

**2. Improve student tracking, project cataloging, and outcome assessment** of URSA-sponsored and non-URSA-sponsored research. An important data need at UAF requires that URSA obtain and make available accurate numbers of students and mentors engaged in undergraduate research and creative activities. Collecting comprehensive data is a challenge, especially for those students who are engaged in research and creative activities by virtue of holding a position as a student research assistant. The URSA Coordinator works closely with Ian Olson and Gary Hagestead with the Office of PAIR (Planning, Analysis, and Institutional Research), UAF Human Resources, and other undergraduate funding initiatives at UAF (e.g., BLaST [Biomedical Learning and Student Training], Honor's Program, RAHI [Rural Alaska Honors Institute], etc.) on student research participation to facilitate the collection of these data. It is also important to track those projects that are funded by URSA, funded by other units, or not funded at all, and to provide this information to the UAF Chancellor and Provost, other administrators in the UAF Provost's Office, and the Deans of the various UAF colleges/schools for informational purposes. Further, student projects in research and creative scholarship are diverse in discipline, which translates to diversity in mode and medium. URSA will work with the Library Sciences faculty to meet the challenge of archiving all projects in undergraduate research and scholarly activity, as well as making these archived documents available to be used as tools in recruitment, marketing, and development. The URSA staff will work with staff members in the Office of Admissions, Communications and Marketing, and Development to act as a resource for sharing exciting stories that can be used for promotional

purposes. In addition to all of this is the need to conduct outcome assessment to determine whether URSA is making a difference in enhancing the educational experience for UAF undergraduates. Part of the challenge here is identifying not only products (e.g., presentations, displays, publications, etc.) generated by students while they are enrolled at UAF but also identifying these same products once students have graduated from the university. Another component to this is tracking where URSA-funded students end up following graduation (e.g., graduate school, professional school, etc.).

3. **Continue to rely on the URSA Advisory Boards and Review Panels** as active resources to develop and enhance current and future opportunities and initiatives as well as provide direction for the URSA mission. The current structure is that one group of faculty assists with general planning (the URSA Faculty Advisory Board) and a separate group of faculty (and some staff and student members) reviews student and faculty mentor applications (the URSA Review Panel). Members of both groups may provide feedback on the operation of URSA as well as bring forward new ideas, initiatives, and concerns related to the URSA mission. In terms of the specific structure and primary responsibilities of these two groups, we have the following: (1) the Faculty Advisory Board consists of two faculty members from each academic college/school at UAF and meets once each semester to discuss policy initiatives and opportunities related to URSA; and (2) the Review Panel meets in accordance with the various due dates of the undergraduate student project, undergraduate student travel, mentor, and ITE requests for proposals and will primarily be responsible for reviewing the submitted proposals (note that there is no limit to the number of individuals that can participate on a review panel). However, both groups are essential for disseminating URSA information and increasing the understanding of URSA funding policies and processes for all interested faculty, staff, and students at UAF. A new addition this AY will be the creation of a Student Advisory Board that will also meet once each semester to discuss policy initiatives and opportunities from the student perspective.

4. **Continue to make UAF Research and Creative Activity Day (formerly known as UAF Research Day) the showcase event for undergraduate research and scholarly activity** at UAF. Based on feedback, UAF Research and Creative Activity Day will once again have a shortened duration (relative to events prior to 2016) and a fast-paced award's ceremony to maintain engagement of all participants and attendees. To accommodate the increased number of student participants, more space will be reserved for the 2018 event to allow more poster display boards and space for faculty, staff, students, and other visitors to view the posters. In addition, we will continue to expand Research and Creative Activity Day to include more than just traditional research and scholarly activity posters, but also to more broadly include other forms of visual and interactive displays. This was accomplished at the 2017 UAF Research and Creative Activity Day and was well received; as a result, expanding these types of displays will diversify and enhance research day at future events. The UAF administration, as well as local members of the UA Board of Regents, will again be notified early during the fall 2017 semester to save the date for the 2018 event (10 April 2018) so that they can attend UAF Research and Creative Activity Day. This event will be held two weeks earlier than it has been held previously, which reflects feedback from UAF administrators, faculty, and staff. Historically, UAF Research and Creative Activity Day has always been held the last Tuesday of April, which typically corresponds to the last week or classes at UAF. Since this is an extremely busy week at UAF, the feedback was to move the event a couple of weeks earlier to be still held late in the semester as a celebration of undergraduate research and creative activity but not during arguably one of the busiest weeks of the AY.

5. **Explore opportunities to expand URSA funding initiatives**, which will include developing a mechanism for undergraduate research and creative activity at rural UAF campuses, expanding funding availability for undergraduate student grants focusing on global change in the Center for Global Change and Arctic System Research, and consideration of the development of separate URSA-supported internship, capstone, and community-based learning programs. An additional initiative is to discuss and identify additional funding via private donors and grantsmanship as funding resources potentially begin to decline during the current UAF budget crisis.

6. **Increase the number of students enrolled in URSA-sponsored courses:** URSA 388 Undergraduate Research and Creative Scholarship I, URSA 488 Undergraduate Research and Creative Scholarship II 488, and MRAP (Museum Research Apprenticeship Program) 288 and 488. Historically, enrollment in these courses has been low (5-20 students per year), which is in large part due to a general lack of awareness that these opportunities exist. There is tremendous opportunity here to have more students participate in these courses.
7. **Provide assistance for undergraduate students** to help them prepare for research and scholarly projects at UAF, which will include how to identify project ideas and mentors, write competitive proposals, and prepare posters for presentation purposes.
8. **Enhance the student-mentor experience** at UAF by developing and adopting guidelines, policies, and expectations for both students and mentors. This could result in the development of a student-mentor contract with clear expectations for both individuals (the student and mentor) engaged in research and creative activities. Along with this would be the development of a workshop/expert panel of successful mentors at UAF who would provide the panel audience an opportunity to ask questions and receive feedback on mentoring practices that have and have not worked for them. An outcome of this workshop/panel would be a “best practices” document that URSA can then provide to faculty mentors for guiding their mentoring experience. Another aspect of enhancing the student-mentor experience will be to continue to solicit feedback from students regarding interactions/experiences with their mentor and from mentors regarding their interactions/experiences with their student(s). This feedback will be used to help URSA identify and address potential problem areas as well as highlight positive aspects of the student-mentor relationship.

Table 1. The number of URSA applications (student project, student travel, mentoring, and ITE combined), awards, and awarded dollars for each college/school for AY2016-2017. The dollar amount awarded also includes awards to students for UAF Research and Creative Activity Day poster presentations.

<b>College/School</b>	<b>Number of Applications</b>	<b>Number of Awards</b>	<b>Dollar Amount Awarded</b>
CEM	71	19	\$37,265
CFOS	10	4	\$17,850
CLA	73	19	\$68,077
CNSM	145	32	\$108,103
CRCD	4	1	\$250
CTC	1	1	\$7,355
DGS	4	2	\$3,667
SNRE	27	11	\$38,435
SOE	5	1	\$250
SOM	7	3	\$9,750
<b>Total</b>	<b>347</b>	<b>93</b>	<b>\$291,002</b>

Table 2. The number of URSA applications (Apps), awards, total dollar amount awarded (Dollar Amt.) to all amount awarded by award type for each college/school and department/unit within each college/school for AY2016-2017.

College/ School	Department/ Unit	Apps	Awards	Dollar Amt.	Project	Travel	Mentor	ITE	Research & Creative Activity Day
CEM	Civil & Env.	6	2	\$8,855	\$7,500	\$1,355	0	\$0	\$0
	Comp. Sci.	7	0	\$0	\$0	\$0	\$0	\$0	\$0
	Mechanical	34	15	\$23,910	\$7,100	\$3,100	\$7,500	\$5,930	\$280
	Mining & Geo.	2	2	\$2,500	\$2,500	0	0	0	\$0
	Petroleum	3	1	\$2,000	\$0	\$2,000	\$0	\$0	\$0
	Process Tech	1	0	\$0	\$0	\$0	\$0	\$0	\$0
CFOS	Fisheries	10	4	\$17,850	\$9,850	\$0	\$7,500	0	\$500
CLA	Anthropology	7	4	\$14,100	\$12,100	\$2,000	\$0	\$0	\$0
	Art	9	2	\$3,470	0	\$3,470	\$0	0	\$0
	Comm & Journalism	8	2	\$14,652	\$0	\$0	\$7,500	\$7,152	\$0
	English	6	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Foreign Language	2	1	\$2,250	\$2,250	\$0	\$0	\$0	\$0
	History	0	0	\$0	\$0	\$0	\$0	\$0	\$0
	Justice	5	1	\$7,500	\$0	\$0	\$7,500	\$0	\$0
	Linguistics	3	1	\$1,250	\$0	\$1,250	\$0	\$0	\$0
	Music	4	1	\$2,000	\$0	\$2,000	\$0	\$0	\$0
	Northern Studies	1	0	\$0	\$0	\$0	\$0	\$0	\$0
	Philosophy	1	0	\$0	\$0	\$0	\$0	\$0	\$0
	Political Sci.	2	0	\$0	\$0	\$0	\$0	\$0	\$0
	Psychology	16	5	\$14,284	\$4,539	\$2,000	\$0	\$7,495	250
	Social Work	0	0	\$0	\$0	\$0	\$0	\$0	\$0
	Sociology	1	0	\$0	\$0	\$0	\$0	\$0	0
Theater & Film	8	2	\$8,571	0	\$1,620	\$0	\$6,951	\$0	
CNSM	Atmospheric Science	1	0	\$0	\$0	\$0	\$0	\$0	\$0
	Bio. & Wildlife	74	13	\$41,300	\$16,590	\$2,770	\$15,000	\$6,940	\$0
	BLaST	1	0	\$0	\$0	\$0	\$0	\$0	\$0
	Chem. & Biochem.	37	10	\$36,811	\$21,114	\$3,869	\$11,222	\$606	\$0
	Geosciences	16	5	\$23,732	\$4,000	\$0	\$7,500	\$12,232	\$0
	Math & Stats.	2	1	\$750	\$0	\$0	\$0	\$0	\$750
	Physics	13	3	\$5,510	\$2,500	\$3,010	\$0	\$0	\$0
	Vet Med	1	0	\$0	\$0	\$0	\$0	\$0	\$0
CRCO	All campuses	4	1	\$250	\$0	\$0	\$0	\$0	\$250
CTC	Process Tech	1	1	\$7,355	\$0	\$0	\$0	\$7,355	\$0
DGS	Faculty Development	1	1	\$3,178	\$0	\$0	\$3,178	\$0	\$0
	Student Support Services	3	1	\$489	\$0	\$0	\$0	\$489	\$0

SNRE	NRM	27	11	\$38,435	\$18,521	\$3,664	\$15,000	\$0	\$1,250
SOE	Education	5	1	\$0	\$0	\$0	\$0	\$0	\$250
SOM	Bus. Mgmt.	4	2	\$2,250	\$2,000	\$0	\$0	\$0	\$250
	Economics	1	1	\$7,500	\$0	\$0	\$7,500	\$0	\$0
	Finance	1	0	\$0	\$0	\$0	\$0	\$0	\$0
	Homeland Security	1	0	\$0	\$0	\$0	\$0	\$0	\$0

Table 3. The number of URSA applications (AP), awards (Aw), and dollar amount (DA) for each college/school by awards type for AY2016-17.

	Student Project			Student Travel			Mentoring			ITE			Research Day		
	Ap	Aw	DA	Ap	Aw	DA	Ap	Aw	DA	Ap	Aw	DA	Ap	Aw	DA
CEM	27	6	\$17,100	22	4	\$6,455	2	1	\$7,500	2	1	\$5,930	18	7	\$280
CFOS	4	2	\$9,850	0	0	\$0	2	1	\$7,500	2	0	\$0	2	1	\$500
CLA	22	6	\$18,889	14	7	\$12,340	8	2	\$15,000	4	3	\$21,598	24	1	\$250
CNSM	52	16	\$44,204	18	6	\$9,649	18	5	\$33,722	7	4	\$19,778	49	1	\$750
CRCD	1	0	\$0	0	0	\$0	1	0	\$0	0	0	\$0	2	1	\$250
CTC	0	0	\$0	0	0	\$0	0	0	\$0	1	1	\$7,355	0	0	\$0
DGS	0	0	\$0	0	0	\$0	1	1	\$3,178	3	1	\$489	0	0	\$0
SNRE	12	5	\$18,521	4	3	\$3,664	3	2	\$15,000	0	0	\$0	8	1	\$1,250
SOE	4	0	\$0	0	0	\$0	0	0	\$0	0	0	\$0	1	1	\$250
SOM	4	1	\$2,000	0	0	\$0	2	1	\$7,500	0	0	\$0	1	1	\$250

The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at [www.alaska.edu/titleIXcompliance/nondiscrimination](http://www.alaska.edu/titleIXcompliance/nondiscrimination)