



Research, Innovation
& Impact

Undergraduate Research

at the University of Arizona:

An Introductory Guide for
UArizona Researchers

This guide is designed to provide University of Arizona researchers with information about undergraduate research, such as types of opportunities offered at UArizona and resources available to support implementation of undergraduate research opportunities.

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*Undergraduate Research:
General Information*

UNDERGRADUATE RESEARCH STUDENT BENEFITS

Educational Development



Undergraduate researchers apply the skills and knowledge learned in the classroom to real-life questions. This can help them solidify their understanding of concepts integral to their area of study and reinforce interest in their field, boosting retention rates.

Professional Development

Undergraduate researchers gain experience working in a team environment and oftentimes have the opportunity to mentor other undergraduates in the lab, thus improving their communication skills. They can also access networking opportunities and build resumes that will help them when making career decisions.

Personal Development

Numerous studies have demonstrated that undergraduate researchers report a significant increase in their self-confidence, critical thinking skills, identity as a researcher in their field, and sense of belonging.



UNDERGRADUATE RESEARCH FACULTY BENEFITS

Increased Engagement

Undergraduate research engages students and increases community interest in the faculty or staff researcher's area of study. Exposure to these opportunities in a student's first or second academic year increases retention rates.



Professional Development

Faculty and staff mentors build on their communication and inclusive mentoring skills as they work with students from a variety of backgrounds. Students may also bring a new perspective to the projects at hand, asking questions that may not have been considered.

Funding Opportunities

Hiring undergraduates may open new opportunities for grants and other funding sources that specifically support undergraduate researchers and experiential learning.



STUDENT SCHEDULING EXPECTATIONS

- Student schedules may fluctuate from semester to semester as their course schedule changes.
- Student availability may also fluctuate during the semester, especially around midterms and finals.
- Student availability may be sporadic and at inconsistent times each day depending on their course schedule, work schedule, personal obligations, etc.
- Students may require more guidance and direction. Plan on meeting with them regularly to check-in on their progress and how they are feeling.
- Students are often already taking at least 15 units of coursework; plan on them working in the lab 10 hours a week or fewer.



STUDENT RECRUITMENT

To connect with students directly, consider giving guest lectures or brief presentations in courses related to your field of study or in club meetings around campus.

Undergraduate advisors are also a good resource for recruiting students. They may have student listservs to send the information to and can share it with students during individual meetings.

View a presentation on [Setting Up a Lab and Recruiting and Mentoring Students](#) presented by [Dr. Mark Beilstein](#) and [Dr. Rachel Gallery](#) on November 13th, 2018

Additionally, you can email [**UndergradResearch@arizona.edu**](mailto:UndergradResearch@arizona.edu) to request your opportunity be advertised in the following ways:

- ▶ Featured on UR.arizona.edu front page
- ▶ Posted on Handshake (for paid positions) and tagged with the official 'Undergraduate Research' label
- ▶ Posted on the UR Instagram page
- ▶ Sent to the UR community listserv

 [**@uazugresearch**](https://www.instagram.com/uazugresearch)



UPDATING THE UA RESEARCHERS DATABASE

The [UA Researchers Database](#) is a resource for students looking for undergraduate research opportunities.

Students can search for opportunities by *College*, *Department*, *Location* (Main campus, online, etc.), *Type* (paid, for-credit, or volunteer), and *Keywords*.

Faculty are responsible for keeping the information about opportunities they are offering up-to-date.

1 Login to uavitae.arizona.edu and navigate to the section ***Undergraduate Research Opportunities*** under ***Activities***.

2 Answer the questions about the undergraduate research opportunities you are offering, such as ***when*** they are available, if the opportunity is ***paid/volunteer/for credit***, ***where*** the opportunity is located, and any specific ***majors*** you would consider or ***prerequisite courses*** you require.

3 Make sure "***Displayed thru API?****" is set to ***YES***. In addition, please make sure that the information you entered about your research interests is ***detailed, accurate,*** and ***matches*** the work you are currently doing.

4 Note that changes made in the UA Vitae system may take 24-48 hours to appear on UR.arizona.edu

5 Be sure to check this information regularly (*at least once per semester*) to ensure that it is accurate and up-to-date.

UNDERGRADUATE RESEARCH AMBASSADORS

Student Engagement and Career Development (SECD) has Undergraduate Research Ambassadors (URAs) that give presentations around campus, including workshops, student panels, and custom advertising. More information and the request form can be found [here](#).



URAs also provide individual support to students and can share information about your research opportunity with students that are interested in your field of study.



SHARING UNDERGRADUATE RESEARCH

The [Arizona Journal of Interdisciplinary Studies](#) is a *student-led* journal that publishes original undergraduate research from all fields of study, but with a special emphasis on interdisciplinary works that intersect with the humanities, arts, and sciences.

In keeping with the University of Arizona's mission as a public research university, this journal serves as a forum for innovative and diverse research and scholarship.



For more information about the journal, the editorial team, and submitting work, navigate [here](#) or email rii-ajis@arizona.edu.



COUNCIL ON UNDERGRADUATE RESEARCH

All faculty, staff, and students can sign up as member of the Council on Undergraduate Research (CUR) thanks to the University's enhanced institutional membership.

Activate your membership [here!](#)

The Office of Societal Impact and SECD sponsors the University's enhanced institutional membership.

This offering is part of a campus-wide effort to increase undergraduate research opportunities while sharing the University of Arizona's accomplishments on the national stage.

The **Council on Undergraduate Research (CUR)** works with agencies, foundations and faculty to promote undergraduate research opportunities.

The organization represents more than 14,000 individuals at over 650 colleges and universities.

CUR members will have access to:

- ▶ The CUR Quarterly journal and other publications
- ▶ Discounts for workshops, consulting, and program reviews
- ▶ The ability to participate in meetings such as CUR's mini-conference and annual business meetings.



FACULTY FUNDING OPPORTUNITIES

Interested in funding opportunities?
Undergraduate research is considered
experiential learning!

Consider the following sources offered by
Student Engagement and Career Development:

Faculty grants for Experiential Learning

(available until funds are exhausted)

Experiential Learning Design Accelerator

(multiple deadlines per year)



PROPOSAL & EVALUATION SUPPORT

The Office of Societal Impact can consult with researchers on incorporating undergraduate research into grant proposals in addition to ‘Broader Impacts’, ‘Broadening Participation’, and ‘Societal Impact’ language.

Go to impact.arizona.edu for more information about grant proposal consultations, and fill out a consultation request form [here](#).



The impact.arizona.edu/project-evaluation page has numerous resources available for project evaluation, including various templates and a list of program evaluators at UArizona. OSI provides support with project evaluation design, periodic check-ins, and can connect faculty with an independent internal evaluator or external evaluator.



*Undergraduate Research:
Institutional Support*

RESEARCH, INNOVATION & IMPACT

The Office for Research, Innovation and Impact (RII) fuels the world-class research enterprise at the University of Arizona, a top-ranking public university with over \$824 million invested in research activity. Our researchers pave the way for visionary breakthroughs, forging innovative pathways and spearheading powerful collaborations that lead to impactful discoveries.

We are dedicated to preparing students to thrive in a future marked by augmented intelligence and the seamless integration of digital, physical, and biological realms. Our unwavering commitment to our land-grant mission drives us to translate and apply our research to tackle society's most formidable challenges, fostering economic development and enriching the quality of life in Arizona and beyond.

We empower UArizona researchers to achieve success by providing robust support to university research centers, institutes, museums, and core facilities. Additionally, we offer comprehensive services in research development, stewardship, compliance, and safety. By forging strategic external partnerships, we bolster our research ecosystem and maximize its impact on society.

Learn more at:

research.arizona.edu



OFFICE OF SOCIETAL IMPACT

We believe research impacts the shape of society and society impacts the shape of research. Our goal is to challenge the research enterprise to be more inclusive and to focus on impacts beyond benefits to departments or disciplines. And we work to translate the curiosity and expertise of researchers into policies, practices, and programs to benefit society, measuring reach not only in articles published and conferences attended, but in lives touched and improved. Through every step of the research process, we help researchers center real people and their real lives.

Our Mission: To work collaboratively with University of Arizona's faculty, researchers, scholars, and practitioners, and in partnership with our communities to ensure that equitable participation and the greatest possible societal impact of UArizona research & creative inquiry is realized.

Learn more at:

impact.arizona.edu



STUDENT ENGAGEMENT AND CAREER DEVELOPMENT

Student Engagement and Career Development (SECD) is here to inspire and prepare all graduates to create lives of opportunity aligned with their purpose and values. Their website has resources and support for finding opportunities, making connections, and building skills during a student's Wildcat and early Alumni years.

Our vision is that every Wildcat finds support within the University of Arizona community to:

- ▶ Develop in-demand employable skills within and beyond the classroom
- ▶ Engage in experiences that expand their capacity to lead and to solve authentic challenges facing our communities and businesses
 - ▶ Design and implement a career plan aligned with personal strengths and values for a lifetime of opportunity and well-being

Learn more at:

career.arizona.edu



UNDERGRADUATE RESEARCH & INQUIRY COLLABORATIVE

The University of Arizona's Undergraduate Research & Inquiry Collaborative (URIC) brings together centralized resources to expand access to undergraduate research and inquiry (URI), to coordinate outreach and support, to showcase URI talent, to provide training, and to enhance the quality of the URI experience with a focus on equity, inclusion, and cultivating success for all students.

Centralized information can be found at:

[UR.arizona.edu](https://ur.arizona.edu)



FACULTY AFFAIRS

Our mission in Faculty Affairs is to cultivate institutional structures for faculty advancement across the career lifespan. We take an ecosystem equity approach across all system levels that considers

- (1) recruitment
- (2) professional advancement, and
- (3) retention.

Our work is grounded in an affirming, transparent, and inclusive approach to supporting faculty.

Our vision:

- ▶ To nurture a humanistic approach to faculty activity that fosters excellence, equity and impact.
 - ▶ We aspire to high levels of accountability, efficiency, and transparency.
- ▶ To promote understanding of the role and contributions of faculty
- ▶ To adhere to the fundamental values of our land grant institution and R1 status.

Learn more at:

FacultyAffairs.arizona.edu



OFFICE OF THE PROVOST

The Office of the Provost oversees all academic programs and units and supports the academic mission of the University by ensuring the quality of academic programs, providing support activities that enhance teaching and learning, making services available that enable faculty and student involvement in education, research, and creative expression, and supporting research excellence with a focus on the land-grant mission.

Our purpose: Working together to expand human potential, explore new horizons and enrich life for all

Our mission: We will continuously improve how we educate and innovate so we can lead the way in developing disruptive problem-solvers capable of tackling our greatest challenges.

Our vision: To create a world where human potential is realized and we're all working together to create solutions to big problems, so that life in our communities, in Arizona, and on our planet can thrive.

Learn more at:

provost.arizona.edu



OFFICE OF DIVERSITY & INCLUSION

At the University of Arizona, our diversity makes us stronger. Inclusion infuses our classrooms, our research labs, and our outreach within the community because we believe the most significant learning takes place when we are working with others who are different from ourselves. We also prioritize culturally enriching experiences and student support through our cultural living communities and resources.

Learn more at:

diversity.arizona.edu



UNDERGRADUATE RESEARCH TASK FORCE

In spring 2022, an Undergraduate Research Task Force (URTF) was launched to explore ways to provide even more opportunities for students to connect to the scholarly work of our faculty and staff all across campus.

Read the full report [here](#).

Learn more at:

undergraduate.arizona.edu/undergraduate-research

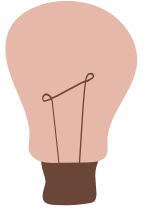




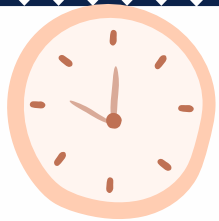
*Types of
Undergraduate Research
Experiences*

OVERVIEW OF OPPORTUNITY TYPES

Volunteer



Students work on a volunteer basis and are not awarded any units or pay for their time.



Hourly Pay

Students report hours via UAccess Employee and hours are approved by the faculty/staff member overseeing the student.

Stipends



Stipends are lump sums of money that are distributed to a student's Bursar account. Stipends can be specified to be paid out to students directly or apply to tuition only.



For-Credit



Students are enrolled in units on UAccess. Each credit hour corresponds to three hours of work per week. For information on maximum units allowed each semester, navigate [here](#).

VOLUNTEER RESEARCH OPPORTUNITIES

Because volunteers are neither enrolled in units for research nor registered as a lab employee, there are no specific UArizona guidelines or policies regarding volunteer research opportunities for undergraduates.

Volunteers are still required to complete any required lab safety training if applicable to your research. Visit the [Research Laboratory & Safety Services \(RLSS\) compliance page](#) for information about safety trainings as well as HIPAA and Human Subjects Protection Program trainings.

Note that not all students are able to participate as research volunteers due to work, family, or educational obligations.

To provide more equitable access to research opportunities, consider offering course credit or financial compensation for student time.



HOURLY STUDENT EMPLOYEES

Effective July 1, 2023, student worker minimum wage is **\$14.50/hour**. Many paid undergraduate researcher positions offer higher wages, typically dependent on departmental and/or grant funding.

For information about hiring students in your department, contact your department's Business Manager.

You can find information on trainings for Time Approvers [here](#). A handout on the process of approving time can be found [here](#).

For hourly employees, Employee Related Expense (ERE) applies. ERE are the expenses the University is responsible for as an employer.

For student employees, the ERE Rate is 2.0%. ERE is comprised of FICA, Workers Compensation, and Liability Insurance for student employees. See the chart to the right for a percentage breakdown for Fiscal Year 2023-2024.

Student employees are not eligible to participate in employee benefit or insurance plans.

For information on [ERE rates](#), an ERE [Overview & FAQs](#), and additional accounting support, visit UA's Financial Services website: financialservices.arizona.edu.

E.R.E. ELEMENTS	STUDENT EMPLOYEE
F.I.C.A.	1.50%
RETIREMENT	0.00%
HEALTH, DENTAL, LIFE	0.00%
EMPLOYEE TUITION BENEFITS	0.00%
WORKER'S COMP	0.39%
UNEMPLOYMENT	0.00%
LIABILITY INSURANCE	0.31%
EMPLOYEE WELLNESS	0.00%
TERMINATION LEAVE	0.00%
SUBTOTAL	2.20%
CARRY FWD DFCT/(SRPLS)	-0.19%
Rate (Unrounded)	2.01%
ERE RATE (ROUNDED)	2.0%

EMPLOYEE ERE CODE	1
ACCOUNT OBJECT CODE	9515
EXPENSE OBJECT CODE	2117

UArizona's [Student Employment Manual](#) outlines general employment policies for undergraduates.

FEDERAL WORK STUDY STUDENT EMPLOYEES

The Federal Work-Study (FWS) Program is a federally subsidized employment program, which provides part-time work opportunities for undergraduate and graduate students. Wages should be based on the type of work and qualifications required.

FWS award amount is the gross amount a student is eligible to earn during the award period in a work-study job. A student's financial need is determined by their FAFSA.

*75% of this amount is covered by federal funds and
25% is departmental responsibility.*

FWS is subject to federal and state taxes (FICA is only withheld during periods when student is not attending classes).

Employers are charged an additional 10% overhead fee based on student's gross earnings to cover the cost of administering the FWS program.

Learn more about FWS guidelines and processing information [here](#).



STIPEND COMPENSATION FOR UNDERGRADUATES

Stipends can be distributed as one lump sum for an entire semester or summer, or can be broken into multiple separate payments.

Contact your Business Manager for information about and instructions on distributing stipends in your department.

Fees & Taxes

ERE/fringe benefits *do not apply* when paying stipends.

Students will receive a 1098 tax form for stipends awarded.

Commonly Reported Issues

Note that stipends will apply to any outstanding charges on the Bursar's account *first*, before money is distributed to students.

If they have tuition or fees that have not been paid, there will be a delay in the student receiving the money. You can find important dates related to tuition charges [here](#).

Student accounts may also be flagged as 'Overawarded' when a stipend is entered. Read more about this [here](#).

To resolve the issue, contact the Bursar's Office at

bursar@arizona.edu.



FOR-CREDIT INDEPENDENT RESEARCH OPPORTUNITIES

Detailed information on policies for Individual Studies courses, including grading schemes, guidelines, and procedures pertaining to each type of course can be found [here](#).

Course Numbering

UArizona has University-wide "house" numbers that identify three categories of individual study courses using alternatives to the usual teaching formats of lectures, discussions, and laboratories. The house numbers for the course categories can be found [here](#).

Enrolling in Units

Each department has Directed Research and Independent Study forms that must be submitted for students to be enrolled in units.

Forms should be modeled after the approved University templates found [here](#).

Note that students have a maximum number of units they can be enrolled in each semester, which are outlined [here](#). To bypass this maximum, students must receive approval from the college dean.

Honors College Policies

All *Honors* Individual Studies courses are limited to Honors students, except with permission from the Honors College.

Learn more about Honors courses and find contacts for the Honors College [here](#).

Tuition Costs

When students are enrolled in units for their participation in research, they will be charged tuition on the units.

Cost per unit can vary depending on each student's situation.

To determine cost per unit for a student, use UArizona's [tuition calculator](#).

CURE TRAINING INSTITUTE

Course-based
Undergraduate
Research
Experiences



“CUREs offer several advantages over research internships - they can enroll many more students and they are accessible to all students who enroll, not just the few who stand out in class, who are confident enough to approach faculty directly, or who have personal or programmatic connections that help them get access to research.” – **CUREnet**

View a presentation on **Models of CUREs** given by Dr. Molly Bolger, Dr. Deirdre Belle-Oudry, Dr. Jeffrey Oliver, and Dr. Kathleen Prudic on December 12th, 2018.



CURE TRAINING INSTITUTE

The CURE Training Institute is an annual 2.5 day experience that provides initial incentives and training to support instructors in designing CUREs for first-year students.

Teams learn about and use evidence-based instructional strategies to develop plans, instructional materials, and assessment tools for integrating a research project into a course.

This effort builds the institution's capacity for providing scaled research experiences within the curriculum.

View a list of CUREs developed at UArizona [here](#).

View a recording of the 2023 Introductory Workshop on CUREs [here](#).



VERTICALLY INTEGRATED PROJECTS

The Vertically Integrated Projects (VIP) program is a transformative approach to higher education that engages undergraduate and graduate students in *ambitious, long-term, large-scale, multidisciplinary* project teams that are led by faculty. The program's model has been rigorously evaluated and refined for more than two decades.

In VIPs, teams of undergraduate students from various years, disciplines, and backgrounds work with faculty and graduate students in their areas of scholarship and exploration.

Undergraduate students earn academic credit or pay for their work and have direct experience with the innovation process, while faculty and graduate students benefit from the extended efforts of their teams.



BENEFITS OF VIPs

Long Term

VIPs create long-term experiences with the innovation process with students participating for up to four years.

VIPs cultivate leadership & mentoring with faculty, graduate students, and experienced undergraduate students.

Leadership Skills

VIPs support faculty scholarship and exploration by enabling the completion of ambitious projects that faculty are enthusiastic about.

Faculty Scholarship

VIP teams can serve as "broader impacts" or educational components required by some sponsoring agencies.

Broader Impacts

Email vipprogram@arizona.edu to request an informational meeting with a member of the VIP Executive Committee or an experienced team leader.

Learn more about VIPs at uavip.arizona.edu





Effective Mentoring

SALIENT PRACTICES OF EFFECTIVE MENTORS

What can you do to effectively mentor undergraduate students? Elon University's Center for Engaged Learning has a [video series](#) discussing ten salient practices to facilitate effective mentoring of undergraduate researchers.

- 1 Strategic pre-planning to support students' varying needs and abilities during the research process
- 2 Setting clear and well-scaffolded expectations
- 3 Teaching the technical skills, methods, and techniques of conducting research in the discipline
- 4 Balancing rigorous expectations with appropriate emotional support
- 5 Building community among groups of students or a research team
- 6 Dedicating time to one-on-one mentoring
- 7 Increasing student ownership over time
- 8 Supporting students' professional development
- 9 Creating intentional, laddered opportunities for peer/near-peers to learn mentoring skills
- 10 Encouraging students to disseminate their findings



MENTOR AGREEMENTS

What is a mentor agreement?

A mentor agreement, also called a Research Learning Contract, is a document outlining specific expectations for the undergraduate researcher mentee *and* the mentor, such as method and frequency of communication, time commitment, project goals, and milestones with timeframes for completion.

Why have a mentor agreement?

An agreement makes it clear to both parties what is to be expected for the duration of the student's research experience. It gives the student a chance to express their support needs in the working relationship. It builds trust and establishes strong communication between the mentor and the mentee.

You can read more about Research Learning Contracts in [this paper](#) published in 2017 in PLoS Computational Biology.



MENTOR AGREEMENTS

Common components of Mentor Agreements/Research Learning Contracts:

- Basic information about mentor and mentee (contact information, program/department, etc.)
- Communication expectations, including frequency and method
- Language about inclusivity, diversity, and accessibility
- Any behavioral expectations, such as language or actions that are not tolerated
- Support framework for student, such as graduate students or employees that they can go to with questions or concerns
- Student goals for skill and professional development
- Required training(s) and deadline for completion
- Tentative schedule of research activities and meetings
- Project goals and expected timeline for reaching milestones
- Project dissemination expectations such as presentations, posters, conferences, papers, etc.

Many universities have templates for mentor agreements; some examples are listed below.

Use components of different agreements that make the most sense for you, your students, and your lab.

[Albany State University](#)

[Oklahoma State University](#)

[Purdue University](#)

[University of Colorado - Denver](#)

[University of Michigan](#)

[University of Wisconsin - Madison](#)

[University of Wisconsin - Madison](#)

[Institute for Clinical and Translational Research](#)

[Loyola University - Chicago](#)

[Oregon State University](#)

[University of California - Davis](#)

[University of Kansas](#)

[University of Oklahoma](#)

[Valencia College](#)

MENTOR TRAININGS

Center for the Improvement of Mentored Experiences in Research (**CIMER**)

Mission: To improve the research mentoring relationships for mentees and mentors at all career stages through the development, implementation, and study of evidence-based and culturally-responsive interventions.



Diversity Program Consortium (**DPC**)

Supported by the National Institutes of Health

Overarching Goal: To develop, implement, assess and disseminate innovative and effective approaches to engaging, training and mentoring students; enhancing faculty development; and strengthening institutional research training infrastructure to enhance the participation and persistence of individuals from underrepresented backgrounds in biomedical research careers.



The National Research Mentoring Network (**NRMN**)

About: Through our national network, we implement and disseminate innovative, evidence-based best practices to improve mentoring relationships at institutions across the country.



STUDENT TRAININGS

Research projects typically require students to participate in certain trainings before engaging in research. For a list of other possible trainings a supervisor might require, see the ***Compliance Training Guide*** on the website for the **Office for the Responsible Conduct of Research.**

The University also offers training through the **Responsible Conduct of Research (RCR) Program.**

The RCR Program is designed to fulfill federal training requirements for those involved in research funded by the National Institutes of Health (NIH), the National Science Foundation (NSF), and the National Institute of Food and Agriculture (NIFA).



ADDITIONAL RESOURCES FOR FACULTY & STAFF

To find additional resources,
who to contact with questions, and important links,
visit the [UR Resources page](#).

If you have additional questions or information/resources
you think should be included on this webpage or in a guide,
please email UndergradResearch@arizona.edu.

