

Guest Opinion: Undergraduate Research Assistants

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Involving undergraduates in research is a priority for most of the sciences, but providing these opportunities can be challenging. Often students can receive credit for one to two semesters of undergraduate research, but many students have only limited time for research because they must work various jobs to support their education. In registering for relatively short research projects over a semester or two, students face a steep learning curve but rarely arrive at a point where they can direct their own research or complete it.

At public comprehensive universities it is faculty, rather than a pool of graduate students, post doctoral associates, and technical staff, who regularly supervise undergraduate researchers. Faculty are dedicated to providing these research experiences but confront the reality that short, semester long research experiences are particularly taxing: A disproportionate amount of faculty time will be spent training each student only to find that the student may have completed their credits before they have really been able to contribute to the research of the laboratory. What emerges is a system where we do the best we can but recognize that both faculty and students are not realizing the full potential of the experience.

In the University of Northern Iowa's Biology Department, we have been working to address these issues and developed a program that might be of interest to other institutions facing similar challenges. A program was developed to employ undergraduates as Undergraduate Research Assistants (UGRAs). Students employed in this capacity work 10 -12 hours per week in a faculty laboratory assisting

faculty with research and eventually directing their own research projects.

Students can register for research credits, but often continue to work within their laboratories for multiple years, sometimes spanning the entire duration of their studies. Each research student is paid approximately \$2500 per year. Funding for this program grew from merit-based financial aid made available within our university with a required match from the department, grants obtained by faculty members, budget supplements provided by the university, and donations obtained through our university's Foundation. Now in our fourth year of the UGRA program, we currently fund 18-20 UGRAs and this program has spread throughout our college. The research environment of our department has improved because of the close, symbiotic working relationships established between faculty members and students, and the camaraderie of research students who often interact and engage each other in the course of their research. This has been aided by an open laboratory design which allows students to interact across laboratories and research projects.

There are supplemental benefits to UGRA students as well. Students engaged in the UGRA program can use their research as part of the research required by our university Honor's Program. Beyond this, however, students may select the Honor's Research option within each major offered by our Department. Graduating with Honor's Research requires at least four credits of Undergraduate Research, and a fifth hour of Senior Thesis. The Senior Thesis details the research completed by the student written in the style of a research

manuscript and is refereed by at least two faculty members. Students involved in the UGRA program may also use their accumulated research to contribute toward a combined B.S./M.S. degree by completing a fifth year of graduate coursework and additional research. Now in the third year of the Honor's Research program, we have six students who have completed their Senior Thesis. Time will tell whether this program

results in a greater proportion of our students selecting careers involving research.

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