

Table 4 continued.

Degree Area and Level	Annual Summary of Enrollment Reported /2/									
	1983 n = 113	1984 n = 133	1985 n = 135	1986 n = 125	1987 n = 129	1988 n = 124	1989 n = 119	1990 n = 121	1991 n = 115	1992 n = 120
Other (Non-Agricultural) Prgrms										
Two Year Enrollment	455	110	60	496	922	266	260	518	549	71
Baccalaureate Enrollment	15,313	13,676	13,660	10,554	11,884	11,324	12,251	12,202	11,855	11,383
Masters Enrollment	1,370	1,094	966	902	653	644	777	818	857	859
Doctoral Enrollment	786	254	221	39	61	65	93	108	245	205
SUBTOTAL	17,924	15,134	14,907	11,991	13,520	12,299	13,381	13,646	13,506	12,518

Includes AASCARR, MASULGC and NAPFSC Institutions

SOURCE: Food and Agricultural Education Information System (FAEIS)

ONE ON ONE MENTORING

Preparation for Professional Responsibilities

J. R. McKenna, S. T. Reed, J. P. Fulcher, and R. N. Mankolo

Faculty at many institutions of higher education are involved in teaching and advising both graduate and undergraduate students. These activities often are in competition for time spent conducting research. This note describes a program where graduate students can become involved in one-on-one mentoring of an undergraduate student by sharing a portion of his or hers research project. This program provides undergraduate students with an opportunity to improve their technical writing ability through peer review of their research proposal. Through collegiate and regional presentations at scientific meetings, the students have a chance to present and defend their research findings. The undergraduate student develops an understanding of what is involved in the research process, has an opportunity to improve his or her communication skills, and strengthens his/her resume. The graduate student mentor and undergraduate student benefit by being able to participate in a published abstract, an oral presentation, and often a subsequent journal article. The process prepares the graduate student for the responsibilities of a professional experience.

Introduction

The undergraduate research program is an arrangement whereby a graduate student supervises research performed by an undergraduate student. This program provides several benefits both for undergraduate students and their graduate mentors. From the graduate students perspective, insight and experience is gained in designing a comprehensive research program. Together, student and graduate mentor must define research objectives, design an experimental approach to meet these objectives, and write a pro-

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posal requesting funds to finance the research. In this manner graduate mentors can become experienced in areas not necessarily related to their research. From the literature review to perfecting techniques for a variety of procedures by working together, both undergraduate student and mentor benefit from expertise gained in a more timely manner than a normal graduate program would permit. In addition to improving scientific skills, students can develop interpersonal skills necessary to maintain good professional relationships.

Methods and Materials

This program is in its third year and has involved three graduate student mentors and six undergraduate students. Research and travel funds are obtained partly from Pratt undergraduate research grants available competitively through the college, and from operational monies from grants. The undergraduate assumes responsibility for a portion of the graduate student's research project. A proposal is then written requesting Pratt funds for undergraduate research. These are competitive grants providing a \$1500 scholarship for the undergraduate and \$1000 in operating money. Since the graduate research is externally funded, the operating monies can then be used for transportation of both students to a professional meeting to present a paper or poster. The graduate student aids in the writing of the research proposal, instructs the undergraduate in laboratory, greenhouse or field research procedures, and assists in collecting, analyzing, and interpreting the results. The undergraduate assists a graduate mentor in his/her research, and participates in writing an abstract, oral presentation, or journal article. Together graduate mentor and undergraduate student must do the following:

1. Conduct a review of the appropriate literature.
2. Prepare a complete research proposal including mu-

tual critical reviews of each student's written portion for scientific merit.

3. Acquire all equipment, chemicals, machinery, field plots, etc. necessary to conduct research.
4. Arrange and budget time to conduct research while reserving adequate time for academic study.
5. Collect and analyze data.
6. Prepare and present a poster or an oral paper at a professional meeting.

Results and Discussion


Over the past three years three graduate mentors and six undergraduate students have been involved in the program. Three successful Pratt Grants have been obtained, six presentations have been made at the Southeast Branch meetings of the American Society of Agronomy and three presentations on campus at the Pratt Scholar Paper Session. This has resulted in six published abstracts and one refereed journal article. Both graduate mentor and undergraduate student have benefited from the relationship professionally and personally. Sample comments from graduate mentors follow: "My involvement with undergraduates has earned me a degree of respect from professionals at other universities who associate me with the success of the undergraduates with whom I have had the good fortune to work." "I have had the opportunity to make several long lasting friendships with the people in this program." "This program has helped me gain perspective, insight and experience in designing a comprehensive research program."

Undergraduate participant comments include: "I was able to apply what I have learned in the classroom to a physical situation, making my studies more tangible and even more practical." "The project gave me experience with the daily aspects of research, including data collection, instrument use, and results and analysis, the benefits of which have proved very useful." "Presenting the results at a national meeting gave me the experience of public interaction that I simply would never have had otherwise." "The most important thing during this experience was the constant hands of guidance I received from my mentor. If it were not for him taking an active part in my undergraduate research experience, I would not have had the knowledge or courage to even begin."

The track record of the undergraduate participants is the best evaluation of this program's success. Two students are presently in graduate programs, three have been accepted into graduate programs, and one is finishing her senior year with graduate school as an option. The mentors had a great deal to do with the success of their charges, and felt that this experience better prepared them for their professional careers.

Summary

This program is presented here as a model for others to adopt and improve. We have found it an excellent vehicle to expose graduate students to one-on-one instruction, and has provided another component to undergraduate education. It has also provided the graduate student with help,

while at the same time allowing the student to be a role model for the undergraduate. The positive results and comments substantiate the value of this or a similar program, and is an assist to both the graduate and undergraduate teaching programs. 



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