



NSF

Budget Review FY 2003

University of California • Office of Federal Governmental Relations

Partners: The University of California & The National Science Foundation

The mission of the NSF is to strengthen fundamental research and training in all scientific disciplines and maintain the large research facilities required by those disciplines. In carrying out its mission, NSF awards nearly all its funds to academic institutions following merit review of competitively submitted proposals. As a result NSF has become the primary federal agency responsible for maintaining the preeminence of all the sciences independent of a specific applied mission. NSF awards approximately two-thirds of its funds in support of individual research projects and one-fourth in support of large research facilities. The remaining funds support multidisciplinary research centers.

Collectively the University of California's nine campuses comprise the largest single recipient of NSF research awards. The NSF, in turn, is the second largest source of federal research support for the University of California (after the National Institutes of Health), supporting research in all disciplines. Disciplinary research awards are extremely important for all UC campuses. NSF often represents the only federal research support available for some of our preeminent disciplines. In FY 2001 the University of California received 1596 awards for a total of \$339 million from the NSF, a 22% increase from FY 2000. Examples of NSF facilities and centers at UC include the Supercomputer Center at UC San Diego, the Institute for Theoretical Physics at UC Santa Barbara, the Institute for Peer and Applied Mathematics at UCLA, the Center for Particle Astrophysics at UC Berkeley, and the Center for Engineering Plants for Resistance Against Pathogens at UC Davis. In addition, NSF programs encourage the link between research and education.

Strong Congressional support for the National Science Foundation over the past two years illustrates Congress' understanding that federal investment in a balanced research portfolio (the physical sciences and engineering, as well as the biomedical sciences) is the most appropriate way to approach our nation's scientific, economic, and health future.

FY 2003 Budget Request (\$ in Millions)	enacted FY 2002	proposed FY 2003	% Change 2002 to 2003
National Science Foundation	4,795.9	5,035.8	5.00%
* Research & Related	3,598.6	3,783.2	5.10%
Biological Sciences	508.4	525.6	3.38%
Computer Info Sci & Eng	514.9	526.9	2.34%
Engineering	472.3	488.0	3.32%
Geosciences	609.5	691.1	13.39%
Math & Physical Sciences	920.5	941.6	2.29%
Social, Behavioral & Economic Science	168.8	195.6	15.89%
* Education & Human Resources	875.0	908.1	3.80%
Math & Science Partnership	160.0	200.0	25.00%
Educational System Reform	45.2	40.3	-10.93%
Elementary, Secondary, Informal Education	165.4	171.4	3.66%
Undergraduate Education	142.4	135.6	-4.78%
Graduate Education	105.5	128.4	21.69%
Human Resource Development	97.4	90.2	-7.40%
* Major Research Equipment	138.8	126.3	-9.02%

FY 2001 Budget Request

The budget request for FY 2003 is \$5.04 billion, a \$239.91 million or 5 percent increase over FY 2002. However, 76 million attributed to the increase is actually a transfer of program funds from other agencies. The Administration's budget recommends that the NSF administer these programs, there the proposed funding increase for NSF is only 3.40 percent when adjusted for the program transfers. The NSF proposal emphasizes the importance and the breadth of NSF research: although the National Science Foundation accounts for only four percent of federal research and development spending, the Foundation supports approximately 50 percent of non-medical fundamental research at our colleges and universities.

The request for Research and Related Activities (R&RA) is \$3.78 billion, an increase of \$184.57 million or 5.1 percent over FY 2002. This includes support for the NSF-wide priority areas in Information Technology Research, Nanoscale Science and Engineering, Biocomplexity in the Environment, and 21st Century Workforce, Mathematical Sciences, and Social, Behavioral and Economic Sciences. In addition, the budget request outlines that as part of the Administration's new multi-agency Climate Change Research Initiative, NSF would implement a \$15million research program in the coming fiscal year to advance understanding in highly focused areas of climate science. The budget proposal also indicates that NSF will emphasize increasing the average size in FY 2003.

Under the budget request, the Education and Human Resources (EHR) directorate would receive \$908.08 million in FY 2003, an increase of \$33.08 million or 3.8 percent from the current fiscal year. EHR priorities for FY 2003 as outlined in the budget request are graduate student support, the Math and Science Partnership program, and Centers for Learning and Teaching. The budget emphasizes an effort to invest in the best students: annual graduate stipends would increase from \$21,500 in the 2001-2002 academic year to \$25,000 in the 2002-2003 academic year. This figure is up from \$15,000 in the 199801999 academic year and would provide the nation's most promising graduate students, who are often faced with debt burdens from their undergraduate studies and attractive salaries elsewhere, with more incentive to pursue graduate level study.

The Major Research Equipment (MRE) account would receive \$126.28 million in FY 2002, a cut in funding of \$12.52 million or nine percent from FY 2002. The proposed budget for the MRE account, which supports the acquisition, commission and construction of major research facilities and equipment for unique projects at the frontiers of science and engineering, including funding for two new projects – EarthScope and the National Ecological Observation Network (NEON), and for five continuing projects - the Network for Earthquake Engineering Simulation (NEES), the South Pole Station, the Large Hadron Collider (LHC), construction of the Atacama Large Millimeter Array (ALMA), and the Terascale Computing System.

UC FY 2003 Budget Priorities

- UC joins the Coalition for National Science Funding in calling for Congress to fund NSF at no less than \$5.5 billion, providing a 15% increase from FY 2002. A 15% increase would illustrate Congress' commitment to investing in our economic future and in continued technological and scientific advances. NSF is the only agency dedicated to supporting the most fundamental research across the broadest spectrum of scientific disciplines. University of California researchers will continue to compete successfully for NSF funds and thus will continue to play a significant role in the foundations and discoveries necessary for future major scientific and technological breakthroughs and advances in medical care, diagnosis and treatment, advances in computing and communication, as well as the progress needed for workforce readiness. An increase of \$718 million for the NSF budget would support the following priorities.

- The Major Research Equipment (MRE) account continues to be under-funded. Several proposals for large-scale research projects, which have been approved by the National Science Board and have been determined to be scientifically meritorious, are now just waiting for the funding which will allow them to proceed. Rather than providing much needed additional funding for the MRE account, the Budget Request would decrease this account.

UC is pleased that the FY 2003 proposed budget includes funding to begin the EarthScope project – an earthquake detection and research network. EarthScope is a research project important to the State of California, not only for its potential findings and discoveries related to earthquakes, but also because of the many California research institutions involved – the University of California, Stanford, and the University of Southern California among them. UC is also pleased that the MRE request includes funding for continuing projects involving researchers from the UC campuses and laboratories, including the Terascale Computing Systems, partially housed at UC San Diego.

In addition to funding EarthScope and the other continuing MRE projects, UC urges Congress to provide a \$50 million increase in the MRE account from FY 2002, bringing the FY 2003 MRE level to \$188.8 million. The additional funding would allow the NSF to fund other waiting projects such as RSVP, the Rare Symmetry Violating Processes project, which will open doors of understanding for the most fundamental processes of particle physics and for which the University of California is a major partner.

- The NSF's Major Research Instrumentation account is also malnourished. An additional \$50 million over the FY 2002 funding level would allow NSF to make more awards for needed research instrumentation in FY 2003, advancing important scientific and engineering research goals.
- Increasing the average size and duration of awards would allow NSF-funded scientists and researchers to focus more on their science and less on grant applications. Current comparisons indicate that NSF awards are on average less than half the size of NIH awards.
- To encourage students to pursue education in the math and science disciplines, the NSF must increase its graduate student fellowship amount. Students are more likely to consider graduate studies if fellowship amounts were closer to half of non-academic starting salaries in their field. Current starting salaries for engineers approximate \$68,000. UC urges Congress to increase graduate stipends from \$21,500 to \$25,000.
- The University urges Congress to continue supporting the NSF cross-cutting programs in nanoscience, information technology and biocomplexity. California's new Institutes for Science and Innovation require two-to-one matching funds from non-state sources. Healthy increases for the cross-cutting programs in nanoscience, information technology and biocomplexity will help the University meet those goals.
- UC favors increased funding in the core programs for research and education, allowing for more highly rated proposals to be funded. High quality NSF research across all fields of science and engineering contributes to the development of new knowledge and the preparation of the next generation of scientists and engineers. NSF education programs contribute to improved student learning at all levels in science, engineering, and mathematics.