

Saying Yes to Undergraduate Research

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Over the past 30 years, more and more faculty members and institutions have embraced undergraduate research as a way to further faculty research and to enhance student learning. It has been used to attract and retain talented students, to improve the [educational experience of minorities](#), and to prepare more students for graduate school.

Engaging students in original scholarship is a time-intensive and expensive activity, but the outcomes are almost always powerful and positive. Perhaps most important, research keeps students and the faculty connected and engaged in high-level intellectual collaborations. Studies have shown that student learning depends strongly on faculty involvement, and that when faculty members who have a strong research focus don't include students in that research, it has a negative impact.

Expanding Research for Undergraduates

How to give more students opportunities in the lab or in the field — without breaking the bank.

So why don't all faculty members who do research participate in undergraduate research? In conjunction with the Council on Undergraduate Research, I have worked with more than 600 institutions at weekend workshops to help faculty members and administrators grapple with the barriers that prevent them from creating the programs and structures they want to put in place.



The first barrier is the most significant: culture. Choosing whether to include students in research is rooted in the vastly different culture of each discipline. While it is normal in the natural sciences and the more experimentally focused social sciences to work with students on research projects, it is not as conventional in disciplines in which research is usually more solitary, like the humanities.

Efforts to change the culture need to be made at the department level, where most undergraduate research takes place. Focusing on student learning and outcomes and reviewing what the educational literature tells us about student learning is a good place to start this conversation. Doing so helps faculty members and administrators set goals for undergraduate research in each department.

A second barrier is the belief of some faculty members that undergraduates cannot meaningfully contribute to research because they don't have the necessary skills or knowledge. That sentiment is sometimes voiced by mathematicians and those who analyze complex texts.

I agree that not all research projects are amenable to undergraduate participation. But at predominantly undergraduate institutions, all faculty members should have certain projects that include students. One way to handle this issue is by having faculty members attend the [National Conference on Undergraduate Research](#) to learn how other academics have found ways to engage students in a variety of disciplines.

A third barrier is tenure-and-promotion policies and merit-pay policies that do not reward faculty members for engaging in undergraduate research. Giving departments the freedom to interpret their own rules in valuing undergraduate research can go a long way toward encouraging these efforts. It can also help to have departments create their own strategic-planning documents in which they describe the purpose of becoming more research-

oriented and to emphasize that a central goal is to improve student learning.

In my department, we recently decided to require that all of our students engage in a research project as part of their degree requirements. Although the majority of our students had been doing research, in many ways this new requirement had a transformative impact on our department. There is now a constant buzz of research activity, 12 months per year.

Other issues that colleges need to tackle if they want to create a research culture include those related to workload and money. They need to figure out how to reassign faculty time so that professors are available to work with undergraduates on research. Colleges also need to work out how to finance additional travel for faculty members and students and internal research grants for summer stipends. And, of course, resources need to be shifted or marshaled to support the work. That might include modifying facilities or planning new ones.

Deans and provosts need to be on board, or the shifting of resources will not keep up with needs and expectations. That is why we expect administrators with the ability to reallocate resources to be part of the teams that come to our workshops.

Colleges that do undergraduate research well also highlight the work of the students in a variety of ways. These include holding celebrations that honor student work, publishing undergraduate-research journals, sending students to conferences to share their research, and organizing students to give presentations at state capitols for legislators and their staffs.

Many colleges are looking for ways to connect undergraduate research to other practices on campus that have been shown to benefit students. Some colleges are even setting up offices specifically designed for this purpose. Successful strategies include forging relationships with allies and other offices with similar goals, holding workshops or retreats, fostering campus conversations, engaging with outsiders and with new ideas, and offering public presentations.

Some colleges are also making parallel efforts to embrace more research-rich curricula. One is to embed research using a backward-designed approach, meaning that colleges start with what students should know after four years and then design curricula to achieve that goal. Another is incorporating undergraduate research into a scaffolded approach to the curriculum, meaning that courses build on and connect to one another. Those approaches are gaining traction and are the next wave of undergraduate-research activities at institutions of all types, including community colleges.

In collaboration with the Council on Undergraduate Research, I am in the midst of working intensely with [24 departments at 12 institutions](#) over a four-year period that are doing just that type of work. The approach comes with its own set of cultural, resource, and planning challenges, but for large departments, the curriculum is ripe for research approaches that can accommodate many more students.

Undergraduate research has been shown to create powerful learning environments for students while at the same time supporting the needs of faculty members and institutions that aspire to be more active in research.

Overcoming the barriers for embracing undergraduate research is a challenge, but the dividends are large and the outcomes transformative.

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