SELECTED CROSSCUTTING PROGRAMS

NSF crosscutting programs include interdisciplinary programs and programs that are supported by multiple directorates. Examples of major crosscutting activities include the following:

ADVANCE: A budget of $20.79 million for ADVANCE in FY 2009, a decrease of $560,000 below the FY 2008 Estimate, will fund transformative efforts to address the systemic barriers to women's full participation in academic science and engineering (S&E). Included in the portfolio will be evaluation and assessment efforts to capture the impact of prior ADVANCE awards and to build upon effective practices, the dissemination and adaptation of models and strategies that have demonstrated effectiveness, as well as new awards for Institutional Transformation. In order to include a variety of institutional types, new catalytic awards (IT-Start) will be made to support basic data collection and analysis functions necessary to understand the status of women faculty in academic S&E at institutions seeking to promote organizational and cultural changes designed to produce increased recruitment, retention, and promotion of women in academic STEM fields. This category of award is intended to broaden the spectrum of institutions participating in ADVANCE activities, including primarily undergraduate institutions, teaching intensive colleges, community colleges, minority-serving institutions (e.g. tribal colleges, Historically Black Colleges and Universities, Hispanic Serving Institutions) and women's colleges.

Faculty Early Career Development (CAREER): The FY 2009 Request provides $181.91 million for CAREER, an increase of $14.15 million over the FY 2008 Estimate of $167.76 million. This will result in approximately 34 more CAREER awards than in FY 2008. CAREER awards support exceptionally promising college and university junior faculty who are committed to the integration of research and education and who are most likely to become the academic leaders of the 21st century.

Graduate Fellowships and Traineeships: The FY 2009 Request provides $245.86 million, an increase of $31.57 million over the FY 2008 Estimate, for NSF's three flagship graduate fellowship and traineeship programs. This funding will enable NSF to support an estimated 5,450 graduate students. This is an increase of 770 students over FY 2008.

- $124.76 million for the Graduate Research Fellowship (GRF) program, an increase of $28.60 million over the FY 2008 Estimate, will support graduate students in all STEM fields. Funding will support an estimated 3,075 fellows. GRF is widely recognized as a unique fellowship grant program because it supports the broad array of science and engineering disciplines across all fields as well as international research activity. In FY 2007, NSF received thousands of applications for these highly prestigious and competitive awards and was able to support only 2,656 fellows. The FY 2009 Request for GRF is significantly increased to provide opportunities for more U.S. citizens, nationals, and permanent resident aliens.

- $63.79 million for the Integrative Graduate Education and Research Traineeship (IGERT) program, an increase of $970,000 above the FY 2008 Estimate, will support comprehensive Ph.D. programs that are innovative models for interdisciplinary education and research and that prepare students for academic and non-academic careers. Funding will support an estimated 1,425 IGERT trainees. Additional funds for this program are well justified. Abt Associates, Inc. prepared an evaluation of the initial impacts of IGERT in February 2006 and concluded that "the IGERT program has been successful in achieving its goal of improving graduate educational programs in science and engineering….It has also begun to achieve its goal of catalyzing a cultural change in American graduate education…"

- $57.31 million for the Graduate Teaching Fellowships in K-12 Education (GK-12) program, an increase of $2.0 million above the FY 2008 Estimate, will strengthen partnerships between higher

education institutions and local school districts by providing universities the opportunity to become engaged with a program that features outreach to K-12 schools in a manner that benefits both their teachers and students. Preliminary evaluative findings conducted in 2005 by AIR Associates, indicate that GK-12 is meeting its goal of enabling graduate students in STEM disciplines to acquire additional skills that will prepare them for professional and scientific careers. GK-12 fellows interact with teachers in K-12 schools, improving communication and teaching skills while enriching STEM instruction in K-12 schools. In 2007, the program engaged Abt Associates, Inc. in the development of a thorough evaluation of the program to provide data related to the success of GK-12. Funding will support an estimated 950 graduate fellows.

Long-Term Ecological Research (LTER): The FY 2009 Request provides $25.09 million, an increase of $230,000 above the FY 2008 Estimate. LTER supports fundamental ecological research that requires long time periods and large spatial scales. This program supports a coordinated network of more than two dozen field sites that focus on: 1) understanding ecological phenomena that occur over long temporal and broad spatial scales; 2) creating a legacy of well-designed and documented ecological experiments; 3) conducting major syntheses and theoretical efforts; and 4) providing information necessary for the identification and solution of environmental problems. LTER field sites represent a diversity of habitats in continental North America, the Caribbean, Pacific Ocean, and the Antarctic, including coral reefs, deserts, estuaries, lakes, prairies, various forests, alpine and Arctic tundra, urban areas and production agriculture.

Research Experiences for Teachers: (RET): The FY 2009 Request for NSF's RET program totals $9.69 million, an increase of $850,000 above the FY 2008 Estimate of $8.84 million. Funding will provide pre-service and in-service K-12 teachers with discovery-based learning experiences.

Research Experiences for Undergraduates (REU): The FY 2009 Request for NSF's REU program totals $61.55 million, an increase of $3.82 million above the FY 2008 Estimate of $57.73 million. The increase proposed for FY 2009 is consistent with the recent (July 2006) external evaluation of REU by SRI International.   It found that undergraduate students who participate in hands-on research are more likely to pursue advanced degrees and careers in science, technology, engineering and mathematics (STEM) fields. REU supplements support active research participation by undergraduate students in any area of research funded by the NSF by providing supplements to research grants.   REU sites involve students in research who might not otherwise have the opportunity, particularly those from institutions where research programs are limited. A significant fraction of the student participants come from outside the host institutions. Some REU grants have been extended to the freshman and sophomore levels to enhance retention and graduation rates. In FY 2009 efforts will be made to create partnerships between community colleges and baccalaureate degree granting institutions to provide research opportunities for community college STEM students and faculty.

Research in Undergraduate Institutions (RUI): The FY 2009 Request for NSF's RUI program totals $35.23 million, an increase of $3.70 million above the FY 2008 Estimate of $31.53 million. The RUI activity supports research by faculty members of predominantly undergraduate institutions through the funding of (1) individual and collaborative research projects, (2) the purchase of shared-use research instrumentation, and (3) Research Opportunity Awards (see above) for work with NSF-supported investigators at other institutions.

Science and Technology Centers (STCs): The FY 2009 Request for the Science and Technology Centers program totals $76.02 million, an increase of $11.07 million above the FY 2008 Estimate of $64.95 million. For additional information, see the NSF Centers Programs section of this chapter.