



Summary of NSF Accounts

Research and Related Activities

The Research and Related Activities (R&RA) account supports activities that enable the U.S. to provide leadership and promote progress across the expanding frontiers of scientific and engineering research and education. These activities support areas of inquiry critical to long-term U.S. economic strength, security, and quality of life. Research activities spur new knowledge, ideas, tools and approaches that open doors to understanding and solving problems and offer increased opportunities for economic growth. Moreover, as students work alongside senior staff performing research activities, there is a natural integration of research and education as students acquire the skills necessary to perform world class research and become members of the next generation's workforce of scientists and engineers. NSF investments in R&RA reflect the Foundation's three strategic goals: People, Ideas and Tools.

The FY 2002 Request for R&RA totals \$3.33 billion, a 0.5 percent decrease from FY 2001. In FY 2002, support is provided research and education efforts related to broad, Foundation-wide priority areas in Biocomplexity in the Environment, Information Technology Research, Nanoscale Science and Engineering, and Learning for the 21st Century. NSF will also emphasize increasing the average annualized award size. Within R&RA:

- The **Biological Sciences** (BIO) Activity provides support for research to advance understanding of the underlying principles and mechanisms governing life. Research ranges from the study of the structure and dynamics of biological molecules, such as proteins and nucleic acids, through cells, organs and organisms, to studies of populations and ecosystems. It encompasses processes that are internal to the organism as well as those that are external, and includes temporal frameworks ranging from measurements in real time through individual life spans, to the full scope of evolutionary time. The FY 2002 Request for BIO totals \$483.11 million, a 0.5 percent decrease from FY 2001. BIO will continue to support fundamental academic research on biodiversity, environmental biology, and plant biology, including providing leadership for the Multinational Coordinated *Arabidopsis* Genome Project.
- The **Computer and Information Science and Engineering** (CISE) Activity supports research on the theory and foundations of computing, system software and computer system design, human-computer interaction, as well as prototyping, testing and development of cutting-edge computing and communications systems to address complex research problems. CISE also provides the advanced computing and networking capabilities needed by academic researchers for cutting-edge research in all science and engineering fields. The FY 2002 request for CISE totals \$470.36 million, a 1.6 percent decrease from FY 2001. This includes \$155.48 million as part of NSF's Information Technology Research priority area.
- The **Engineering** (ENG) Activity seeks to enhance the quality of life and national prosperity by investing in research and education activities that spur new technological innovations



and create new products and services and more productive enterprises. ENG also makes critical investments in facilities, networks, and people to assure diversity and quality in the nation's infrastructure for engineering education and research. The FY 2002 Request for ENG totals \$431.05 million, \$210,000 over FY 2001. ENG will support research in areas including information technology, nanotechnology, biotechnology, and microelectronics. Funds are included to meet the mandated level for the Foundation-wide Small Business Innovation Research (SBIR) program.

- The **Geosciences** (GEO) Activity supports research in the atmospheric, earth, and ocean sciences. Basic research in the geosciences advances our scientific knowledge of the Earth and advances our ability to predict natural phenomena of economic and human significance, such as climate change, earthquakes, weather, fish-stock fluctuations, and disruptive events in the solar-terrestrial environment. The FY 2002 Request of \$558.54 million, a 0.6 percent decrease from FY 2001, will support the operation and enhancement of national user facilities as well as fundamental research across the geosciences, including emphases on the U.S. Weather Research Program and National Space Weather Program; the U.S. Global Change Research Program; the Biocomplexity in the Environment priority area, and research on the key physical, chemical and geologic cycles within the Earth System.
- The **Mathematical and Physical Sciences** (MPS) Activity supports research and education in astronomical sciences, chemistry, materials research, mathematical sciences and physics. Major equipment and instrumentation such as telescopes, particle accelerators, synchrotron light sources and neutron facilities are provided to support the needs of individual investigators. The FY 2002 Request of \$863.58 million, a 1.5 percent increase over FY 2001, will support fundamental research, state-of-the-art instrumentation, facilities, groups and centers, and the education and training of the future workforce, including bringing scientific discovery to the public.
- The **Social, Behavioral and Economic Sciences** (SBE) Activity supports research to build fundamental scientific knowledge about human behavior, interaction, and social and economic systems, organizations and institutions. SBE also facilitates NSF's international activities by promoting partnerships between U.S. and foreign researchers, enhancing access to critical research conducted outside the U.S. and increasing knowledge of mutually beneficial research opportunities abroad. To improve understanding of the science and engineering enterprise, SBE supports science resources studies which are the nation's primary source of data on the science and engineering enterprise. In FY 2002, SBE's Request of \$163.16 million, an 0.8 percent decrease from FY 2001, will provide support for the Children's Research Initiative as well as a broad array of research projects, including the human causes and consequences of extreme events, research on the sources of scientific discovery and technological innovations, cognitive neuroscience and research tracing human biological and behavioral changes over time.
- **Polar Programs**, which includes the U.S. Polar Research Programs and U.S. Antarctic Logistical Support Activities, supports multidisciplinary research in Arctic and Antarctic regions. These geographic frontiers - premier natural laboratories - are the areas predicted to be first affected by global change. They are vital to understanding past, present, and future responses of Earth systems to natural and man-made changes. Polar Programs support provides unique research opportunities ranging from studies of the earth, ice and oceans to research in atmospheric sciences and astronomy. In FY 2002, Polar Programs increases to \$276.57 million, 1.2 percent over FY 2001. FY 2002 priorities include support for interdisciplinary studies of Arctic environmental changes; preliminary investigation of Antarctic subglacial lakes; and polar genomics. Support is also provided to sustain the science facilities and operations that make Arctic and Antarctic research possible, with FY 2002 emphases including expanded access to Arctic oceans using the U.S. Coast Guard Cutter *Healy* and improvements in Antarctic communications capabilities and bandwidth.



- **Integrative Activities** (IA) supports emerging cross-disciplinary research and education efforts and major research instrumentation, and provides support for the Science and Technology Policy Institute (STPI). The FY 2002 Request of \$80.61 million for IA, a decrease of \$17.14 million, or 17.5 percent, from FY 2001, includes \$50.0 million for Major Research Instrumentation, \$26.61 million in support of Science and Technology Centers and \$4.0 million for STPI. The goal of the Major Research Instrumentation program is to improve the capabilities of science and engineering equipment for research and research training in our Nation's academic institutions. In FY 2002, six to eight new Science and Technology Centers are expected to be established, in topics across the range of disciplines supported by NSF.

Education and Human Resources

The FY 2002 Request for Education and Human Resources (EHR) is \$872.41 million, an increase of 11.0 percent over FY 2001. In addition, \$144.0 million is projected in FY 2002 from H-1B Nonimmigrant Petitioner Receipts for scholarships and K-12 education activities. EHR supports a cohesive and comprehensive set of activities which encompass every level of education and every region of the country. EHR also plays a leadership role in the Foundation's Learning for the 21st Century priority area by virtue of its extensive programming in education and human resource development. Highlights within EHR include:

- The President's Math and Science Partnerships Initiative will provide funds for states and local school districts to join with institutions of higher education, particularly with their departments of mathematics, science, and engineering, in strengthening K-12 math and science education. The initiative emphasizes ensuring that all students have the opportunity to perform to high standards, using effective, research-based approaches, improving teacher quality, and insisting on accountability for student performance.
- Increasing stipends for graduate students is a priority for the Foundation in FY 2002. NSF Fellows and Trainees in the Graduate Research Fellowship program, the Integrative Graduate Education and Research Training (IGERT) program, and the Graduate Teaching Fellows in K-12 Education (GK-12) program currently receive a stipend of \$18,000 per year. For FY 2002, NSF is proposing an increase in stipends to an annual amount of \$20,500, starting in academic year 2002-2003.
- Centers for Learning and Teaching which address comprehensive, long-term approaches to learning and teaching by strengthening the content knowledge of the diverse science and mathematics teaching corps and developing the next generation of experts to guide the development of instructional materials, classroom and large-scale assessments, education research, and informal education
- The Graduate Teaching Fellows in K-12 Education program allows K-12 teachers to utilize graduate and advanced undergraduate students as science and mathematics resources for their classrooms. These Fellows will assist teachers in the science and mathematics content of their teaching, demonstrate key science and mathematics concepts, and gain necessary pedagogical skills.

Major Research Equipment

The FY 2002 Request for Major Research Equipment (MRE) is \$96.30 million, a decrease of \$25.03 million, or 20.6 percent from FY 2001. The Major Research Equipment account provides funding for the construction and acquisition of major research facilities that provide unique capabilities at the



cutting edge of science and engineering. Operations and maintenance costs of the facilities are provided through R&RA.

In FY 2002, funding for three ongoing projects is requested through the Major Research Equipment account: the Large Hadron Collider (LHC), the Network for Earthquake Engineering Simulation (NEES) and Terascale Computing Systems.

Salaries and Expenses

The FY 2002 Request for Salaries and Expenses (S&E) is \$170.04 million, an increase of 5.9 percent over FY 2001. The Salaries and Expenses appropriation provides funds for staff salaries and benefits, and general operating expenses necessary to manage and administer the NSF. The requested level supports 1,150 full-time equivalents (FTEs), provides for current administrative services, and enhances the agency's investment in information technology to increase productivity.

Office of Inspector General

The Office of Inspector General (OIG) was established to promote economy, efficiency, and effectiveness in administering the Foundation's programs; to detect and prevent fraud, waste, or abuse within NSF or by individuals that request or receive NSF funding; and to identify and resolve cases of misconduct in science. The FY 2002 Request for OIG is \$6.76 million, an increase of 7.8 percent over FY 2001. The requested level supports 50 FTEs.

