

# Why Establish an Office of Undergraduate Research?

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Following a series of disappointing and disconcerting pilgrimages to the North Carolina state legislature, a former Vice Chancellor of Research observed that when administrators and faculty have to explain the purpose and value of research to our own graduates, "you know we are not doing something right." This comment was telling for two reasons. First, many of North Carolina's state legislators received bachelor's degrees from the University of North Carolina at Chapel Hill (UNC-CH). Is it possible that they could have been here and not known what consumed much of the time and attention of faculty, graduate students, and undergraduates? Second, many, though not enough, of our undergraduate students engage in research and scholarship within their classes and in independent projects. Did we fail to frame our communication about research in a manner that would allow students to know it when they saw it?

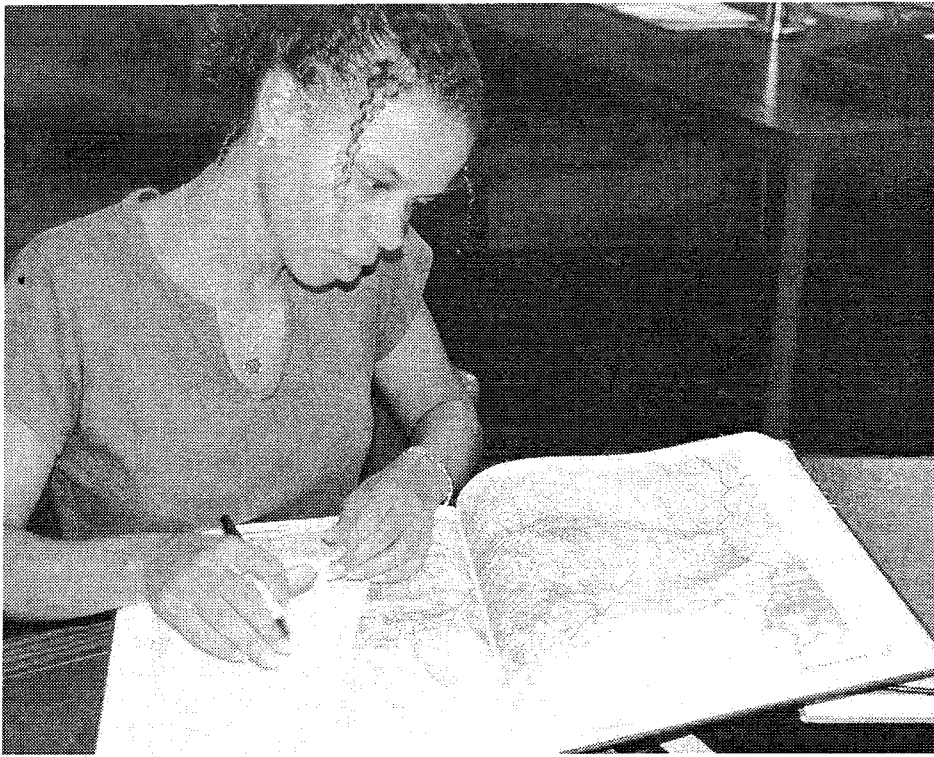
The less than enthusiastic response from state legislatures across the country to the funding of research initiatives in public universities is one consequence of the failure of these universities to make research a distinctive feature of the undergraduate experience. There are other repercussions. Too many students fail to see any relationship between acquiring knowledge and learning to solve new problems. Outside of the laboratory sciences, many are unaware of the ways in which research functions as a part of their coursework. For students, more often than not, courses are about tests. Unless the process of learning to do research is intentional and valued, no matter what the discipline, the majority of students will conclude that research procedures and applications are extraneous and relatively unimportant.

Since the tools of discovery differ among the disciplines, one might conclude that the necessary changes to enable the research expertise of the faculty to be brought into the classroom would need to occur independently in each departmental curriculum. This is not necessarily the case. A centralized Office of Undergraduate Research can not only serve as a necessary catalyst for breaking down the artificial boundaries between learning and discovery and between graduate and

undergraduate education, it can also be instrumental in increasing undergraduates' awareness of the importance and centrality of research in their educational experiences.

Such an Office was established here at UNC-CH in July, 1999 as a consequence of a 1997 report prepared by the Chancellor's Task Force on Intellectual Climate. The charge given to the Office by the University administration was to expand the opportunities for active, mentored learning experiences for undergraduates, both inside and outside the classroom. This charge stemmed from the belief that information alone has a short half-life, but students who understand how discoveries are made in their chosen fields are well prepared to address the unsolved problems that they will inevitably encounter in the future. Those of us working most closely on the project include a part-time director (who is also a member of the biology faculty), a part-time administrative assistant, and several part-time graduate and undergraduate assistants. We have learned how to have a relatively large influence in a relatively short period of time, and we believe that many aspects of our experience could be applied easily on other campuses.

We began with the realization that although there was a rich tradition of undergraduate research in several disciplines at UNC-CH, there was almost no awareness of the successful and innovative programs outside of their immediate departments. Thus we decided to conduct half-hour interviews with departmental chairs and directors of undergraduate studies in which we posed a series of specific yet open-ended questions that encouraged them to expand upon their departments' accomplishments. The interviews informed us about research opportunities for undergraduates, enabled us to determine which aspects of undergraduate research were best left in the hands of individual departments, and helped us to understand the unique manner in which each discipline defines research. Some disciplines emphasized library and archival research, others required fieldwork, and still others were centered on laboratory research. Some faculty, especially in math and foreign language departments, thought it unrealistic to expect undergraduates to conduct research in



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**Tamara Johnson prepares for her Undergraduate Research Symposium presentation on ecotourism in Kenya and Belize.**

their disciplines because of the high level of competency such research entailed. In many of the sciences, on the other hand, research was not so much a component of the program as its very basis and reason for existence. The interviews also revealed ways in which a centralized office could best benefit particular programs. Small departments that desired to attract more majors were eager to have the accomplishments of their research programs communicated to a wider audience. Other departments representing disciplines not always associated with independent scholarship were eager to spread the word about their innovative approaches as well.

After completing the interviews, our next step was to create a website ([www.unc.edu/depts/our](http://www.unc.edu/depts/our)) with information on how to get started in research, internship experiences, funding opportunities, undergraduate societies that support research, and inquiry-based course offerings. Perhaps the most exciting aspect of the website is the Research Opportunities Database. The database was designed to increase the number of potential mentors for undergraduate research projects by enabling undergraduates and advanced researchers with similar interests to find one other (an important issue given the size of our campus). Accordingly, graduate students, research fellows, and faculty can post volunteer and paid positions, research undertaken for course credit, and research projects that could lead to an undergraduate thesis once the appropriate steps have been taken by the student within his or her

department. Faculty who have used the database have responded enthusiastically to the ease of finding interested, talented research students, especially in emerging areas that cross traditional departmental boundaries.

We also wanted to celebrate student achievements in research. Research faculty understand that original inquiry is incomplete until it is communicated effectively, both to specialists and to the public at large. To make such opportunities available for our students, we sponsored a campus-wide undergraduate research symposium. Our student advisors suggested several elements that they thought would be essential for a successful symposium, including invitations to students from their faculty advisors, online feedback on abstracts from the campus writing center, workshops on effective poster and paper presentations, and clearly stated information about the benefits of participating.

Because of the invaluable advice of our student and faculty advisory boards and the hard work of the event's organizers, UNC-CH's First Annual Celebration of Undergraduate Research turned out to be a stunning success. Ninety students (including first-year students through seniors) from thirty different departments gave presentations. The seven platform and performance sessions included dramatic, musical, and multimedia performances that were moderated by distinguished faculty and administrators and well attended by

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faculty and graduate student mentors, administrators, parents, and friends.

Finally, we sought to publicize student accomplishments beyond the University. For example, we collected information from students who completed research projects to publish in the student's hometown newspaper. On our campus, individual departmental administrators are not always aware of the favorable attention given to such articles by the folks back home. We also informed the participants that they were eligible to apply for travel grants to present their results at professional meetings in their fields. This initiative stimulated much interest, and as a consequence, our undergraduates will be traveling to France, Switzerland, San Francisco and other places closer to the campus in the coming months to participate in these professional conferences. Upon returning from such a meeting, one student wrote:

"I gained a sense of confidence with my own research project even though it was fledgling compared to the others that were presented. Ultimately, the meeting liberated me from the worries and self-doubts most undergraduates experience. The result was a sharper focus and a renewed sense of self. Thank you for understanding the importance of these experiences in enhancing the quality of education for students like me."

Unfortunately, the necessary emphasis on research in a Research I University can separate faculty from undergraduate students and graduate from undergraduate education, to the detriment of all. Different disciplines describe research in distinctive ways. However, there are two important unifying features that appear to be universal in all disciplines. First, research involves creative expression. Second, research produces results that are worthy of communication to other people. These common elements provide an important foundation that should enable the entire university community to be involved in both learning and discovery. From our experience, we conclude that a relatively small investment in a centralized office with only part-time personnel can leverage important changes in attitudes about the benefits of widespread participation in undergraduate research.



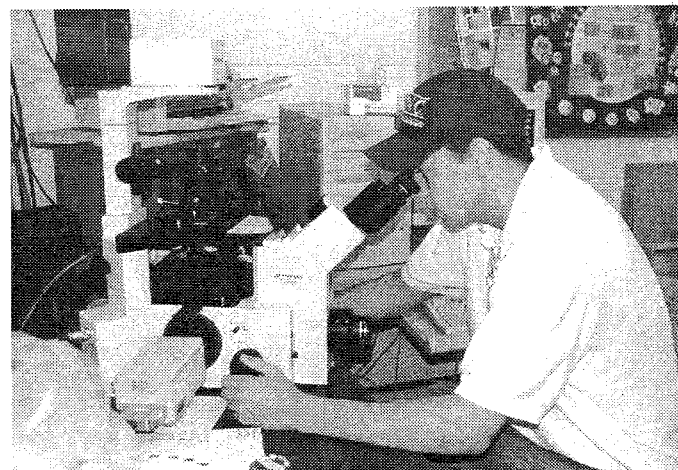
Kathryn Eaker reviews slides for a presentation on gene silencing with advisor Sarah Grant.

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*Photographer: Adrienne Coats*



Brett Summey examines cartilage sections for the presence of tissue transglutaminase for his symposium presentation on osteoarthritis.