



The Undergraduate Research Task Force **REPORT**



REPORT PREPARED BY
Ryan Winet
Kian Alavy

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Executive Summary

The Undergraduate Research Task Force (URTF) is jointly led by the Office of the Provost and the Office for Research, Innovation & Impact. Composed of faculty, staff, and students, the URTF aims to make world-class research a defining characteristic of the undergraduate experience at the University of Arizona (UArizona). Given the enormity of the academic and research enterprises, as well as the large number of existing efforts related to undergraduate research (UR) at the University of Arizona, the work of the URTF has been driven by six different subcommittees: philosophy; experiences; students; diversity, equity, and inclusion; faculty; and organization. In early 2023, these subcommittees submitted reports concerning their respective areas. Five institutional priorities emerged through these reports:

1. The undergraduate research (UR) experience needs to be defined and operationalized;
2. The diverse activities encompassed by a comprehensive definition of UR should be assessed and evaluated;
3. Efforts and resources that have the potential to be especially impactful should be coordinated and promoted;
4. UR needs to be thoroughly integrated in the curriculum;
5. UR needs to be more widely funded and rewarded.

This report organizes a set of recommendations around these priorities and concludes with a timeline for implementation.

Task Force Vision

We believe that every undergraduate at the University of Arizona should experience high-impact research at every level of every undergraduate program, including the general education curriculum.

Students graduating from our programs should not only be able to *think* like researchers—they should *be* researchers, regardless of their discipline. We believe such qualities will make them exceptionally competitive in the job market and in applications to graduate programs and will form the basis of an invaluable set of traits essential for navigating 21st century life.

Task Force Mission

Expanding research opportunities is crucial to our strategic commitment to drive student success in a rapidly changing world. This expansion necessitates a collaborative, overarching structure that includes faculty and sits at the intersection of academic affairs and research, where these respective areas are co-equal partners supporting undergraduate education and research missions.



Task Force Leadership & Oversight

Subcommittee Co-Chairs

- Philosophy: Ken McAllister & John Pollard
- Experiences: Abra McAndrew & Michael Staten
- Students: John Ehiri & Lucinda (Cindy) Rankin
- Diversity, Equity, & Inclusion: Jennifer Cubeta & Amy Kimme Hea
- Faculty: Rebecca Gomez & Ellen McMahon
- Organization: Kian Alavy & John Koshel

Steering Committee


- Kevin Bonine
- Roberta Diaz Brinton
- Gail Burd
- Elizabeth (Betsy) Cantwell
- Ravneet Chadha
- Elliott Cheu
- Liesl Folks
- Gregory Heileman
- Robert C. Robbins
- Andrea Romero
- Kimberly Sierra-Cajas
- Helena Zikov

Task Force by the Numbers

- 311 Task Force Members
- 1354 Student Survey Respondents
- 402 Faculty Survey Respondents
- 128 UR Experiences in the Current Practices Inventory (CPI)

Contexts

UArizona has a long history of exemplary UR engagement, and many of its initiatives have been driven by the university's most impactful research offices and centers. For example, the Office of Societal Impact (OSI) within Research, Innovation and Impact and Student Engagement & Career Development (SECD) within the Office of the Provost oversee the Undergraduate Research & Inquiry Collaborative. This project is providing a foundation for a proposed new undergraduate research center, which will build on the work of the URTF and engage the broader university community. The Undergraduate Research Opportunities Consortium (UROCC) in the



Graduate College and the Undergraduate Biology Research Program (UBRP) in Molecular and Cellular Biology in the College of Science are just a couple of the other UR-focused efforts on campus; there are many others. In addition to these well-established and emerging programs, for instance, UR engagement also thrives in colleges and departments across campus. Through outreach and coordination—including student and faculty surveys and the Current Practices Inventory—the URTF has sought to build upon these existing efforts with the conviction that a renewed emphasis on the emergent priorities, along with strong collaboration between Research, Innovation & Impact and the Office of the Provost, will help elevate UR and make it more visible to current and prospective students, as well as the general campus community.

The Process

The URTF has organized the process of expanding research opportunities to undergraduates in three phases: discovery; planning; and implementation (at the time of this report’s drafting, the URTF was beginning the implementation phase). In the discovery phase, the task force was announced, peer institutions were researched, a kickoff event was held, and subcommittees were formed. In the planning stage, subcommittee reports were collected and this comprehensive report synthesizing the subcommittees’ findings was developed. In the implementation phase, specific infrastructure and funding pathways will be developed, research will be more meaningfully integrated into the curriculum, and the efficacy of new funding pathways will be assessed with the aim of making continual improvements.


Task Force Subcommittees

Philosophy: The University of Arizona approaches undergraduate research in ways that are intentional and based on an overarching philosophy for undergraduate research that informs relevant institutional policies and practices.

Experiences: The University of Arizona should deliver intentional curricular, co-curricular, and extra-curricular undergraduate research experiences that entice students to develop knowledge, skills, attitudes, and behaviors consistent with the desired outcomes of higher education and the university’s purpose, mission, and values.

Students: The University of Arizona should provide undergraduate research opportunities to all undergraduate students according to their needs.

Diversity, Equity, & Inclusion: The University of Arizona should ensure all students participating in undergraduate research experiences are exposed to diverse ideas and worldviews as a means of enhancing their appreciation of research endeavors, while preparing them to become members of pluralistic communities.



Faculty: The University of Arizona should make undergraduate research a high priority for the faculty.

Organization: The University of Arizona should create organizational structures and policies that provide a comprehensive, integrated, and coordinated approach to undergraduate research.

Summaries of Subcommittee Reports

Philosophy

Charge: The Philosophy Subcommittee was tasked with outlining the intention and rationale behind the University of Arizona's efforts to organize and advance undergraduate research. Upon completion, the Philosophy of Undergraduate Research Statement is meant to henceforth inform relevant institutional policies and practices.


In their [report](#), the Philosophy Subcommittee identified its primary role as developing a Philosophy of Undergraduate Research Statement that can inform institutional practices. The subcommittee developed a philosophy statement that is cohesive, theoretically grounded, and inclusive. While the philosophy statement is useful as a guidepost for internal decision-making, the subcommittee recognized that the statement is too long and nuanced to be compelling to most external stakeholders. The subcommittee therefore also crafted more accessible Undergraduate Research Vision Statements for four stakeholder groups: faculty, students, donors, and students' families. The subcommittee also recommended surveying these four stakeholder groups to better understand how each comprehends undergraduate research.

Experiences

Charge: Provide recommendations and an implementation roadmap for making undergraduate research experiences more of an expectation and less of an afterthought at the University of Arizona.

In their [report](#), the Experiences Subcommittee provided three high priority recommendations and five additional recommendations. These recommendations were developed through an analysis of the Current Practices Inventory, other available data about research opportunities, consideration of subcommittee UR experiences, and interviews with University of Arizona colleagues.

In the challenges/opportunities/recommendations section, the Experiences Subcommittee recognized that, given available data, approximately 24-28% of graduating UArizona seniors had engaged in a research-related experience during their degree-seeking; this equates to about 1,000 UR experiences per academic year. From this information, the subcommittee set out to provide



recommendations that would “scale up” UR opportunities and increase undergraduate awareness of (and later, demand for) UR experiences (URE).

The highest-priority recommendation from the subcommittee was the adoption of a university-wide definition for a URE, along with key characteristics that could be used for URE development and assessment. The subcommittee identified integration of curricular changes as a high-priority recommendation. Finally, the subcommittee recognized the importance of a comprehensive URE platform as a high-priority recommendation (see Coordinate: URE Platform). Other recommendations include various funding opportunities and acknowledgements that would be available to students and faculty.

Students

Charge: The University of Arizona should provide undergraduate research opportunities to all undergraduate students according to their varied needs.

In their [report](#), the Students Subcommittee reviewed the Undergraduate Research Survey of 2022 and further organized into smaller working groups to address six topics involving undergraduate student research: marketing; access across multiple modalities; integration into the curriculum; pathways to share outcomes; creating a handbook; and assessment. Through these interrelated efforts, the subcommittee identified eight key takeaways:

- The definition(s) of research must be clarified;
- Meaningful research & engagement should go beyond classroom assignments and strive for the accomplishment of “real-world products”;
- A centralized system and location to learn about research, opportunities, and a library of faculty projects is essential for increased engagement among undergraduates;
- Resource limitations must be identified and addressed;
- Assessments of undergraduate research should include both “hard data collected through University records” and “indirect data collected through student surveys that elicit information on their experiences and the perceived value of such experiences”;
- Limitations on creating undergraduate research opportunities must be identified and addressed, such as the Activity Informed Budgeting (AIB) model, the importance of Student Credit Hours (SCH), and teaching efficiency as comprehended by the AIB model;
- Recognize and address where possible the obstacles faced by online undergraduate students seeking research experiences;
- Extend research opportunities where possible to Off-Campus Instructional Modalities.



Diversity, Equity, & Inclusion

Original charge: *The University of Arizona should ensure all students participating in undergraduate research experiences are exposed to diverse ideas and worldviews as a means of enhancing their appreciation of research endeavors, while preparing them to become members of pluralistic communities.*


Revised charge: *The University of Arizona should create equitable access to undergraduate research experiences and ensure all students, staff, and faculty participating in undergraduate research experiences do so in an inclusive environment, where diverse ideas, worldviews, and approaches can enrich research endeavors that positively impact society.*

In their [report](#), the Diversity, Equity, & Inclusion (DEI) Subcommittee emphasized the critical roles that students, staff, and faculty collectively play in UR experiences. The DEI Subcommittee also recognized two major opportunities to increase participation and access to UR: (1) increase year-over-year participation of students in UR and UR experiences so that the total number of students engaged in undergraduate research experiences reflects the broader diversity of the UArizona student population, and (2) identify and coordinate the many different types of undergraduate research experiences available to students and ensure that they are coherently and regularly communicated to students through messaging and/or a central office/online resources. Critically, the DEI Subcommittee encouraged a process of identifying and elevating existing opportunities, workshops, and resources (e.g., UBRP, REU, summer research programs, internships, NSF summer supplements; how-to-apply workshops; applications for funding for Pell eligible students).

The DEI Subcommittee also recommended implementing several different student surveys to collect attitudes across the undergraduate population at various stages of their matriculation, and to partner with units that can be helpful in interpreting and executing on available data (e.g., Undergraduate Admissions, Student Courses Surveys, and Graduation Survey). The Subcommittee also recommended the addition of a dedicated UR research budget line to ensure that the University's UR initiatives going forward are sustained and to increase the preponderance of UR in grant applications. Finally, the Subcommittee urged making DEI training available to all instructors and staff and encouraged the development of more pathways between K-12 environments and the University.

Faculty

Charge: *Our subcommittee was charged with reviewing the data we were provided regarding faculty involvement with Undergraduate Research (UR) and making recommendations for improving the experience for faculty and increasing their participation.*




In their [report](#), the Faculty Subcommittee provided an overview of the Undergraduate Research Survey. While some of the data were positive (98% who supervise UR report a positive experience) and other data less promising (66% of faculty do not feel they receive enough credit), the subcommittee noted that only 13% of faculty participated in the survey, making any decisive conclusions dubious with such a small sample size. To compensate for a lack of participation, the Faculty Subcommittee created a Faculty Focus Group and requested the Current Practices Inventory (CPI) be reopened. Members of the Faculty Subcommittee also reached out to underrepresented units in non-STEM colleges and managed to double the number of entries in the CPI. The subcommittee then broke out into three smaller groups to better identify obstacles for involving students in research; provide examples of research across a broad range of topics and research approaches; and increase understanding of the diversity of research opportunities, including those that are classroom-based.

In their recommendations section, the subcommittee advocated increasing awareness of undergraduate research by communicating an inclusive definition of research and supporting unit-level involvement in promoting and incentivizing UR according to research norms within their respective discipline. To improve incentive and recognition, the subcommittee recommended communicating to faculty the benefits of UR to student success, faculty career development, and the institution; providing support for the supervision of UR in cases where the project/experience does not contribute directly to a faculty member's research; obtaining guidance from the Vice Provost of Faculty Affairs regarding how UR in some instances may count as teaching (for example, CUREs) and in other instances as faculty research, and how this will factor in a meaningful way in promotion and tenure, and annual reviews; and developing a rubric for a faculty member to obtain a course release based on the number of students they are mentoring in one-on-one UR.

To enhance faculty support and training, the subcommittee advocated for the creation of a centralized undergraduate research hub for faculty; updating the current database of undergraduate research opportunities to add all relevant faculty and descriptions of UR opportunities; developing a separate newsletter or a section within the Research and Development Services (RDS) newsletter with opportunities to fund UR; finding avenues for individual investigators to incorporate UR into their grants; increasing support for course-based undergraduate research experiences (CUREs and VIPs); and incentivizing degree programs to embed research into required coursework.

Organization

Charge: The charge of the Organization Subcommittee was to determine how the University of Arizona can create organizational structures and policies that provide a comprehensive, integrated, and coordinated approach to undergraduate research.



In their [report](#), the Organization Subcommittee recognized that the University of Arizona already allocates significant funding for undergraduate research efforts; however, these research efforts are conducted in a “patchwork” that hinders “access, coordination, and collaboration.”

In the “Current Situation and Performance Indicators” section, the subcommittee acknowledged the lack of a university-wide strategic plan for improving undergraduate research; the lack of a single definition for undergraduate research; a “patchwork of organizational structure and myriad systems of record” that can cause confusion; available resources not scaled to an institutional level; and a lack of undergraduate student awareness and preparation for research. In the “Recommended Actions by Priority” section, the Organization Subcommittee listed these four priority items: establish a Center for Undergraduate Research; streamline technology infrastructure for students, mentors, and High-Impact Practice (HIP) tracking; determine common metrics for a shared definition of undergraduate research; and ensure that high-impact yet modest SCH activities are accurately accounted for in funding allocations, workload distributions, and equitable recognition within and across colleges.

Implementation

Priorities


In early 2023, six subcommittees submitted reports summarizing the recommendations and insights from their respective groups. Across these reports, five emergent priorities were identified:

- DEFINE undergraduate research and undergraduate research experience
- ASSESS & EVALUATE undergraduate research engagement
- COORDINATE and centralize key undergraduate research functions in the spirit of collective impact
- INTEGRATE undergraduate research into the curriculum across campus
- FUND & REWARD undergraduate research experiences for students, faculty, and staff

Define

Philosophy of Undergraduate Research Statement

The Philosophy of Undergraduate Research Statement as drafted by the Philosophy Subcommittee:



Undergraduate research is an engaged and active best practice in higher education. It is a student-centric experience that cultivates critical thinking, qualitative and quantitative inquiry skills, data collection and analysis, and experimental design thinking. It spans all disciplines from fine arts to physics and aspires to guide students from the position of knowledge consumer to knowledge creator. The support and growth of undergraduate research—in our classrooms, labs, studios, performance spaces, or in the world beyond the campus—affords students priceless opportunities to benefit from experiential learning, understand that success and failure both are inevitable and edifying, and advance ways of thinking that will benefit them in any profession they move into. As such, the promotion of these practices should be among the University of Arizona’s highest priorities.

Communicating the Philosophy of Undergraduate Research Statement


In its report, the Philosophy Subcommittee drafted language to describe the University’s undergraduate research philosophy to different stakeholders within the institution:

To faculty: We, the faculty of the University of Arizona, are committed to teaching students to create, as well as consume, knowledge. No matter the discipline—from physics to photography, journalism to jurisprudence, chemistry to Cantonese—the ability to integrate critical modes of inquiry with experimentation, reflection, and synthesis is essential to the production of new ideas and perspectives.

Moreover, developing this ability in tandem with an understanding that the inclusion of diverse voices, perspectives, ideas, and experiences ensures that each student’s capacity to pursue new avenues of research is always deep, innovative, expanding, and just.

To students: The University of Arizona understands that every student who joins the Wildcat Community uniquely contributes a distinct voice, perspective, and set of life experiences to our campus. Learning to blend those personal core elements with the many new ideas you will learn in your classes, projects, internships, labs, recitals, and discussions is what will give you access to an untapped universe of novel ideas, intriguing opportunities, and inspired (and inspiring) approaches to life and its infinite personal and professional challenges.

No matter your discipline—from engineering to economics, medicine to media arts, Arabic to architecture—your ability to integrate critical modes of inquiry with experimentation, reflection, and synthesis is key to becoming your best self, someone who loves what you do, fearlessly collaborates, searches out difference, makes a good living, consumes and creates new knowledge, and—bit by bit—changes the world.



To donors: What does it mean that the University of Arizona is a federally designated Very High Research Activity Institution? Put simply, it means that every element of our organization is designed to foster the creation of new knowledge.

You'd be right to expect this of the history-making science done on Puma (one of UArizona's world-class supercomputers) or of the performances created in the breathtaking Stevie Eller Dance Theatre.

But at the University of Arizona, we create knowledge *everywhere*.

No matter the discipline—from Spanish to special education, nursing to nutrition, mining to musical theater—our Wildcat students become researchers from day one, learning to combine reason, experimentation, reflection, and synthesis to gain new perspectives, discover new ideas, and produce innovations that change the world.

To students' families: The most successful leaders in every industry rely on their ability to connect their personal experiences and values, their understanding of history, and their analysis of data to chart a vision toward the future. They depend, in other words, on research.

At the University of Arizona, research is our specialty. From day one, our students become researchers. They dig into real-world challenges, collaborate with faculty, and learn the skills that will make them tomorrow's leaders.

Every major—from finance to physiology, history to hydrology, design arts to deaf studies—is built on a core program that guides Wildcats to learn and practice ways of listening, wondering, analyzing, and creating. They study and they build. They think and they take action. They are adaptable, global, world-changers ready to imagine, design, and build a better future for us all.

Definitions of Research

“Research” is a creative and scholarly activity that contributes to the collective knowledge of humanity. Some disciplines systematically investigate the natural world or human societies. In other disciplines, research emerges as creative expression that provides insight into what it means to be human. Every discipline's practitioners may further define research according to accepted practice and their respective standards. Participating in research is an impactful way for students to explore academic interests more deeply, evolve their perspectives, gain valuable skills, and further expand knowledge and its application.



Undergraduate Research Philosophy (Simplified)

Undergraduate research is an engaging educational best practice that is increasingly a hallmark of the student experience at the world's leading research universities. By aligning the interests and activities of faculty, staff, and students in the co-creation of knowledge, undergraduate research programs give students the opportunity to make impactful, real-world contributions even before they graduate.

Undergraduate Research Experience (URE)

An undergraduate research experience involves the active engagement of an undergraduate in an inquiry, investigation, or project designed to raise their awareness, understanding, and appreciation of what research is, how it is conducted, and why it matters to the advancement of society. Along the way, it prepares students to make original intellectual, scholarly, and/or creative contributions to the human storehouse of knowledge.

As drafted by the Experiences Subcommittee, the URE can be defined and assessed according to the characteristics below:


Active engagement of an undergraduate student in an inquiry, investigation, or project designed to raise student awareness, understanding, and appreciation of the conduct of research, or to prepare the student to make an original intellectual, scholarly, or creative contribution of new knowledge.

An undergraduate research experience should include one or more of these activities:

- Identify a novel research problem, scholarly question, or creative goal/intent;
- Explore a question or subject using analytical methods and/or creative techniques that are appropriate and common within the major discipline, or the accepted methods of interdisciplinary analysis and knowledge production;
- Involve one or more experts (for example, faculty members, researchers, staff, community content specialists) to help guide the process;
- Present one's discoveries or creative activity to one's peers, the UArizona community, and/or external experts.

Assess & Evaluate

Several subcommittees recognized the importance of effective and inclusive assessment methods for UR. The URTF acknowledges the complexity of assessing and evaluating UR even as it provides suggestions for establishing quantitative and qualitative measures, building dashboards to increase student and instructor access to UR information, and for tracking the achievements of



different student populations after graduation. The Students Subcommittee and the DEI Subcommittee were particularly helpful in developing metrics for assessing undergraduate research programs and experiences.

Assess & Evaluate: Students Subcommittee


To ensure continuous improvement going forward:

- *Quantitative measures should consider:*
 - *Equity of access (demographics);*
 - *Effect on retention & graduation;*
 - *Posters, conference presentations, and publications;*
 - *Applications for funding;*
 - *Success in job opportunities and post-baccalaureate programs;*
 - *Opinions of potential and present employers & directors of graduate programs (e.g., through surveys);*
 - *Sense of belonging and self-efficacy.*
- *Qualitative outcomes should consider:*
 - *Students' perceived readiness and benefits of engagement in research;*
 - *Faculty reflections on the value of experience;*
 - *Insight on 'how did you learn about this?';*
 - *What tools, skills, and paths were effective in students' participation or access to research opportunities.*
- *Timing of assessment should consider:*
 - *Pre-assessment at admission (e.g., through the New Student Interest Form); mid-point and post-graduation assessments as appropriate for the duration of the experience.*
- *Mechanisms for tracking all the above should include:*
 - *Support staff for making UR assessment a sustainable activity;*
 - *An effective pipeline for sharing information among local units and central administration.*

Assess & Evaluate: DEI Subcommittee

To ensure that the campus-wide implementation of undergraduate research initiatives is in alignment with the University of Arizona's commitment to diversity, equity, and inclusion, the following recommendations are strongly advised:

- *Empower the University Analytics & Institutional Research (UAIR) Office to house data related to UR activity and to build dashboards for University and college partners;*
- *Compare current student involvement in UR to the overall demographics of the student and faculty population at UArizona, then develop strategies as necessary to bring these*



metrics into alignment. In the process, consider areas of diversity that are comprehensive, including factors not already being captured (e.g., home language), in line with the University of Arizona's institutional definition of DEI;

- *Partner with areas of campus that own the “points along the way” where survey questions could be integrated (e.g., Undergraduate Admissions, Student Course Surveys, Graduation Surveys);*
- *Work with on-campus survey design experts to create the needed survey instruments and test each before deploying;*
- *Identify barriers to broad participation across student demographic categories and lines of difference;*
- *Identify the institutional systems that can help assess retention and completion in relation to UR participation and student body demographics;*
- *Connect tools used for alumni tracking with UR participation, job or graduate student placement, and demographic data.*

Assess & Evaluate: Organization Subcommittee

Determine and capture common metrics across all undergraduate research experiences at the institution to measure undergraduate student outcomes for continuous quality improvement.

Some signifiers of improvement are:

- *increased undergraduate research participation and equitable access;*
- *improved quality of experience for students and mentors;*
- *shift to pedagogical approaches with proven impact;*
- *increased faculty and staff resources;*
- *increased administrative support.*

The following areas are recommended for mandatory, ongoing, and regularly scheduled institutional assessment by the URTF: funding, experiences, campus services and resources, diversity/equity/inclusion, physical infrastructure, data collection, and analytics.

Specific suggestions for common metrics to assess and evaluate undergraduate student outcomes related to undergraduate research are in the Organization Subcommittee [report](#).

Coordinate

Several subcommittees stressed the importance of coordination across several dimensions: a physical location housing dedicated personnel to help students, faculty, and staff with UR; an online presence providing information and responding to students' needs; and promotional channels to increase awareness about and access to UR-related opportunities and resources.



Undergraduate Research Center

The Undergraduate Research Center (URC) will follow Research, Innovation & Impact's guidance for the establishment of a new institute/center. The URC will be a strong differentiator and recruitment tool designed to be highly visible to prospective students and their families. The Center will be a prominent student-serving hub, both in-person and online, with staff to match students to opportunities.

The Center will also provide a clear opportunity for investment by outside organizations and donors. Through seed funding, monies otherwise "left on the table" because the University has not been able to leverage UR in external grant applications or philanthropic gifts arranged through the UA Foundation will become available. The Center Director will build out a highly functional, transdisciplinary, and collaborative center that propels UArizona onto the national stage as a leader and exemplar in UR.

Finally, the Center will help incentivize faculty engagement in UR activities, supporting the pursuit of additional UR-related resources and upscaled initiatives.

URE Platform / Database / Website

Several different subcommittees recognized the importance of a digital, coordinating site for UR opportunities and information. As the slashes in this section's title make clear, a digital URE presence should be both comprehensive and responsive: an electronic resource capable of responding to student activities and progress through Trellis, and able to inform users about UR-related opportunities, dispense general information, and serve as a dynamic database. Below are the different visions for this digital resource organized by subcommittee.

Digital Resource: Experiences Subcommittee

We recommend adopting a platform that will give departments and individual faculty and staff control over listing their experiences and maintaining those listings directly. Culture change will be needed to incentivize use of a centralized platform, and staff and faculty who offer research experiences should be involved in the design process. Options include overhauling and actively promoting and curating the current site, an initiative in Trellis to develop a co-curricular program management module that would populate a directory, and/or using Handshake. Coming to agreement about which platform meets requirements and agreeing to use it systematically to list all experiences would address a significant barrier to greater student participation in research-based experiential learning and course-based research: inequitable awareness that these opportunities exist, who to contact, what to expect, and how to engage.



Digital Resource: Students Subcommittee

Strengthen and support a centralized site for definitions & examples of ‘research,’ as well as a database of current UR opportunities. The resource could also contain:

- *Marketing materials in the form of videos, short testimonials, keywords, and examples;*
- *Listings of opportunities to join meetings—in-person and virtual—where students can share the UR experiences with each other;*
- *Resources for community partners and other stakeholders;*

Digital Resource: DEI Subcommittee

Identify existing research opportunities for students on campus (e.g., UBRP, REU, summer research programs, internships) and create a database.


Secure a central place for UR information to increase visibility and improve broad access.

Identify existing fellowships, scholarships, and funding sources correlated with specific research opportunities (e.g., NSF summer supplements and how-to-apply workshops; applications for funding for Pell eligible students).

Integrate

Curricular Modifications: Experiences Subcommittee

Charge and incentivize academic departments to make course curriculum adjustments that systematically introduce students to “how we discover” and the iterative scientific process that leads to “how we know.” Learning these skills can build student awareness and self-efficacy around the process of research across the undergraduate population. Similarly, many courses (within major and General Education courses) can be modified (perhaps only slightly) in ways that develop in students the ability to ask good research questions. These are relatively small (and inexpensive) adjustments that would allow every teaching faculty member to contribute to the elevation of undergraduate research awareness and an understanding of the research process. For many students, a course-based research experience could greatly enhance the learning outcomes identified in the charge to our subcommittee. This may be the single largest opportunity to scale up students’ awareness, understanding and appreciation of the role of research, and to scaffold more students toward an immersive research experience of their own. Finally, the purposeful expansion of Course-Based Undergraduate Research Experiences (CUREs), especially in introductory courses in the STEM disciplines (e.g., Biology, Chemistry) would reach many students who take such courses as prerequisites in their degree plans. This step would require institutional support to scale up but would significantly expand research exposure across the campus.



Differently Sized Bites: Students Subcommittee

Use multiple mechanisms to incorporate UREs into the curriculum (e.g., sections of a single course, full-length course experiences, multi-semester projects, micro-certifications, integration into General Education). If possible, develop Research and Engagement (RE) attributes for courses. This attribute could be attached to new or existing courses and would be approved by a centralized university committee. RE attribute courses could have a University-wide set of objectives and learning outcomes as well as a complementary set of objectives and outcomes unique to individual units. The RE attribute could either be tied to the General Education curriculum as an added required attribute or be a completely separate requirement for graduation.

Undergraduate Research Point Person: Students Subcommittee

Establish and support a point person in each unit, then facilitate interaction between central administration and unit-level support staff.

Design Inclusive Undergraduate Research Experiences: DEI Subcommittee

Design research experiences to be inclusive learning opportunities with opportunities for students to apply appropriate research practices related to their academic fields, interests, skills, and future career pathways.

Address Unmet Advising Needs: DEI Subcommittee

Address unmet advising/mentoring needs for onboarding specific student populations into research experiences (e.g., first generation students, students in the military, international students).

Timely Exploration, Preparation, and Training: Organization Subcommittee

Involve students in research through exploration (advising, general education, skills fair), preparation (fundamentals workshops), and training (summer programs) with a focus on first-year students and on the time between the second and third years when retention and graduation initiatives can be most effective.

Undergraduate research support must be embedded throughout the student journey rather than concentrated at the end of their academic experience.



Fund & Reward

Support Faculty Pursuing REU Supplements: Experiences Subcommittee

Provide support for faculty pursuing Research Experiences for Undergraduates (REU) supplements and other grant-based opportunities to fund student wages. In addition, make an institutional commitment to support paid undergraduate research positions and encourage or require faculty to recruit students eligible for federal work study for these positions. This could enhance both the demand for those experiences (as departments become able to promote more actively those opportunities) and the supply of experiences (as faculty welcome the additional student assistance on their projects). Expanding institutional support for paid undergraduate research positions would be a direct avenue for boosting both the research experience of our students and furthering the research mission of the institution.

Create Notation on Student Transcripts: Experiences Subcommittee

Another way to boost student demand for a research experience would be to define some types of experiences as “transcriptable,” that is, deserving of special notation on a student’s transcript.


Create Micro-Certification: Students Subcommittee

Create micro-certification in Research and Engagement. We recommend the development of micro-certification programs at the unit level indicating that the student participated in enough courses or other activities to gain basic proficiency in the discipline’s approach to research.

Increase Faculty/Staff Incentives to Supervise Undergraduate Research: Experiences Subcommittee

The Experiences Subcommittee offered the following as a low-priority recommendation: *Faculty facilitate undergraduate student research outside their assigned courses in ways that are often neither recognized nor rewarded, including but not limited to: the supervision of independent study projects; the use of undergraduate students to assist in labs or other faculty research settings; participation in advisory roles for external, community-based projects that may or may not lead to publications, etc. Faculty willingness to devote time to such initiatives, and the supply of such opportunities, could be increased through positive incentives such as:*

- *Credit in the Annual Review and Promotion and Tenure (P&T) processes, most likely in the categories of Instruction or Service;*
- *Financial stipend (supplemental compensation) that varies with the nature of participation;*
- *Course buyouts or release from other responsibilities;*
- *Campus-wide recognition for service, which is also helpful in P&T review.*



Establish a Set of Undergraduate Research Awards: Experiences Subcommittee

Establish a set of annual undergraduate research awards across campus, funded centrally, and available within every academic department (perhaps something similar to the familiar “outstanding senior” awards). This could greatly raise the visibility of research within the student population and contribute to a culture of fostering student research within every academic degree program. At minimum, we expect that this could increase student demand for a research experience outside the classroom. Quite possibly, it could motivate academic units to increase the supply of experiences as well.

This would be coordinated with the forthcoming undergraduate-related awards in the Office of Undergraduate Education.

Fund & Reward: DEI Subcommittee

- *Develop funding infrastructure that includes a designated budget line dedicated to undergraduate research.*
- *Develop a rubric to ensure equitable disbursement of funds.*
- *Develop an application process for undergraduate researchers (and potentially their faculty mentors) to request funding for short- and long-term research projects.*
- *Develop a marketing and information-sharing infrastructure.*
- *Establish clear communication between UR programs, the Bursar’s Office, and Financial Aid for consistent communication.*

Upcoming Tasks

Summer 2023: Submit a proposal to create the Undergraduate Research Center, hire a Faculty Director, continue URTF work, and initiate fundraising conversations with the UA Foundation.

Fall 2023: Continue URTF work, participate in the Strategic Plan in Action event, host a campus visit by Bethany Usher, President of the Council on Undergraduate Research (CUR), and operationalize the Undergraduate Research Center.

Spring 2024: Continue to operationalize the Undergraduate Research Center, host a soft launch event, and complete URTF work to provide the Faculty Director with a roadmap and description of existing UR-related UArizona assets, resources, and programs.

Summer and Fall 2024: Organize the hard launch and broadly publicize the Undergraduate Research Center.