



NATIONAL SCIENCE FOUNDATION

ASSESSING THE IMPACT OF UNDERGRADUATE RESEARCH EXPERIENCES

Wednesday, December 17, 2003

Room 1235

AGENDA

10:00 a.m.	Welcome	Corby Hovis, Division of Undergraduate Education, NSF
10:05 a.m.	Opening Remarks	Judith Ramaley, Assistant Director for Education and Human Resources, NSF
10:30 a.m.	“Undergraduate Research Opportunities (UROs): Who Participates and What Are the Effects?”	Susan Russell, SRI International
	<p>Using Web-based questionnaires, SRI surveyed more than 4,500 undergraduates, as well as their mentors, about their 2002-2003 research experiences in NSF programs. The survey found that there is broad diversity among undergraduate researchers in terms of their race/ethnicity and sex but less diversity academically—most have excellent grades, are seniors, attend a research university, and, before they had ever participated in research, planned to get an advanced degree. Nevertheless, according to self-reports, UROs have a major impact on most participants' confidence and their understanding of research-related issues, increase their interest in careers in research and science/engineering, and lead them to raise their degree expectations. There are considerable differences in the size of the URO effect among NSF programs and the academic field of research, smaller differences among racial/ethnic groups, and no appreciable differences between men and women. Various characteristics of the URO also affect its influence on students.</p>	
11:30 a.m.	“Evaluation of the University of Delaware’s Undergraduate Research Program and Its Effects on Students”	Karen Webber Bauer, University of Georgia
	<p>To assess the effects of participation in undergraduate research on education, this multi-faceted study examined the perceptions of faculty and alumni, as well as cognitive and psychosocial changes of students who participated in undergraduate research. Results found increases in cognition from the freshman to senior year and significant perceived benefits of undergraduate research as reported by faculty, students, and alumni. Benefits of the study's design, as well as implications for undergraduate research, will also be discussed in the presentation. This evaluation and associated innovations in the undergraduate research program at the University of Delaware were supported by an NSF Recognition Award for the Integration of Research and Education (RAIRE), NSF Award No. 9620082, “Research-Based Education: A Template for Promoting Discovery Learning on Today’s College Campuses.” Further support was provided by a grant from NSF’s Division of Research, Evaluation, and Communication, Award No. 9902000, “Outcomes Assessment of Undergraduate Curricular Innovations: Developing a Model of Evaluation.” See <http://www.udel.edu/RAIRE/>.</p>	
12:30 p.m.	Lunch on Your Own	

(continued)

1:45 p.m.	<p>“Structure and Assessment of Outcomes of Summer Research Programs at James Madison University”</p> <p>James Madison University has an active summer research community with four on-campus, NSF-funded summer research programs (in chemistry, mathematics, materials science, and biology) and an international REU program in Ghana. We also include students funded on NSF or NIH research grants, NSF-UMEB, and NIH Bridges to the Baccalaureate. Our presentation will report the structure of and results from the chemistry and materials science REU programs. The chemistry REU has operated for 12 years and has included work with hearing-impaired students in the last three years. The materials science REU has been run for three years and has included students and faculty from several departments. We will focus on the importance of defining clear objectives for research programs, the population of students we have served, longitudinal information on their career paths, and a two-year assessment of outcomes of the summer research experience, which has been conducted in collaboration with David Lopatto at Grinnell College.</p>	<p>David F. Brakke, Wm. Christopher Hughes, and Gina MacDonald, James Madison University</p>
2:45 p.m.	<p>“Expanding the Researcher Pipeline: Best Practices of Undergraduate Research Programs for Women and Minorities”</p> <p>Since 1995, the LEAD Center has evaluated four undergraduate research programs designed to increase the representation and performance of women and underrepresented minorities in graduate programs in science, mathematics, and technology. All four programs have been successful at encouraging significant percentages of their participants to enroll in graduate school and be better prepared for its challenges—including the challenge of being in the minority within their field. Our presentation will focus on the strategies of these programs that were critical in boosting participant confidence, improving preparation for graduate research, and encouraging high numbers of participants to pursue graduate degrees. The challenges inherent in evaluating these programs will also be discussed.</p>	<p>Baine B. Alexander and Julie Foertsch, LEAD Center, University of Wisconsin, Madison</p>
3:45 p.m.	<p>Roundtable Discussion</p>	<p>Moderator: Connie Della-Piana, Division of Undergraduate Education, NSF Respondents: Sally O’Connor, Division of Biological Infrastructure, NSF Randy Phelps, Division of Astronomical Sciences, NSF</p>
4:15 p.m.	<p>Adjourn</p>	