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 $21.02 million for ADVANCE in FY 2010, an increase of $230,000 above the FY 2009 Current Plan, will fund transformative efforts to address the systemic barriers to women's full participation in academic science and engineering (S&E). ADVANCE will broaden the spectrum of institutions participating in the program such as predominantly undergraduate institutions, teaching intensive colleges, community colleges, minority-serving institutions and women's colleges through the IT-Catalyst program component, which provides support to institutions to undertake institutional self-assessment activities. The funding will also support new awards under the Institutional Transformation (IT) program component as well as an overall program evaluation and data collection to capture the impact of prior ADVANCE awards. The dissemination and adaptation of models and strategies that have demonstrated effectiveness, as well as research on gender in academics, will continue to be supported through the Partnerships for Adaptation, Implementation, and Dissemination (PAID) program component.

Climate Change Education Program: The FY 2010 Request provides $10.0 million for the Climate Change Education (CCE) program, equal to the FY 2009 Current Plan. The Directorates for Education and Human Resources, Geosciences, Biological Sciences, and the Office of Polar Programs will support this new multi-disciplinary, multi-faceted climate change education program to enable a variety of partnerships, including those among K-12 education, higher education, the private sector, and related non-profit organizations, in both formal and informal settings, as well as relevant education and/or climate-related policymakers. It will support individual investigators and multidisciplinary teams of STEM researchers and educators in a range of activities, including those local, regional, and/or global in scope.

Faculty Early Career Development (CAREER): The FY 2010 Request provides $203.80 million for CAREER, an increase of $21.17 million over the FY 2009 Current Plan of $182.63 million. This will result in approximately 60 more CAREER awards than in FY 2009. 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 2010 Request provides $245.19 million for NSF's three flagship graduate fellowship and traineeship programs. This funding will enable NSF to support an estimated 5,250 graduate students.

- $122.0 million for the Graduate Research Fellowship (GRF) program, an increase of $6.94 million over the FY 2009 Current Plan, will support graduate students in all STEM fields. Funding will support an estimated 2,990 fellows, including 1,654 new 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 2009, NSF received thousands of applications for these highly prestigious and competitive awards and intends to support approximately 2,633 fellows, including 1,228 new fellows, with funds from both NSF's omnibus and Recovery Act appropriations. The FY 2010 Request for GRF is increased to provide opportunities for more U.S. citizens, nationals, and permanent resident aliens. GRF is an FY 2010 Presidential Initiative. NSF will triple the number of new fellows supported by FY 2013.

- $68.88 million for the Integrative Graduate Education and Research Traineeship (IGERT) program, an increase of $5.68 million above the FY 2009 Current Plan, 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 1,500 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…"

- $54.31 million for the Graduate STEM Fellowships in K-12 Education (GK-12) program, a decrease of $3.05 million below the FY 2009 Current Plan. The GK-12 program strengthens 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. GK-12 fellows interact with teachers in K-12 schools, improving communication and teaching skills while enriching STEM instruction in K-12 schools. 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. 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. The first draft of the results is expected in the summer of 2009. FY 2010 funding will support an estimated 760 graduate fellows.

Long-Term Ecological Research (LTER): The FY 2010 Request provides $27.94 million, an increase of $2.85 million above the FY 2009 Current Plan. 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. Increased support in FY 2010 will enhance networking activities so that LTER sites can collaborate with the National Ecological Observatory Network (NEON) and other NSF environmental observatories.

Research Experiences for Teachers: (RET): The FY 2010 Request for NSF's RET program totals $5.67 million, an increase of $100,000 above the FY 2009 Current Plan of $5.57 million. Funding will provide pre-service and in-service K-12 teachers with discovery-based learning experiences.

Research Experiences for Undergraduates (REU): The FY 2010 Request for NSF's REU program totals $67.70 million, an increase of $3.94 million above the FY 2009 Current Plan of $63.76 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. In FY 2010, efforts to involve students at earlier stages in their undergraduate experience will continue.

Research in Undergraduate Institutions (RUI): The FY 2010 Request for NSF's RUI program totals $35.16 million, an increase of $2.30 million above the FY 2009 Current Plan of $32.86 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 for work with NSF-supported investigators at other institutions.

Science and Technology Centers (STCs): The FY 2010 Request for the Science and Technology Centers program totals $57.79 million, a decrease of $3.82 million below the FY 2009 Current Plan of $61.61 million. For additional information, see the NSF Centers Programs section of this chapter.