Quick Guide to Environmental Science Education Funding Opportunities at the National Science Foundation (NSF)
http://www.nsf.gov

This information is current as of January 2005. Please distribute freely.
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Note: Not all relevant programs may be included – use the NSF search tool for more exhaustive information and updates.

NSF Grant Proposal Guide, Effective September 2004
http://nsf.gov/pubsys/ods/getpub.cfm?gpg

Career Development {NSF-wide}

(ADVANCE) Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers

(NSF-02-121) http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf02121
ADVANCE promotes the increased participation and advancement of women scientists and engineers in academe, thereby contributing to the development of a more diverse science and engineering workforce. Creative strategies to realize this goal are sought from men and women. The awards will enable promising individuals to establish or reestablish full-time independent academic research and education careers in institutions of higher learning. New guidelines for the ADVANCE Program are expected to be available early in 2005.

Faculty Early Career Development (CAREER) Awards

(NSF-02-111) http://nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf02111
The CAREER Program is a Foundation-wide activity supporting junior faculty within the context of their overall career development. It combines, in a single program, the support of research and education of the highest quality and in the broadest sense, emphasizing the importance the Foundation places on the early development of academic careers dedicated to stimulating the discovery process. Each year NSF selects nominees for the Presidential Early Career Awards for Scientists and Engineers (PECASE) from among the most meritorious new CAREER awardees. The PECASE program recognizes outstanding scientists and engineers who, early in their careers, show exceptional potential for leadership at the frontiers of knowledge. This Presidential Award is the highest honor bestowed by the United States Government on scientists and engineers beginning their independent careers.

Research in Undergraduate Institutions (RUI)

(NSF-04-584) http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf04584
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. All NSF directorates participate in the RUI activity and proposals are evaluated and funded by the NSF programs in the disciplinary areas of the proposed research. The specific objectives of the RUI program are to: (1) support high quality research by faculty with active involvement of undergraduate students, (2) strengthen the research environment in academic departments that are oriented primarily toward undergraduate instruction, and (3) promote the integration of research and education at predominantly undergraduate institutions. See announcement for description of "predominantly undergraduate" institutions.

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Cross-Disciplinary or Collaborative Research

Integrative Graduate Education and Research Traineeship (IGERT) {EHR}
(NSF-04-550) http://www.nsf.gov/pubs/2004/nsf04550/nsf04550.htm
IGERT is intended to catalyze a cultural change in graduate education, for students, faculty, and institutions, by establishing innovative new models for graduate education and training in a fertile collaborative research environment that transcends traditional disciplinary boundaries. IGERT is also intended to facilitate diversity in student participation and preparation, and to contribute to the development of a diverse, globally-engaged science and engineering workforce. The IGERT program was developed to meet the challenges of educating U.S. Ph.D. scientists and engineers with: interdisciplinary backgrounds; the technical, professional, and personal skills needed for the career demands of the future; who will pursue careers in research and education; and who will be leaders and creative agents for change.

Environmental Research and Education (ERE)

The Working Group on Environmental Research and Education (ERE)
http://www.nsf.gov/geo/ere/ereweb/index.cfm
NSF has supported activities associated with environmental research and education for decades, primarily through disciplinary programs. In recent years, program officers have recognized that many exciting research opportunities in this area cut across extant disciplines and have formed interdisciplinary and interorganizational programs in response. In FY 2004, funding in ERE areas totaled approximately $900 million, roughly one-fifth of NSF's research budget. The Working Group on ERE serves both as an internal advisory group and an investment design team whose primary responsibilities are to provide communication support for the broad ERE Portfolio and to identify areas of opportunity for future investment. Much of NSF's support for environmental research is focused on understanding fundamental processes involved in physical, biological, and human system interactions. NSF also supports research activities across all scientific and engineering disciplines to address issues related to the preservation, management, and enhancement of the environment. A cornerstone of NSF programs is the integration of research and education, and the list of ERE Funding Opportunities are programs relevant to the ERE community and can be viewed by individual program area or by all program areas. http://www.nsf.gov/geo/ere/ereweb/funding.cfm

Facilities, Equipment, & Instrumentation

Improvements in Facilities, Communications, and Equipment for Research at Biological Field Stations and Marine Laboratories (FSML) {BIO/DBI}
(NSF-04-543) http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf04543
FSMLs are off-campus facilities for research and education conducted in the natural habitats of terrestrial, freshwater, and marine ecosystems. FSMLs support biological research and education by preserving access to study areas and organisms, by providing facilities and equipment in close proximity to those study areas, and by fostering an atmosphere of mutual scientific interest and collaboration in research and education. To fulfill these roles, FSMLs must offer modern laboratories and educational spaces, up-to-date equipment, appropriate personal accommodations for visiting scientists and students, and modern communications and data management systems for a broad array of users. In recognition of the importance of FSMLs in modern biology, NSF invites proposals that address these general goals of FSML improvement.

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Graduate Education (see also IGERT)

NSF Graduate Teaching Fellows in K-12 Education {EHR/DGE}

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5472&org=DGE&from=home

This program supports fellowships and associated training that enable graduate students in NSF- supported science, technology, engineering, and mathematics (STEM) disciplines to acquire additional skills that will broadly prepare them for professional and scientific careers in the 21st century. Through interactions with teachers in K-12 schools, graduate students can improve communication and teaching skills while enriching STEM instruction in K-12 schools. In addition, the GK-12 program provides institutions of higher education with an opportunity to make a permanent change in their graduate programs by including partnerships with K-12 schools in a manner that is of mutual benefit to their faculties and students**.** Expected outcomes include improved communication, teaching and team building skills **for the Fellows;** professional development opportunities **for K-12 teachers;** enriched learning **for K-12 students**; and strengthened partnerships **between institutions of higher education and local school districts**.

Graduate Research Fellowships (GRF) {EHR/DGE}

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201&org=DGE&from=home

Fellowships are awarded for graduate study leading to research-based masters or doctoral degrees in the fields of science, mathematics, and engineering supported by the NSF, and are intended for students at or near the beginning of their graduate study in science, mathematics, or engineering. NSF Graduate Fellowships offer recognition and three years of support for advanced study to approximately 900 outstanding graduate students in the mathematical, physical, biological, engineering, and behavioral and social sciences, including the history of science and the philosophy of science, and to research-based PhD degrees in science education. Approximately 90 awards will be in the Women in Engineering (WENG) and Women in Computer and Information Science (WICS) components. Awards carry a $30,000 stipend for each fellow for a 12-month tenure (prorated monthly at $2,500 for lesser periods) and an annual cost-of-education allowance of $10,500, paid to the Fellow's institution in lieu of tuition and fees.

International Opportunities for Scientists and Engineers {OISE}

Office of International Science and Engineering (OISE)

http://www.nsf.gov/home/int/

(NSF-04-034) http://www.nsf.gov/pubs/2004/nsf04034/nsf04034.htm

OISE contributes to NSF's mission by promoting new partnerships between U.S. investigators and their colleagues in other countries, or new cooperative projects between established collaborators. Such activities may be in any field of science and engineering research and education supported by NSF. OISE also supports an array of activities designed to provide opportunities for junior investigators. Graduate and undergraduate students and postdoctoral researchers can receive travel and living expenses to participate in the overseas aspects of collaborative research projects proposed to NSF by senior U.S. investigators.

Partnerships for International Research and Education (PIRE)

(NSF-05-533) http://www.nsf.gov/pubs/2005/nsf05533/nsf05533.pdf

PIRE will enable U.S. institutions to establish collaborative relationships with foreign groups or institutions in order to advance specific research and education objectives and to make possible a research effort that neither side could accomplish on its own. PIRE is intended to catalyze a cultural change in U.S. institutions by establishing innovative new models for international collaborative research and education in an increasingly global scientific and engineering environment where international partnerships are, and will be, increasingly indispensable in

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addressing many critical global scientific problems. PIRE is also intended to facilitate greater variety in student participation and preparation, and to contribute to the development of a diverse, globally-engaged, science and engineering workforce.

K-12 Education

Research Assistantships for Minority High School Students (RAMHSS) {NSF-wide}
(NSF-89-39) http://www.nsf.gov/bio/progdes/nsf8939.htm
Encourages the involvement of high school minority students in research. RAMHSS provides funding supplements to principal investigators supported by NSF, for minority high school student research assistants. The students are expected to be involved with the principal investigators in meaningful and challenging experiences during the academic year and/or summer. Investigators should contact the cognizant BIO program officer for more information.

Research Experiences for Teachers (RET) {BIO}
(NSF-03-554) http://nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf03554
Research Experiences for Teachers (RET) Supplement to Current NSF Awards
(NSF-05-524) http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf05524
Supplementary funding opportunity for K-12 teachers to facilitate professional development of K-12 science teachers through research experience at the cutting edge of science. Support is through ongoing NSF Research Grants in the Directorate of Biological Sciences. The RET program supports the active involvement of K-12 teachers and community college faculty in engineering research in order to bring knowledge of engineering and technological innovation into their classrooms. The program features two mechanisms for support of in-service and pre-service K-12 teachers and/or community college faculty research: RET Supplements and RET Sites. A RET can be requested as a supplement to an existing NSF award or as part of a new or renewal NSF proposal. RET Sites are based on independent proposals to initiate and conduct research participation projects for a number of K-12 teachers and/or community college faculty.

Polar Research {OPP}

Polar research is supported at NSF by the Office of Polar Programs (OPP; http://www.nsf.gov/od/opp) in the Office of the Director, and by a number of other programs within the Foundation.

Social Sciences {SBE}

Geography and Regional Science (GRS)
http://www.nsf.gov/sbe/bcs/geograph/
The GRS Program sponsors research on the geographic distributions and interactions of human, physical, and biotic systems on the Earth's surface. Investigations are encouraged into the nature, causes, and consequences of human activity and natural environmental processes across a range of scales. Projects on a variety of topics (both domestic and international) qualify for support if they offer promise of contributing to scholarship by enhancing geographical knowledge, concepts, theories, methods, and their application to societal problems and concerns. Support also is provided for projects that explicitly integrate undergraduate and graduate education into the overall research agenda.

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Human and Social Dynamics (HSD)
(NSF-05-520) http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf05520
The HSD priority area fosters breakthroughs in understanding the dynamics of human action and development, as well as knowledge about organizational, cultural, and societal adaptation and change. HSD aims to increase our collective ability to (1) anticipate the complex consequences of change; (2) understand the dynamics of human and social behavior at all levels, including that of the human mind; (3) understand the cognitive and social structures that create, define, and result from change; and (4) manage profound or rapid change, and make decisions in the face of changing risks and uncertainty. Accomplishing these goals requires multidisciplinary research teams and comprehensive, interdisciplinary approaches across the sciences, engineering, education, and humanities, as appropriate. HSD has, from its outset, emphasized the importance of interdisciplinarity.

Supplements, Small Grants, and Other Opportunities

Conferences, Symposia, and Workshops.
http://www.nsf.gov/pubs/gpg/nsf04_23/2.htm#IID7, Section 2.D.7 of the *Grant Proposal Guide*
All Directorates at NSF support conferences, symposia and workshops in special areas of science and engineering that bring experts together to discuss recent research or education findings or to expose other researchers or students to new research and education techniques. NSF encourages the convening in the US of major international conferences, symposia, and workshops. Conferences will be supported only if equivalent results cannot be obtained at regular meetings of professional societies. Proposals for Conferences, Symposia and Workshops should generally be made at least a year in advance of the scheduled date. Shared support by several Federal agencies, States, or private organizations is encouraged. Conferences or meetings, including the facilities in which they are held, funded in whole or in part with NSF funds, must be accessible to participants with disabilities.

Experimental Program to Stimulate Competitive Research (EPSCoR) {EHR}
http://www.ehr.nsf.gov/epscor/
EPSCoR Research Infrastructure Improvement Grant Program (RII)
(NSF-04-564) http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04564
The EPSCoR program is designed to fulfill the NSF's mandate to promote scientific progress nationwide and is directed at jurisdictions that have been historically underrepresented in terms of NSF Research and Development (R&D) funding. EPSCoR promotes the development of the states' science and technology (S&T) resources through partnerships involving a state's universities, industry, and government, and the Federal research and development (R&D) enterprise. EPSCoR operates on the principle that aiding researchers and institutions in securing Federal R&D funding will develop a state's research infrastructure and advance economic growth and is designed to effect lasting improvements in a jurisdiction's research infrastructure and its national R&D competitiveness. Twenty-four states, the Commonwealth of Puerto Rico and the U. S. Virgin Islands currently participate.

Informal Science Education Supplements (ISE) {EHR}
(NSF-04-579) http://nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04579
The ISE program invests in projects that develop, implement, and provide rich and stimulating contexts and experiences informal learning experiences for individuals of all ages and backgrounds that are designed to increase their interest, engagement, understanding of, and appreciation for science, technology, engineering, and mathematics (STEM), as well as projects that advance the theory and practice of informal science education. Projects may target either public audiences or professionals whose work directly affects informal STEM learning E funds projects that provide rich and stimulating contexts and experiences. ISE projects are expected to demonstrate strategic impact, collaboration, and innovation. The supplement can be used for

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any activity that falls within the definition of an informal science education activity such as media presentations, exhibits, or youth-based activities.

Small Grants for Exploratory Research (SGER) {NSF-wide}
http://www.nsf.gov/bio/progdes/sger.htm
The SGER program considers proposals for small-scale, exploratory, high-risk research in all scientific fields normally supported by the NSF Directorates. Proposals are internally reviewed and grants are non-renewable, are normally made for one year, and are substantially less than the Program's average award amount. Proposers must contact the relevant disciplinary program officer before submission to determine whether or not the proposed work meets the guidelines, if SGER funding is likely to be available, or if the idea should be considered for submission as a fully-reviewed proposal. Additional information regarding Small Grants for Exploratory Research can be found in Section 2.D.1 of the Grant Proposal Guide http://www.nsf.gov/pubs/gpg/nsf04_23/2.htm#IID1 or at *Grant Proposal Guide*.

Undergraduate Education

Collaborative Research at Undergraduate Institutions (C-RUI) {NSF-wide}
(NSF-04-536) (http://nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04536
The goal of the Cross-disciplinary Research at Undergraduate Institutions (C-RUI) is to support research efforts involving faculty from different fields and undergraduate students at predominantly undergraduate institutions. The C-RUI program is specifically targeted toward cross-disciplinary research projects that require contributions from more than one disciplinary area and is intended to facilitate greater diversity in student participation and to contribute to the development of the next generation of scientists well-trained in 21st century biology. Proposers should contact the NSF program officer in their discipline regarding the submission of a collaborative proposal to discuss details relevant to that NSF Directorate.

Interdisciplinary Training for Undergraduates in Biological and Mathematical Sciences (UBM) {BIO, EHR, MPS}
(NSF-04-546) http://nsf.gov/pubs/2004/nsf04546/nsf04546.htm
UBM is a joint effort of the Education and Human Resources (EHR), Biological Sciences (BIO), and Mathematical and Physical Sciences (MPS) directorates at the National Science Foundation (NSF). The goal of the UBM activity is to enhance undergraduate education and training at the intersection of the biological and mathematical sciences and to better prepare undergraduate biology or mathematics students to pursue graduate study and careers in fields that integrate the mathematical and biological sciences. The core of the activity is long-term research experiences for interdisciplinarily-balanced cohorts of at least four undergraduates. Projects should focus on research at the intersection of the mathematical and biological sciences. Projects should provide students exposure to contemporary mathematics and biology, addressed with modern research tools and methods.

Research Experiences for Undergraduates (REU) Supplements and Sites {NSF-wide}
(NSF-04-584) http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04584
Active research experience is one of the most effective techniques for attracting talented undergraduates to and retaining them in careers in mathematics, science, and engineering. The REU program was designed to help meet the need for such experiences. The REU program supports active research participation by undergraduate students in any of the areas of research funded by the NSF, and projects involve students in meaningful ways in ongoing research programs or in research projects specially designed for this purpose. The REU program features two mechanisms for support of student research: REU Supplements and REU Sites. REU Supplements may be included in proposals for new or renewal NSF grants or cooperative

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agreements or as supplements to ongoing NSF-funded projects. REU Sites are based on independent proposals to initiate and conduct undergraduate research participation projects for a number of students.

Undergraduate Mentoring in Environmental Biology (UMEB) {BIO}
(NSF-03-585) http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf03585
UMEB is designed to enable institutions to create programs that will encourage undergraduate students, especially those from under-represented groups, to pursue a career in environmental biology. Projects should emphasize factors that encourage and enable members of underrepresented groups to enter and remain in environmental biology. UMEB also funds travel grants to professional societies to enable them to bring undergraduates from underrepresented groups to their meetings. Planning grants are also available for institutions that plan to build a partnership for a research-mentoring UMEB project.

Louis Stokes Alliances for Minority Participation (LSAMP) Program {EHR/HRD}
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5477&org=EHR&from=home
This program is aimed at increasing the quality and quantity of students successfully completing science, technology, engineering and mathematics (STEM) baccalaureate degree programs, and increasing the number of students interested in, academically qualified for and matriculated into programs of graduate study. LSAMP supports sustained and comprehensive approaches that facilitate achievement of the long-term goal of increasing the number of students who earn doctorates in STEM fields, particularly those from populations underrepresented in STEM fields. The program goals are accomplished through the formation of alliances. Phase I awards place emphasis on aggregate baccalaureate production. Phase II awards augment the Phase I emphasis with attention to individual student retention and progression to baccalaureate degrees. Phase III awards augment the Phase I and Phase II with attention to aggregate student progression to graduate school entry.

Centers of Research Excellence in Science and Technology {EHR/DGE}
http://nsf.gov/funding/pgm_summ.jsp?pims_id=6668&org=HRD&from=home
The Centers of Research Excellence in Science and Technology (CREST) program makes resources available to significantly enhance the research capabilities of minority-serving institutions through the establishment of centers that effectively integrate education and research. CREST promotes the development of new knowledge, enhancements of the research productivity of individual faculty, and an expanded diverse student presence in STEM disciplines. This program provides educational opportunities for Undergraduate Students. This program provides indirect funding for students at this level or focuses on educational developments for this group such as curricula development, training or retention. To inquire about possible funding opportunities not directly from NSF, please look at the active awards for this program.

Historically Black Colleges and Universities Undergraduate Program {EHR/HRD}
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5481&org=HRD&from=home
This program provides awards to enhance the quality of science, technology, engineering, and mathematics (STEM) instructional and outreach programs at Historically Black Colleges and Universities (HBCUs) as a means to broaden participation in the Nation's STEM workforce. Support is available for implementation projects and planning grants. Implementation projects should include comprehensive institutional approaches to strengthen STEM teaching and learning. Proposed activities should be the result of a careful analysis of institutional needs, address institutional and NSF goals, and have the potential to result in significant and sustainable improvements in STEM program offerings. Typical project implementation

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strategies include: curriculum enhancement, faculty professional development, undergraduate research, academic enrichment, infusion of technology to enhance STEM instruction, collaborations with research institutions and industry, and other activities that meet institutional needs. Planning grants provide support to an institution in order to undertake an institutional STEM self-analysis and to identify activities and strategies for an implementation project.

Advanced Technological Education {EHR/DUE}
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5464&org=DUE&from=home
With an emphasis on two-year colleges, the Advanced Technological Education (ATE) program focuses on the education of technicians for the high-technology fields that drive our nation's economy. The program involves partnerships between academic institutions and employers to promote improvement in the education of science and engineering technicians at the undergraduate and secondary school levels. The ATE program supports curriculum development; professional development of college faculty and secondary school teachers; career pathways to two-year colleges from secondary schools and from two-year colleges to four-year institutions; and other activities. A secondary goal is articulation between two-year and four-year programs for K-12 prospective teachers that focus on technological education. Additionally, the program invites proposals focusing on applied research relating to technician education. This program provides educational opportunities for Undergraduate Students, K-12 Educators. This program supports institutions which may provide support to individuals at those institutions. To inquire about opportunities in this program, contact one of the awarded institutions, available by clicking on the Awards link.

Robert Noyce Scholarship Program {EHR/HRD}
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5733&org=DUE&from=home
The Robert Noyce Scholarship program seeks to encourage talented science, technology, engineering, and mathematics majors and professionals to become K-12 mathematics and science teachers. The program provides funds to institutions of higher education to support scholarships, stipends, and programs for students who commit to teaching in high need K-12 schools. This program provides educational opportunities for Undergraduate Students, K-12 Educators. This program supports institutions which may provide support to individuals at those institutions.

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