

Integrative Learning in Undergraduate Research

The charge of the group was to discuss how the university can achieve excellence in integrative learning through high impact activities in undergraduate research and to provide suggestions that would further promote and foster the inclusion of undergraduate research into an integrative learning experience. To frame the suggestions that follow, integrative learning occurs when students make connections among concepts and experiences within their curriculum and extracurricular learning so that complex issues and societal challenges can be solved. Undergraduate research provides a pathway toward an integrative environment at UGA. Our focus is not on how to make undergraduate research happen (successful programs, such as CURO, already exist to facilitate student research), but rather on how to help students integrate their research with their coursework and other experiential learning opportunities. The following suggestions are provided to further enhance the research experience to become a transformative process within the integrative learning environment. The suggestions are presented in four key areas: impacts and processes for students, faculty mentoring, enhancing visibility, and resources needed.

Student Processes

We are aware of the critically important role that faculty mentors play in student learning; however, there is tension between the need for mentorship and the faculty's limited time. To address this time constraint while simultaneously enhancing mentoring, we suggest numerous peer-to-peer opportunities be explored. For instance, Student Learning Communities (SLC) for undergraduate research would allow peers to offer support and guidance for the process of doing research and reinforce learning outcomes both during and after the process. Having peer conversations challenges students to communicate their research in meaningful ways that explains their experience to others and goes beyond a presentation in the typical conference format. More senior students could become "research ambassadors" who are trained to lead discussions about their student research experiences. A related idea is for multiple students, in both intra- and inter-disciplinary settings, to conduct collaborative research. Faculty research is increasingly collaborative, so the work of students could mirror that of the faculty.

In addition to the new mechanisms proposed above, we suggest increased use of current models in use at UGA that help students to synthesize their experiences. These models include the CURO conference, Capstone Design courses such as those in Engineering, impact statements as is done in College of Agriculture and Environmental Sciences (CAES), adding an "impact on me" element. Finally, students can provide digital evidence of their work. This digital evidence can manifest in several forms: an extended digital archive that can be updated and revised over a period of time (e.g., <http://digi.uga.edu>), a blog, a webcast, or a short video (modeled on TED talks or the [3-minute thesis competition](#)). It is important for students to gain feedback on their synthesis, whether from faculty, peers, or other stakeholders. Digital artifacts can be shared widely and provide ample opportunities for feedback. These digital products could be used to market undergraduate research for both recruitment purposes and for fundraising purposes by providing examples of the kinds of work students can do and the impact of this work. Any synthesis product should include a personal narrative statement in which students represent the embodied knowledge they gain from the research experience.

Faculty Mentoring

While the onus is on the student to work for integration through active engagement with the mechanisms proposed above, we also argue that faculty engagement with mentoring is essential to achieving success in integrative learning. To facilitate faculty engagement in mentoring undergraduate research, faculty should be provided with information about the various models available for undergraduate research. Faculty members who cannot use the “science lab” model in which faculty, post-docs, graduate assistants, and technicians all share responsibility for undergraduate researchers need to gain awareness and skill in use of other models that are both effective and efficient. All faculty need to learn how to challenge students to connect theories, models, and empirical methods learned in previous coursework and future research. A Research Faculty Fellow (RFF) program for experiential learning, similar to the service learning or teaching fellows that already exist, could assist with systematically preparing groups of faculty.

Enhancing the Visibility of Undergraduate Research Opportunities

As noted by the student panel and David Williams, CURO is widely known for providing research opportunities for honors students in the sciences, but there is a need to make a wider range of opportunities visible to more students. We suggest developing a portal for undergraduate research opportunities similar to the study abroad portal to allow students to easily see all opportunities they have. An experiential learning fair, similar to the student organizations fair, where students could present their work in digital format may also help other students see what is available and the possible outcomes of undergraduate research.

Advisors will play a key role in all experiential learning. We recommend that advisors engage students in developing a plan for the kinds of experiential learning opportunities the student wants/needs as well as how/when/where s/he will get these experiences (taking into account, for instance, prerequisites, funding, and housing). Students need multiple opportunities to hear about experiential learning as their goals and/or situations change, as they are in a different place with respect to what they can hear and process, and advisors have regular contact with students and can therefore reinforce the variety of opportunities available.

We need to ensure that all students have access to all kinds of experiential learning opportunities and that we are not systematically excluding students who are economically challenged or from under-represented groups from opportunities. Advisors and faculty members need to help students make sense of the opportunities available, access resources students might not realize exist, and make good decisions about which opportunities to pursue.

Resources

As with all new endeavors, there will be need for new resources. We understand that the University is limited in the amount of resources it can provide; however, with the emphasis on experiential learning and the potential benefits that will accrue to the students’ base of knowledge, the justification for additional resources is warranted. The incentives for faculty members to devote extensive time to mentoring undergraduate researchers or leading reflective activities could come in the form of course releases or compensation/recognition, such as the stipends for faculty who teach FYOS or assistantships for the undergraduate researcher.

In addition to compensation, students are increasingly concerned about bumping up against their HOPE limits, so they may be unwilling to register for credit for opportunities to integrate their learning. The possibility of creating a 0 credit hour course for those students who want to participate in undergraduate research without using HOPE credits would remove a potential barrier.