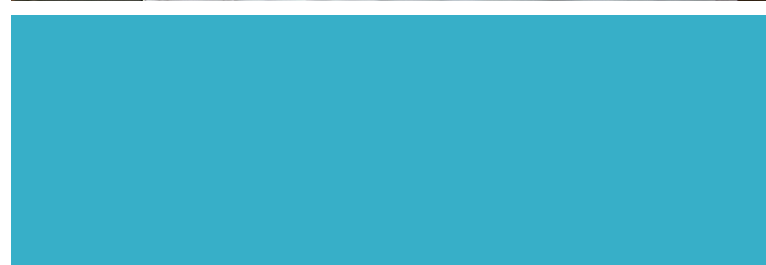




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ACADEMIC ENGAGEMENT

**Undergraduate Research Toolkit**



**UNDERGRADUATE RESEARCH TOOLKIT**

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## 1. DEFINING UNDERGRADUATE RESEARCH

### How does UNG define Undergraduate Research?

According to the American Association of Colleges & Universities (AAC&U), the goal of Undergraduate Research (UR) “is to involve students with actively contested questions, empirical observation, cutting-edge technologies, and the sense of excitement that comes from working to answer important questions.” The AAC&U emphasizes the incorporation of UR into science education, but UR can be implemented across disciplines. How can students contribute to research in your field? How can they engage with legitimate methodologies to answer contested questions and create knowledge? There is always a way to involve undergraduates in meaningful research.

Drawing from the AAC&U description, UNG has defined UR as follows:

This High-Impact Practice facilitates students’ active engagement in systematic investigation, research, and creative projects. The goal is to involve students with contested questions, empirical observations, cutting-edge technologies, and the sense of excitement that comes from working to answer important questions and generate knowledge. In Undergraduate Research, students produce field-specific knowledge under the guidance of or in collaboration with faculty. Although students will work at a level appropriate to their scholarly development, the project itself could produce intellectual or creative contributions worthy of dissemination in a professional venue. The research process unfolds over an extended period of time and is supported by dialog and iterative feedback with sponsoring faculty as well as critical reflection and revision by the student.

UNG departs from the AAC&U model by including “creative projects” in our definition, but these function in essentially the same way as research. In both cases, the student undertakes original work and is closely guided by a faculty mentor throughout a lengthy process of development and revision. The student critically reflects on their work and shares it in a public venue. Creative projects are appropriate to fields like creative writing, music, and visual arts, but students in these areas might also pursue research.

### What constitutes “research” in my field?

Undergraduate students often have an incomplete idea about what constitutes research. For example, a student might say that they have done a lot of research into the Civil War. What they probably mean is that they have read books, watched documentaries, and perused online articles. What they probably don’t mean is that they have engaged with primary sources and uncovered new information, traced untold narratives, or developed an original perspective. In all fields, “research” means more than simply learning about a subject. It means making an original contribution to knowledge or understanding.

Despite the fact that research looks very different across fields, there is always an opportunity for students to get involved. In the laboratory sciences, a student might design and perform an experiment. In the environmental sciences, a student might make observations in the field. In languages and literature, a student might undertake critical analysis of a literary text. In historical fields, a student might examine primary sources. In the social sciences, a student might conduct a survey or interview subjects.

### Do my students need approval from the Institutional Review Board (IRB)?

If you teach in a field that engages in human-subject research, you already know all about the IRB. The UNG IRB oversees all research that includes human subjects, whether it is pursued by faculty or students. The IRB defines “research” as “systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge,” while “human subjects” are defined as “living individual(s) about whom an investigator conducting research obtains: (1) data through intervention or interaction with the individual; or (2) identifiable private information.” There are exceptions related to taking oral histories and consulting with experts to gain information about a subject. However, if your students are conducting an experiment using human subjects or collecting data by means of a questionnaire, they will require IRB approval.

The need for IRB approval does not put human-subjects research out of reach for students, but it does require extra planning. Your students will need to complete the required online CITI training modules before applying for IRB

approval, and these require a considerable investment of time—probably upwards of six hours. Make sure your students set aside the necessary time and prioritize the CITI training early in the process. The CITI training can be accessed here: <https://ung.edu/institutional-review-board/citi-cert-training.php>

The IRB approval form will require students to enter a detailed research plan and attach all research protocols and instruments. If the reviewers are not satisfied, they will provide the student with clear instructions for revising the application to meet requirements. This can also take time. While IRB approval for exempt projects is usually forthcoming within a week, approval can take considerably longer, especially if the student has proposed research that requires oversight (e.g. research that concerns a protected population or carries greater risk than everyday life) or if the student struggles to satisfy the IRB requirements.

If students are assisting you with human-subjects research, they still need to complete the required CITI training and be included on your IRB application.

Information about the IRB process, along with the application itself, is available on the UNG IRB website: <https://ung.edu/institutional-review-board/index.php>

Still have questions? Email [irbchair@ung.edu](mailto:irbchair@ung.edu)

## 2. MAKING UNDERGRADUATE RESEARCH HIGH-IMPACT

Merely providing students with an Undergraduate Research experience does not guarantee that they will reap the full range of potential benefits. Certain steps must be taken in designing a UR project to ensure that it is genuinely “High-Impact.”

### What is a High-Impact Practice?

High-Impact Practices (HIPs) were first defined in 2008 by George Kuh, writing for the American Association of Colleges & Universities (AAC&U). He identified ten practices, including UR, that benefit all students, but especially those from demographics historically underserved by higher education. Experience with HIPs has been shown to improve student learning, engagement, retention, and success in college.

In 2013, George Kuh, Ken O’Donnell, and Sally Reed identified eight key characteristics of all High-Impact Practices:

- Performance expectations are set at appropriately high levels: students are challenged
- Significant investment of time and effort is made over an extended period
- Students interact with faculty and peers about substantive matters
- Students have experiences with difference
- The instructor provides frequent, timely, and constructive feedback
- The experience includes periodic, structured opportunities to reflect and integrate learning
- Students engage with real-world applications of learning
- The experience culminates with a public demonstration of competence

### What are the characteristics of High-Impact UR?

**High expectations:** Make it clear that you are asking students to exceed typical standards and do their very best work. But also make it clear that you will support them throughout the process! Although they will be held to a professional standard, they will receive detailed guidance and frequent feedback.

**Investment of time and effort:** If you are incorporating UR into a course, engagement with the project should span all or most of the course. It should unfold over weeks and months as students meet benchmarks on the long journey to producing a quality end product. The UR project should probably require more effort than any other single component of the course.

**Interaction with peers and faculty:** While undertaking their research, students should communicate frequently with one another and with the professor. These interactions might take the form of class discussions, peer feedback, small-group meetings during office hours, or individual coaching sessions. Interaction will look different based on whether students are pursuing individual projects or working in groups, but they will always benefit from thinking and reflecting together.

This is also the time to let them see into your scholarly world—to discuss the challenges you face and the lessons you have learned as a researcher.

**Experiences with difference:** This will vary across fields, but any opportunity to engage with the perspectives of people different from themselves will benefit your students. The capacity to communicate and collaborate with a diverse team is a marketable skill that will aid students as they seek jobs or graduate school admission.

**Frequent feedback:** A successful UR project will be thoroughly scaffolded, and every step of the project will elicit feedback from the professor. When a student submits a research plan, a data set, an outline, a bibliography, or a draft, they should expect guidance within a few days. Timely feedback will keep them moving ahead with the project and demonstrate your investment in their success.

**Opportunities to reflect:** The value of reflection cannot be overstated. This is the stage in which students learn and grow. Reflection can be integrated into any stage of a project, but it is most essential at the end. Ask your students to consider why they undertook the project, what they learned from it, what new skills they developed, how it changed their perception of the field, and how they will carry their new knowledge into their future careers.

**Real-world applications:** Students benefit from undertaking work that has a direct bearing on their careers. Be explicit about how undertaking a UR project will prepare students for other work, and, if possible, structure the project such that students can make a genuine contribution to the field.

**Public demonstration:** There are countless opportunities for undergraduates to present or publish their research at every level of accomplishment, and doing so carries a variety of pedagogical benefits. See Section 5: Taking Undergraduate Research Public for complete details.

#### How can I ensure that my UR activity is a HIP?

It takes effort to make UR High-Impact! The following example and non-example are taken from the UNG High-Impact Practices Implementation Plan:

#### Example:

*Over the course of a semester, students in an English class produce lengthy analytical essays concerning texts of the Harlem Renaissance. They ground their writing in the secondary literature, apply methodologies acceptable in the field, and follow the guidelines of a professional journal. They turn in multiple drafts and meet with the professor to discuss their work. At the end of the semester, the class hosts an open symposium in which students present their findings. Students are further encouraged to submit abstracts to an undergraduate research conference or manuscripts to an undergraduate research journal.*

#### Non-Example:

*Students write essays concerning texts of the Harlem Renaissance. They turn them in and receive a grade and comments from the professor.*

The example above exhibits many of the eight key characteristics explored in the preceding subsection. Students are held to a professional standard, they invest a great deal of time and effort, they receive frequent feedback, and they ultimately engage in a public demonstration of learning. None of these characteristics are present in the non-example.



## 3. IMPLEMENTING UNDERGRADUATE RESEARCH

Undergraduate Research can take place either as part of the formal curriculum or as an extracurricular activity. Both approaches can benefit students enormously. Incorporating UR into the curriculum ensures that **all** students have access to the experience as part of their UNG education. Creating extracurricular opportunities allows highly motivated students to explore their interests, gain experience, make professional connections, and build their resumes before applying for jobs or graduate school admission.

### Undergraduate Research in the Classroom Setting

UR can be incorporated into any class, but that doesn't mean that it **should** be. If you are going to implement a UR project in a classroom setting, ask yourself:

- Is there room in the curriculum? Successfully implementing UR takes up time in the classroom and requires a great deal of effort from you and your students. You will have to scale back other content.
- Does UR contribute to your learning goals for the course? Engagement with UR can accomplish many different learning goals. It builds students' research and critical thinking skills, deepens their knowledge of the specific research topic, and allows them to polish their scholarly writing and/or presentation skills. However, if your primary goal for a course is to build foundational knowledge or impart a range of practical skills, UR might not be appropriate.

If you decide to incorporate UR into your course, there are more questions to ask:

- How many students will you have?
- Will they be at the same skill level, or will a variety of skill levels be represented in the classroom?
- Are they all pursuing the same major, or a variety of majors? Which majors are represented and can the research be made relevant for all?
- How do you expect them to perceive the UR opportunity? Will they generally be enthusiastic, or will they be skeptical that the project pertains to their professional goals?
- How many hours will your students be engaging in research inside and outside of the classroom setting?

Answers to these questions should guide the way in which you structure and implement the UR project. It's okay if you have students of varied backgrounds, interests, and skill levels! You can still build a UR experience that will incorporate their strengths and meet their personal learning objectives.

### Undergraduate Research and the Disciplinary Capstone

Several UNG departments already require students to enroll in a capstone research course, while others require students to complete a capstone project that might take the form of UR. Whether implementing UR as part of a course or as an independent project, be sure to incorporate as many of the eight key characteristics outlined in Section 2 as possible. Hold students undertaking capstone-level UR to a professional standard, and plan from the start for them to present or publish their findings in an appropriate venue.

### Undergraduate Research as an Extracurricular Pursuit

There are students in every department who are eager to become involved with research projects outside of their curricular requirements. Is there a way you might involve students in your own research? Consider how they can be incorporated as partners, not just utilized to complete low-skill tasks.

#### Example:

*A history professor interested in the Civil War has access to digitized copies of letters written by soldiers to their families and is planning a research project that will engage that source. She shares the letters with students who are interested in participating in the project and whom she is able to hire as research assistants. The professor and students divide up the task of transcribing the letters and summarizing their contents, and they meet regularly to discuss their findings. The students also read secondary sources provided by the professor to gain contextual knowledge. After processing the letters, the professor and students develop an outline for a research article and each contribute different parts of an initial draft based on their interests and expertise. The resulting article is published with the professor and students as co-authors.*

*Non-Example:*

*A history professor hires undergraduate students to transcribe letters written by soldiers to their families during the Civil War. The students are paid an hourly rate. The students do not engage with secondary sources, discuss the project with the professor, or contribute to any research findings.*

Students might also have their own research ideas and simply need support from a faculty advisor. Whether you or your students are taking the lead in a research project, it is possible to secure funding from UNG or an external partner to hire student researchers and compensate them for their time.

#### 4. WORKING WITH CURCA TO FUND UNDERGRADUATE RESEARCH

The UNG Center for Undergraduate Research and Creative Activities (CURCA) offers a variety of programs that support UR, and CURCA is the first place you should look when trying to identify funding and presentation opportunities. Their programs change from year to year, so visit their website for details on criteria and deadlines: <https://ung.edu/undergraduate-research-creative-activities/index.php>.

##### Student-Faculty Collaborative Mini-Grants

This program offers funding to support student-led research projects. Applications are due at the end of September and must be submitted by an undergraduate student.

##### Faculty Undergraduate Summer Engagement

This two-month program, which supports faculty-student teams engaged in substantial research projects, takes place in June and July each year. According to CURCA,

The purpose of the FUSE program is to facilitate a research immersion experience for students during which they collaborate directly with a faculty mentor on a continual basis, as appropriate for the particular academic discipline. FUSE projects are often smaller portions of a larger research project and/or pilot projects for future research, making the program accessible to all disciplinary backgrounds.

Faculty apply to participate in early February.

Those who are selected receive a stipend, funding for materials, and the ability to hire a full-time student research assistant (or two half-time research assistants) for the duration of the grant.

##### Travel Grants

CURCA competitively funds student travel to present their research at conferences. Priority is given to student-led presentations at national, professional conferences, but funding is usually available for presentations at undergraduate conferences and regional meetings, or for joint presentations with faculty members. Two cycles of awards are made each year, one for Fall conferences and one for Spring/Summer conferences. A student may apply to have multiple trips funded, but there is a cap on total funding per academic year.



#### 5. TAKING UNDERGRADUATE RESEARCH PUBLIC

UR becomes High-Impact when students feel like their work is **authentic**. Work is authentic when it reflects students' unique perspectives and values and has significance beyond the classroom—when it is not just an assignment completed to earn a grade, but instead becomes a personal undertaking that will impact other community members and/or researchers. You can think of authentic work as reflecting “real-world” conditions. It is work that professionals undertake in the field, and it is intended for public consumption.

Students produce good work when they feel motivated because the project is significant to them. Once that good work has been produced, it should be shared outside the classroom. This further heightens motivation for students, who feel encouraged to rise to a professional standard. It also provides them with experience that can be valuable when applying for jobs or admission to graduate programs.

There are many different ways to share UR outside of the classroom, and the approach you choose will depend on a number of factors. How many students are in your class? At what level are they working? What is the discipline? The results of a UR project in a freshman astronomy class with eighty students will be shared differently than UR undertaken by eight seniors in a capstone English seminar. For every context, however, there is a means of guiding your students to present or publish their work for an audience beyond you and their fellow students.

The dissemination ideas below are organized from “smallest” to “largest.” At one end, students share their research in localized venues designed for undergraduates. At the other, they publish or present in professional venues and reach a global audience.

##### How can my students present their research?

- Put together an in-department symposium or poster session. Invite all of the students and faculty in your department to the event. Prepare your students to give short presentations on their research for an audience of their peers.
- Arrange for your students to present to a community organization or in a community setting, such as at a local interest group meeting or festival.

- Have your students present at the UNG Annual Research Conference (ARC). As of 2024, this event takes place in March and alternates between the Dahlonega and Gainesville campuses. UNG students from all disciplines participate in ARC, which includes both presentations and posters. Students must submit their proposals by mid-February. Proposals are not typically rejected, but students are sometimes asked to revise their work.
- Are your students ready to present outside of UNG? The Georgia Undergraduate Research Conference (GURC) takes place each year in November. Proposals are due in September. GURC is hosted by a different Georgia institution each year, and your students can apply for travel funding from the Center for Undergraduate Research and Creative Activities (CURCA). Details are available on the CURCA website: <https://ung.edu/undergraduate-research-creative-activities/gurc/about.php>.
- Your students can also apply to the National Conference for Undergraduate Research (NCUR), which is hosted by a different institution somewhere in the United States each year. NCUR takes place in March or April, and proposals are due in November or December. Details are available from the Council on Undergraduate Research: <https://www.cur.org/events-services/ncur/>
- Various other undergraduate conferences are specific to disciplines or methodologies. An exhaustive list is available on the CURCA website: <https://ung.edu/undergraduate-research-creative-activities/student-opportunities/presentation-opportunities.php>
- Many professional societies have chapter meetings that take place in the Southeast and are friendly to graduate and undergraduate participation. If your students have completed work that is professional in quality and scope, help them apply!
  - Note:** Many of these meetings require participants to be members of the society, which might incur a non-refundable cost, so be prepared.
- If you are collaborating with undergraduates, involve them in your own presentations at professional conferences. List them as copresenters when you submit your proposals and help them secure travel funding.



### How can my students publish their research?

- Create a website using Microsoft Sway or Adobe Express, both of which are available to members of the UNG community. Collaborate with students on website design, considering how to best present research to a public audience through word, image, and video.
- Help students prepare manuscripts for submission to a journal that specializes in Undergraduate Research. An exhaustive list is available on the CURCA website: <https://ung.edu/undergraduate-research-creative-activities/student-opportunities/publishing-opportunities/index.php>
- In exceptional cases, a student might be in a position to submit their manuscript to a professional journal. Help them to navigate the process.  
**Note:** In the humanities, it is unusual for journals to charge fees for publishing. In some STEM fields, however, it is typical. It is also common in the

case of open-access journals across fields. Before advising your student to submit to any journal, check whether there will be fees. If so, ensure that you have support from a grant or your department to cover those fees in the case of acceptance.

- Include students as additional authors on your own manuscripts by involving them throughout the research and writing process.

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