

2010 AAC&U Annual Meeting

“Engaging Pre-Tenure Faculty in Undergraduate Research: Trends, Barriers and Ideas to Promote Success”

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Background: NC State is a large land-grant research extensive university with 32,000 students and 8,000 faculty and staff.

NC State’s Office of Undergraduate Research was established in 2003, although the institution has a long tradition of supporting undergraduate research:

- 18 annual campus symposia
- leadership in developing state-wide symposia for undergraduate researchers
- grants to support students during semester or summer research
- small grants for operating costs to faculty mentors

In general, mentoring undergraduate research is perceived as part of a junior faculty members’ research rather than exclusively a teaching responsibility, an important distinction between perceptions at research universities and those at liberal arts colleges, where such mentoring may be seen as more relevant to teaching responsibilities.

Based on results from the 2003 COACHE survey, junior faculty at NC State report about the same levels of satisfaction in questions related to research as faculty at peer institutions.

- NC State junior faculty were *more satisfied* that faculty at peer institutions with “what is expected of them as researchers.”
- Their responses did not differ significantly from those of faculty at peer institutions in their satisfaction with
 - “the quality of undergraduate students” and
 - “the amount of research funding they are expected to find.”
- They were *less satisfied* than their peers with
 - “the amount of time they have to conduct research” and
 - “the influence they have over the focus of their research”

As may be reflected in the areas of lower satisfaction, NC State junior faculty are uncertain about whether their choice to spend time mentoring undergraduate

researchers will be consistent with their colleagues' and the institution's expectations of them as researchers. NC State remains challenged to find and support mentors for 25,000 + undergraduates among our junior faculty, and we believe that more junior faculty would be attracted to mentoring undergraduate researchers if this work were better supported and rewarded.

Involvement of our faculty in mentoring undergraduate research is reflected in a number of ways, one of which is sponsored research that supports students. Almost 70% of NC State faculty are engaged in sponsored research, and over 2,500 graduate students are supported by these funds. However, only about one-tenth of faculty with funding for student support include undergraduate students in this provision. Although the University provides some institutional funding for student grants and operating costs to mentors, funding for undergraduates is limited from all sources.

Junior faculty are also concerned about how undergraduate research will be "counted" in promotion and tenure reviews and whether mentoring undergraduate students in research will take time and credit away from other research activities.

Both of these concerns are reflected in responses to a survey of faculty mentors conducted as part of NC State's 2009 assessment of undergraduate research. Fifty faculty responded to the question "What do you feel that the University could do to enable you to do a better job of mentoring undergraduate research?" choosing one or more of four possible responses:

- 41/50 cited "Provide operating funds to mentors"
- 37/50 cited "Provide more student grant awards to include Fall, Spring and/or Summer sessions"
- 33/50 cited "Provide for student travel to present at national meetings"
- 28/50 cited "Include the effort in promotion, tenure, and salary decisions"

(The smaller number citing concerns about including their efforts in promotion, tenure and salary decisions probably reflects the fact that a number of mentors are full-professors.)

Despite the possible disincentives of support and recognition for mentoring undergraduate research, NC State faculty have cited a number of ways in which they find satisfaction in mentoring undergraduate research:

- "Assisting young people to develop new skills, career perspectives, and self-confidence."
- "Seeing the student develop skills and to be able to recognize strengths and weaknesses of the specific study and how a follow-up study might be done."

- “Getting to know the students and working with them one on one. I was able to help prepare a high quality undergraduate student for entry into a top-5 graduate program.”
- “The opportunity to work with the best undergraduates....”

Many junior faculty were mentored as undergraduates and associate their interest in attending graduate school with this experience. Additional incentives for them include meeting increasing expectations of funding agencies to involve undergraduates in their research, increasing data collection and publications, and improving graduate student recruitment.

Research institutions, too, have a number of incentives for supporting undergraduate research:

- Outstanding undergraduates are often attracted to institutions where they can participate in strong research programs.
- Research programs help institutions demonstrate learning outcomes from outside the traditional classroom to accrediting agencies.
- Undergraduates can be productive at lower costs than those required to support graduate students.
- Institutions can recruit top undergraduate researchers into their graduate programs.

Research institutions stand to benefit significantly from increased involvement of undergraduates in the research of junior faculty. However, given the wide-ranging demands on pre-tenure faculty, institutions interested in encouraging faculty involvement need to provide time and resources faculty need and develop criteria for promotion, tenure, and other faculty rewards that clearly acknowledge this activity's contribution to the institution's research and educational mission. Based on NC State's experience, mentoring undergraduate researchers, if well-supported and rewarded, can increase junior faculty members' job satisfaction and their contributions to the university's mission.