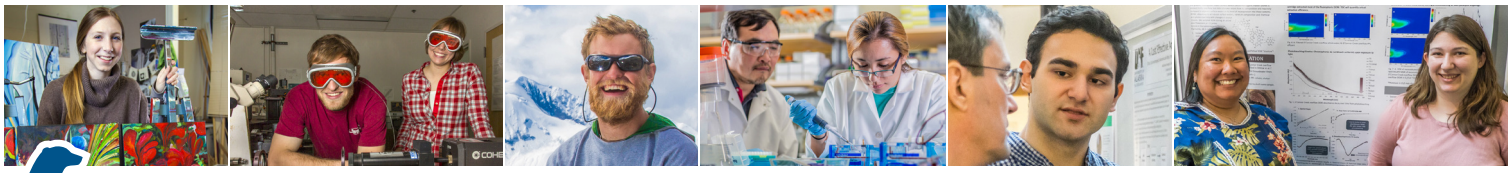


URSA UNDERGRADUATE RESEARCH & SCHOLARLY ACTIVITY

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.

- 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.

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.

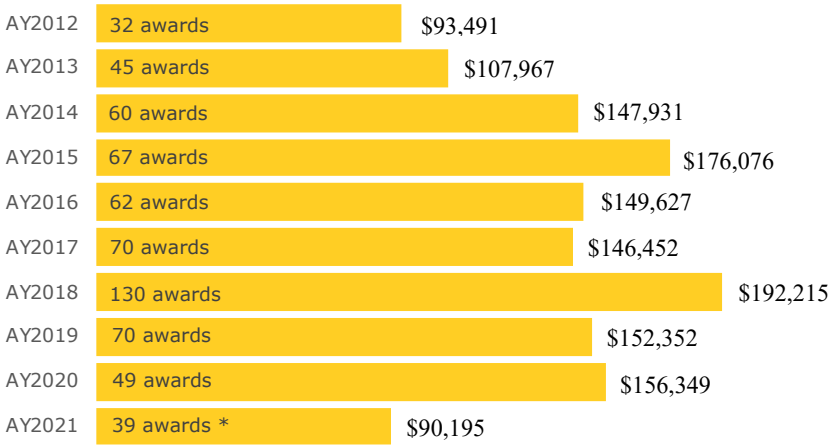
Selected Performance Indicators

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
AY2018	279	305	11	595
AY2019	123	132	3	258
AY2020	306	192	26	524
AY2021	243	278	46	567

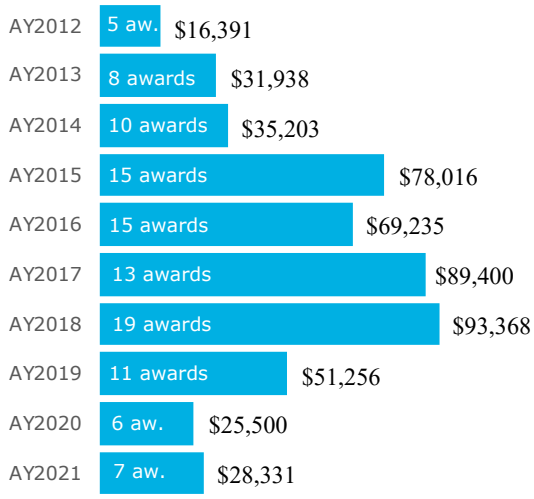
**The significant increase in research courses reflects a change in the research course designation process.*

URSA Student Awards

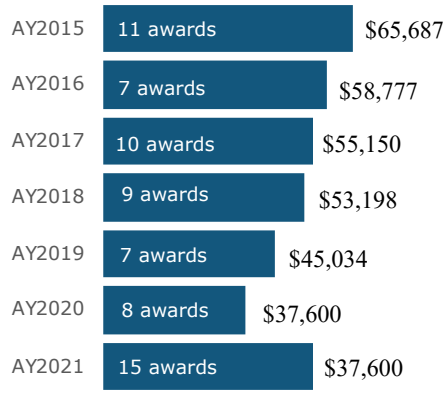


*Limited Travel Awards were offered due to the COVID-19 pandemic.

URSA Mentoring Awards



URSA Innovative Technology and Education (ITE) Awards



University of Alaska Fairbanks
Undergraduate Research and Scholarly Activity (URSA)
Annual Report AY 2020-2021

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, staff, post-doctoral research associates, and graduate students who strive to create or maintain undergraduate research and creative scholarly programs;

4. Create regular events that serve as venues for undergraduate 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 21st 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 2019 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 CFOS Department of Fisheries, continues as the URSA Director (18.5% of time year-round).
   b. Marie-Sylvestre Olesen was hired in August 2020 as the new URSA coordinator, and the position has been changed to 10 months at three-quarter time.
   c. The URSA Faculty Advisory Board was expanded to include the following UAF faculty: Elaine Drew and Charles Mason from College of Liberal Arts (CLA), Peggy Keiper and Jon Nachtigal from School of Management (SOM), Greg Kahoe and Ute Kaden from School of Education (SOE), Steffi Ickert-Bond and David Valentine from College of Natural Science and Mathematics (CNSM), Sunwoo Kim and Sveta Stuefer from College of Engineering and Mines (CEM), Ana Aguilar-Islas from College of Fisheries and Ocean Sciences (CFOS), Anshul Pandaya and Claudia Ihl from College of Rural and Community Development (CRCD), Brian Ellingson from Community Technical College (CTC), and Alexandra Fitts (UAF Vice Provost).
   d. There was no URSA Student Advisory Board for AY20-21 due to a low in-person attendance rate during the COVID-19 pandemic.
   e. The URSA Review Panel included the following UAF faculty: Ana Aguilar- Islas, Maher Al-Badri, Jungho Baek, Bahareh Barati, Nathan Belz, Andrea Bersamin, William Burt, Cam Carlson, Rich Carr, Cheng-Fu Chen, Ross Coen, Wendy Croskrey, Marina Cuzovic-Severn, Margaret Darrow, Jan Dawe, David Denkenberger, Elaine Drew, Devin Drown, Augusto Falchetto, Daryl Farmer, Greg Finstad, Javier Fochesatto, Brian Hemphill, Kara Hoover, Falk Huettmann, SunWoo Kim, Ilana Kingsley, Cecile Lardon, Dan Mann, Jingqiu Mao, Wendy Martelle, Charles Mason, Mario Muscarella, Ryan Oliver, Jen Peterson, Terry Reilly, Josh Reuther, Eve Ryan, Jeremy Speight, Lisa Strecker, Sveta Stuefer, Renate Wackerbauer, Peter Webley, and Sveta Yamin-Pasternak

2. Funding Awards
   a. The total amount of funding awarded by URSA in FY21 was $176,304 (63 awards total).
   b. A total of $118,526 was allocated during AY2020-21 for undergraduate student projects (fall/spring projects and summer undergraduate research projects), undergraduate student travel, and mentoring awards. Due to the COVID-19 pandemic, there was no student travel allowed. However, funding for student travel awards was used to cover registration costs for student presenting and participating in virtual conferences, workshops, and meetings. We were able to host a virtual Research and Creative Activity Day from April 6-8, 2021, and distributed $2,400 between 12 projects for the Deans' Choice Awards. The funding for the awards that was given out in FY20 was derived 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 (17 awards [31 applicants] totaling $49,441)
      ii. Undergraduate Student Travel Awards (3 awards [4 applicants] totaling $450)
      iii. Summer Undergraduate Research Project Awards (9 awards [13 applicants] totaling $40,304)
      iv. Mentoring Awards (7 awards [7 applicants] totaling $28,331)
      v. Community Engaged Learning Awards (0 awards [0 applicants) totaling $0)
   c. Innovative Technology and Equipment (ITE) Awards (15 awards [19 applicants] totaling $55,378). The ITE Awards represent a funding line (former UAF Technology Advisory Board [TAB] funds) through URSA which started in 2015, and are used to fund equipment and associated software purchases in support of undergraduate and graduate education and research at UAF. These funds are derived 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. Two UAF students enrolled in URSA courses during AY2020-21 (see 5. Curriculum Development below). No MRAP (Museum Research Apprenticeship Program) courses were offered this year due to the COVID-19 pandemic.
   c. Forty-four students and/or groups received URSA funding in support of research or creative scholarship during the fall, spring, and summer of AY2020-21, and an additional 36 students and/or groups applied but did not receive funding (80 total applicants). 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, 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 2,899 UAF undergraduates that have been involved in research and creative activity since its creation in 2012.
    b. Since 2012, at least 41% of UAF undergraduate students participated in an academic research experience over the course of their baccalaureate studies. Further, the 2,899 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.

5. Curriculum Development
    a. URSA (Undergraduate Research and Scholarly Activity) courses offered in AY2020-21
        i. URSA 388 Undergraduate Research and Creative Scholarship II (Instructor: Trent Sutton; Enrollment: 0 students).
        ii. URSA 488 Undergraduate Research and Creative Scholarship I ((Instructor: Trent Sutton; Enrollment: 2 students).
    b. There were no MRAP (Museum Research Apprentice Program) courses offered in AY2020-21.

6. Research and Creative Activity Day
    a. The UAF Research and Creative Activity Day was held virtually on April 6-8, 2021; a total of 49 UAF undergraduate students presented 38 projects at the event.
    Dean's Choice Awards ($250 per project) as well as Honorable Mentions ($150 per project) were given to each college or school; the awardees and their poster title for each college/school were as follows:

        i. College of Engineering and Mines (CEM):
            a. Dean's Choice Award: Joshua MacEachern | *Open-Source Multichannel Microfluidics Pump*
            b. Honorable Mention:
            Grace Bolt | *Matching Excess Renewable Energy Generation with Heat Loads on Microgrids*
            Peyton Presler | *Determining Relative Age of Landslides Using LiDAR-derived Surface Roughness and Field Observations*
        ii. College of Fisheries and Ocean Science (CFOS):
            a. Dean's Choice Award: William Samuel | *Analysis of the Cripple Creek Restoration Project: Assessing the Effects of Fish Passage Improvements and Habitat Enhancement on Fishes in a Chena River Tributary*
            b. Honorable Mention: Talia Davis | *Ocean water and blue mussel (Mytilus edulis; yaak*) samples create baseline for climate change and pollution indicators and strengthen data sovereignty for the Tlingit community of Kake, Alaska*
        iii. College of Liberal Arts (CLA):
            a. Dean's Choice Award: Madeline Andriesen, Taylor Hendricks, Lindsay Moisan, Arian Lopez, Jonathan Lange, Jenna Dreydopel, & Ellie Martinson | *Vocal Performance and Music Education*
            b. Honorable Mention: Kaylie Breuninger | *Exploring Well-Being During Winter Across Latitudes*
        iv. College of Natural Science and Mathematics (CNSM):
            a. Dean's Choice Award: Lahra Weber | *Developing a Method for Quantification of HMS in Ion Chromatography*
            b. Honorable Mention:
            Grace Burrell | *Climate-driven changes in hibernacula temperature and hibernation physiology of arctic ground squirrels (Urocitellus parryii) in northern Alaska*
            Michelle Reaume | *Denali Fault - How do we understand the age, magma source, and growth rate of each pluton?*
        v. College of Rural and Community Development (CRCD):
            a. Dean's Choice Award: Maria Burke | *Investigating earthworms in westerns Alaska*
        vi. School of Management (SOM):
            a. Dean's Choice Award: Craig Kyle Chythlook | *Water Services Impact on Subsistence*

7. Student Highlights:

    a. Kayli Breuninger (CLA – Psychology) conducted a study to examine the relationship between natural light exposure and well-being during winter across latitudes through a survey that assessed seasonal changes in mood, attitudes, behavior, health, and well-being to identify whether responses to winter are different between Alaska, Oregon, and Texas.

b. Hannah Deuling (CNSM – Biology) continued her research on the genome sequencing of positive COVID-19 specimens from across Alaska. The goal was to get enough data of SARS-CoV-2 full genomes to be able to trace virus spread and find possible variations of COVID-19 strains circulating in Alaska.
c. Hanna Hellen (CFOS – Marine Biology) aimed to determine if the polar bear populations in the Southern Beaufort Sea and the Chukchi Sea sub-population can be distinguished using bulk stable isotope signatures of muscle tissues.
d. Lahra Weber (CNSM – Chemistry) developed a method to quantify hydroxymethanesulfonate (HMS) in an anion ion chromatography (IC) system and planned to change the eluent composition and IC columns to establish the optimal conditions for measuring HMS in IC.
e. Madeline Andriesen, Taylor Hendricks, Lindsay Moisan, Ariana Lopez, Jonathan Lange, Jenna Dreydopel, and Ellie Martinson (CLA – Music) participated in opera workshop performances that were recorded and edited with Adobe Cloud and sent to high schools in and outside the state of Alaska for outreach and recruiting for the UAF Music Department.
f. Aidan Hunter (CNSM – Wildlife Biology) and Brian Zhang (CFOS – Fisheries) determined if reindeer can hear low frequencies of sound.
g. Mirin Morris-Ward, Gregory Reynolds, and Ethan Mahoney (CEM – Mechanical Engineering) designed and built a device that will automatically collect flying insects and record the biomass data of the catch, with the goal of being able to leave a Malaise trap with the device out in the field for long periods of time without human intervention.
h. Brayden Banhke, Millar Arnold, Matt Perry, and Logan Vanclifford (CEM – Computer Sciences) designed and built a robot to compete in the 2021 NASA Robotic Mining Competition.
i. Joshua MacEachern, Zion Alioto, and Louis Bastille (CEM – Electrical Engineering) designed and manufactured an unmanned aircraft to compete in the American Institute of Aeronautics and Astronautics Design Build Fly (DBF) competition held in April 2021.
j. William Samuel (CNSM – Natural Resource Management) examined the efficacy of habitat restoration efforts in Cripple Creek by analyzing fish abundance and length data gathered in 2018-2020.
k. Gerald Montuya (CEM – Mechanical Engineering) experimentally quantified the cooling capacity of a radiative sky cooling (RSC) apparatus. The goal was to understand its emerging science applications in Fairbanks' unique climate.
l. Lucille Farrell (CLA – Linguistics) studied how people used emojis and emoticons in virtual spaces, instead of using their voice or body language.
m. Rya Berrigan (CNSM – Biological Sciences and CLA - Art) developed and analyzed a database of visual and performing artists and artworks that combine art with northern environmental science. The artists and emergent themes identified will help to develop programming for ARcTic Fest, an annual art-science festival being planned by UAF and the Fairbanks Concert Association.
n. Leif Van Cise (SOM – Business Administration) researched the application of 360° cameras and three-dimensional (3D) mapping software to analyze boundaries for accessibility in rural and urban areas of Alaska and find applications in marketing and education.
o. Patrick Marbacher (CNSM – Biology & Wildlife) tested the hypothesis that sirtuins (silent information regulator 2 proteins, SIRT) mediate metabolic remodeling in threespine stickleback.
p. Daniel Manley (CEM – Electronical and Computer Engineering) developed an open-source energy trading market as a decentralized application. A P2P energy grid allows homes with excess energy, such as power from solar panels, to sell their excess power to others in the electricity grid.
q. Gabriel Low (CNSM – Geosciences) developed a low-cost (<$1,200/unit), solar-powered, deployable seismic monitoring station that has applications in volcanic and seismic hazard monitoring.
r. Daisy Herrman (CEM – Civil and Environmental Engineering) expanded our understanding of rockfall along steep slopes by analyzing the long-term effects of changing a slope's angle of repose and how that corresponds to rockfall frequency using ArcGIS and LiDAR data.
s. Feyne Elmore (CFOS – Oceanography) calculated various sources of mercury into coastal marine waters and assess how these sources differ between forested and glaciated watersheds.
t. Danasia Cary (CLA – Linguistics) examined the language ideologies of multiple members of one family who, over the course of three generations, has lived overseas at intervals as part of their military assignment.
u. Sophia Bracio (CNSM – Wildlife and Biology Conservation) compared the success of two different milk formulas used to bottle raise musk oxen calves by doing a statistical analysis of weight gain and milk volume consumption data.

8. Mentor Highlights:

a. Miho Aoki (CLA – Art) engaged students Naomi Green and Sarah Griffen-Lotz in an international collaborative animation project as a practicum which was their capstone project to lead a team of students in lighting design and animation, gain leadership experience in international production, and create artwork for a professional demo reel.
b. Katja Berghaus (CFOS – Fisheries) received funding to work with Molly Piscoya and Roger Maldonado to conduct the examination and histological staging of male reproductive organs and tissues in Lingcod *Ophiodon elongatus*.
c. Elizabeth Figus (CNSM - Alaska Center for Climate Assessment and Policy) and CFOS Fisheries student Talia Davis partnered with the organized village of Kake, Kake Tribal Corporation, and the City of Kake, to co-produce climate research in Kake, Alaska. Her team in southeast Alaska used an existing model of co-production of knowledge that was developed for work using Indigenous and western worldviews in the Arctic.
d. Carolyn Hamman (CFOS – Fisheries) and student Amanda Frantz studied the influence of warming oceanic water on the thermotolerance of two Arctic teleosts.
e. Daisy Huang (CEM – Mechanical Engineering) researched with Grace Bolt the usage of greenhouse heating to optimize usage of renewable energy in rural Alaska.
f. Claudia Ihl (CRCD – Sciences) worked with Maria Burke to study the invasive earthworms in Nome, Alaska, aiming to expand on the brief data collection of 2019. They worked on gaining a more thorough picture on earthworm species, their distributions around Nome, and their relationship to human land use such as mining, homesteading and gardening, as well as their impact on local soils.
g. Sean Regan (CNSM – Geosciences) engaged students Sean Marble and Michelle Reaume in examining how much slip is on the Denali Fault. Constraining the long term (107 year) behavior of the Denali Fault is critical to unraveling the modern behavior of the Denali Fault, the tectonic evolution of Alaska, and the rise of the iconic Alaska Range.

University of Alaska Fairbanks
Undergraduate Research and Scholarly Activity (URSA)
AY 2020-21 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., New Student Orientation Resource Fair, 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 via eCampus, and meeting with UAF administrators, faculty, and staff during regularly scheduled meetings (e.g., Recruitment Admissions Meeting, Coordinator Meeting, URSA Faculty and Student Advisory Board Meetings, 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 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. This effort will be a priority for URSA this AY, specifically to determine the percentage of students that participate in undergraduate research and scholarly activity at some point during their educational experience at UAF. 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 and staff assists with general planning (the URSA 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 Advisory Board consists of two faculty members from each academic college/school at UAF as well as staff from other units and meets at least 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 two years ago was the creation of a Student Advisory Board that also meets once each semester to discuss policy initiatives and opportunities from the student perspective. The Student Advisory Board consisted of one student representative from each school or college, and the feedback that these individuals contributed was unique in providing the student perspective and perception on the implementation of URSA policies and programs.

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. The 2020 Research and Creative Activity Day used a virtual platform due to the COVID-19 pandemic, which offered new opportunities for students to present without being present on campus. The use of new technologies and software enabled students to easily present performances, films, and other creative projects. The UAF administration, as well as local members of the UA Board of Regents, will again be notified early during the fall 2021 semester to save the date for the 2022 event (07 April 2022) so that they can attend UAF Research and Creative Activity Day which will revert back to an in-person event as in pre-COVID-19 pandemic years.

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 fand consideration of the development of separate URSA-supported internship, capstone, and community-based learning programs. An additional initiative involving the UA Foundation is ongoing discussions to identify additional funding via private donors as funding availability continues 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, 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, particularly for academic programs that do not have their own upper-division research/creative scholarship focused courses. There is also a need to develop more tuition-generating courses taught by URSA related to research design and methods of inquiry.

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.

9. **Continue to assess the impact and outcomes** associated with URSA relative to student's success at UAF. Although URSA has been in place since 2012, a comprehensive outcomes assessment had not been completed on this program. Since 2018, the Director and Coordinator of URSA have examined metrics used by undergraduate research programs at other universities to identify the appropriate measures for measuring URSA outcomes. Both individuals also attended the 2018 Biennial Council on Undergraduate Research (CUR) Conference in Arlington, Virginia, which had a two and a half day series of sessions on assessing student outcomes in undergraduate research programs. Based on the information learned at that conference, URSA personnel implemented an outcomes assessment during to assess the annual Research and Creative Activity (RCA) Day event.

Table 1. The number of URSA applications (student project, student travel, mentoring, CEL and ITE combined), awards, and awarded dollars for each college/school for AY2020-2021. The dollar amount awarded also includes awards to students for UAF Research and Creative Activity Day poster presentations.

College/School	Number of Applications	Number of Awards	Dollar Amount Awarded
CEM	22	14	$47,031
CFOS	10	9	$25,360
CLA	20	15	$36,582
CNSM	26	18	$47,741
CRCD	3	3	$7,746
CTC	0	0	$0
DGS	1	0	$0
SOE	1	1	$5,000
SOM	2	2	$5,195
MUSEUM	1	1	$1,649
Total	86	63	$176,304

Table 2. The number of URSA applications (Apps), awards, and total dollar amount awarded (Dollar Amt.) by award type for each college/school and department/unit within each college/school for AY2020-2021.

College/ School	Department/ Unit	Apps	Awards	Dollar Amt.	Project	Travel	Mentor	ITE	Research & Creative Activity Day	Community Engaged Learning
CEM	Alaska Center for Energy and Power	0	0	$0	$0	$0	$0	$0	$0	$0
	Civil, Geo. & Env.	8	5	$15,910	$7,448	$0	$0	$8,312	$150	$0
	Comp. Sci.	1	1	$4,774	$4,774	$0	$0	$0	$0	$0
	Electrical Eng.	5	2	$10,000	$5,000	$0	$0	$5,000	$0	$0
	Mechanical	7	6	$16,347	$11,417	$0	$4,530	$0	$400	$0
	Mining & Geo.	1	0	$0	$0	$0	$0	$0	$0	$0
	Petroleum	0	0	$0	$0	$0	$0	$0	$0	$0
CFOS	Fisheries	6	6	$15,440	$2,500	$0	$9,195	$3,344	$400	$0
	Marine Biology	1	1	$2,420	$2,420	$0	$0	$0	$0	$0
	Oceanography	3	2	$7,500	$7,500	$0	$0	$0	$0	$0
CLA	Anthropology	1	1	$4,994	$0	$0	$0	$4,994	$0	$0
	Art	2	2	$4,015	$0	$0	$1,396	$2,619	$0	$0
	Comm. & Journalism	1	1	$3,515	$0	$0	$0	$3,515	$0	$0
	English	1	1	$5,000	$0	$0	$0	$5,000	$0	$0
	Foreign Language	0	0	$0	$0	$0	$0	$0	$0	$0
	History	0	0	$0	$0	$0	$0	$0	$0	$0
	Interdisciplinary Studies	0	0	$0	$0	$0	$0	$0	$0	$0
	Justice	0	0	$0	$0	$0	$0	$0	$0	$0
	Linguistics	2	2	$6,960	$6,960	$0	$0	$0	$0	$0
	Music	5	3	$9,013	$3,876	$0	$0	$4,887	$250	$0
	Northern Studies	0	0	$0	$0	$0	$0	$0	$0	$0
	Philosophy	0	0	$0	$0	$0	$0	$0	$0	$0
	Political Sci.	0	0	$0	$0	$0	$0	$0	$0	$0
	Psychology	7	5	$3,085	$2,485	$450	$0	$0	$150	$0
	Social Work	0	0	$0	$0	$0	$0	$0	$0	$0
	Sociology	0	0	$0	$0	$0	$0	$0	$0	$0
	Theater & Film	1	0	$0	$0	$0	$0	$0	$0	$0
CNSM	Atmospheric Science	0	0	$0	$0	$0	$0	$0	$0	$0
	Bio. & Wildlife	10	6	$19,269	$19,119	$0	$0	$0	$150	$0

College/ School	Department/ Unit	Apps	Awards	Dollar Amt.	Project	Travel	Mentor	ITE	Research & Creative Activity Day	Community Engaged Learning
CNSM	Atmospheric Science	0	0	$0	$0	$0	$0	$0	$0	$0
	Bio. & Wildlife	10	6	$19,269	$19,119	$0	$0	$0	$150	$0
	Chem. & Biochem.	4	3	$4,111	$2,475	$0	$0	$1,386	$250	$0
	Geosciences	9	6	$16,069	$6,330	$0	$4,709	$4,880	$150	$0
	IANRE	1	1	$4,506	$0	$0	$0	$4,506	$0	$0
	IARC	1	1	$3,500	$0	$0	$3,500	$0	$0	$0
	Math & Stats.	1	1	$286	$0	$0	$0	$286	$0	$0
	Physics	0	0	$0	$0	$0	$0	$0	$0	$0
	Vet Med	0	0	$0	$0	$0	$0	$0	$0	$0
CRCD	AK Native Studies	0	0	$0	$0	$0	$0	$0	$0	$0
	NW - Science	2	2	$5,250	$0	$0	$5,000	$0	$250	$0
	Sciences	1	1	$2,496	$2,496	$0	$0	$0	$0	$0
CTC	Process Tech	0	0	$0	$0	$0	$0	$0	$0	$0
	Bunnell House	0	0	$0	$0	$0	$0	$0	$0	$0
DGS	Faculty Development	0	0	$0	$0	$0	$0	$0	$0	$0
	Student Support Services	0	0	$0	$0	$0	$0	$0	$0	$0
	University Relations	1	0	$0	$0	$0	$0	$0	$0	$0
SOE	Education	0	0	$5,000	$0	$0	$0	$5,000	$0	$0
SOM	Accounting	0	0	$0	$0	$0	$0	$0	$0	$0
	Bus. Admin.	2	2	$5,195	$4,945	$0	$0	$0	$250	$0
	Economics	0	0	$0	$0	$0	$0	$0	$0	$0
	Finance	0	0	$0	$0	$0	$0	$0	$0	$0
	Homeland Security	0	0	$0	$0	$0	$0	$0	$0	$0
MUSEUM	Entomology	1	1	$1,649	$0	$0	$0	$1,649	$0	$0

Table 3. The number of URSA applications (AP), awards (AW), and dollar amount (DA) for each college/school by awards type for AY2020-2021.

College/ School	Student Project			Student Travel			Mentoring			ITE			Research and Creative Activity Day			Community Engaged Learning		
	AP	AW	DA	AP	AW	DA	AP	AW	DA	AP	AW	DA	AP	AW	DA	AP	AW	DA
CEM	15	17	$28,639	0	0	$0	1	1	$4,530	3	3	$13,312	9	3	$550	0	0	$0
CFOS	5	4	$12,420	0	0	$0	2	2	$9,196	1	1	$3,344	8	2	$400	0	0	$0
CLA	8	4	$13,321	4	3	$450	1	1	$1,396	5	5	$21,015	6	2	$400	0	0	$0
CNSM	14	9	$27,924	0	0	$0	2	2	$8,209	7	4	$11,058	12	3	$550	0	0	$0
CRCD	1	1	$2,496	0	0	$0	1	1	$5,000	0	0	$0	2	1	$250	0	0	$0
CTC	0	0	$0	0	0	$0	0	0	$0	0	0	$0	0	0	$0	0	0	$0
DGS	0	0	$0	0	0	$0	0	0	$0	1	0	$0	0	0	$0	0	0	$0
SOE	0	0	$0	0	0	$0	0	0	$0	1	1	$5,000	0	0	$0	0	0	$0
SOM	1	1	$4,945	0	0	$0	0	0	$0	0	0	$0	1	1	$250	0	0	$0
MUSEUM	0	0	$0	0	0	$0	0	0	$0	1	1	$1,649	0	0	$0	0	0	$0