

Research Experiences for Undergraduates (REU)

Sites and Supplements

Program Solicitation

NSF 05-592

Replaces Document NSF 04-584



National Science Foundation

Directorate for Education and Human Resources
Directorate for Biological Sciences
Directorate for Computer and Information Science and Engineering
Directorate for Engineering
Directorate for Geosciences
Directorate for Mathematical and Physical Sciences
Directorate for Social, Behavioral, and Economic Sciences
Office of Polar Programs
Office of International Science and Engineering

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

Deadline for REU Site proposals: September 7, 2005; August 17, 2006.

Deadline for REU Site proposals to the Antarctic Program: June 7, 2006; June 6, 2007. Note that the June 2, 2005, deadline is covered by the previous REU program solicitation, [NSF 04-584](#).

Deadline for REU Supplement requests: Varies with the research program. Contact the cognizant program officer for the award or proposal that would be supplemented.

REVISIONS AND UPDATES

Deadlines for REU Site proposals have been established for the FY2006 and FY2007 competitions.

The recommended stipend for undergraduate student participants has been raised.

The two mechanisms for requesting an REU Supplement (either as a request for supplemental funding for an existing NSF research award, or as a component of a new or renewal research proposal) have been clarified.

Specific instructions for structuring a proposal's Project Summary have been added.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Research Experiences for Undergraduates (REU)
Sites and Supplements

Synopsis of Program:

The Research Experiences for Undergraduates (REU) program supports active research participation by undergraduate students in any of the areas of research funded by the National Science Foundation. REU projects involve students in meaningful ways in ongoing research programs or in research projects designed

especially for the purpose. This solicitation features two mechanisms for support of student research: (1) *REU Sites* are based on independent proposals to initiate and conduct projects that engage a number of students in research. REU Sites may be based in a single discipline or academic department, or on interdisciplinary or multi-department research opportunities with a coherent intellectual theme. Proposals with an international dimension are welcome. A partnership with the Department of Defense supports REU Sites in DoD-relevant research areas. (2) *REU Supplements* may be requested for ongoing NSF-funded research projects or may be included as a component of proposals for new or renewal NSF grants or cooperative agreements.

Undergraduate student participants in either Sites or Supplements must be citizens or permanent residents of the United States or its possessions.

Students may not apply to NSF to participate in REU activities. Students apply directly to REU Sites and should consult the directory of active REU Sites on the Web at http://www.nsf.gov/crssprgm/reu/reu_search.cfm.

Cognizant Program Officer(s):

- Please see the full text of this funding opportunity for contact information.

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.074 --- Biological Sciences
- 47.070 --- Computer and Information Science and Engineering
- 47.076 --- Education and Human Resources
- 47.041 --- Engineering
- 47.050 --- Geosciences
- 47.079 --- International Science and Engineering (OISE)
- 47.049 --- Mathematical and Physical Sciences
- 47.078 --- Office of Polar Programs
- 47.075 --- Social, Behavioral and Economic Sciences

Eligibility Information

- **Organization Limit:** None Specified.
- **PI Eligibility Limit:**

In addition to the Principal Investigator, an REU Site proposal may have one Co-Principal Investigator, if developing and operating the REU Site would involve shared responsibility. Other anticipated research supervisors should be listed as Non-Co-PI Senior Personnel.

- **Limit on Number of Proposals:** None Specified.

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant or Cooperative Agreement
- **Estimated Number of Awards:** 1700 to 1800 - This estimate includes approximately 150 new Site awards and 1,600 new Supplement awards each year.
- **Anticipated Funding Amount:** \$33,000,000 in FY2006 - This estimate includes both Sites and Supplements, pending availability of funds.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:** This solicitation contains information that deviates from the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.

- **Indirect Cost (F&A) Limitations:** An administrative allowance, limited to 25% of Line F.1 (Participant Support Costs: Stipends) of the proposal budget, is allowed for REU Site and Supplement awards in lieu of indirect costs.
- **Other Budgetary Limitations:** Not Applicable.

C. Due Dates

- **Full Proposal Deadline Date(s)** (due by 5 p.m. submitter's local time):

Deadline for REU Site proposals: September 7, 2005; August 17, 2006.

Deadline for REU Site proposals to the Antarctic Program: June 7, 2006; June 6, 2007. Note that the June 2, 2005, deadline is covered by the previous REU program solicitation, [NSF 04-584](#).

Deadline for REU Supplement requests: Varies with the research program. Contact the cognizant program officer for the award or proposal that would be supplemented.

Proposal Review Information

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Standard NSF reporting requirements apply.

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I. INTRODUCTION

The National Science Foundation announces continuation of the Research Experiences for Undergraduates (REU) program, a Foundation-wide program that supports active research participation by undergraduate students. NSF funds research in most fields of science and engineering (see <http://www.nsf.gov/funding/aboutfunding.jsp>), and REU proposals are welcome in any of these research areas, including the "priority areas" (http://www.nsf.gov/news/priority_areas/) and cross-disciplinary areas (cyber-enabled science and engineering, science of learning, intersection of mathematical and biological sciences, etc.) that NSF has identified among its programs.

The REU program seeks to expand student participation in all kinds of research—whether disciplinary, interdisciplinary, or educational in focus—encompassing efforts by individual investigators, groups, centers, national facilities, and others. The REU program is a major contributor to the NSF goal of developing a diverse, internationally competitive, and globally-engaged science and engineering workforce. It draws on the integration of research and education to attract a diversified pool of talented students into careers in science and engineering, including teaching and education research related to science and engineering, and to help ensure that these students receive the best education possible.

This solicitation features two mechanisms for support of student research: REU Sites and REU Supplements.

II. PROGRAM DESCRIPTION

Research experience is considered to be one of the most effective avenues for attracting talented undergraduates to and retaining them in careers in science and engineering, including careers in teaching and education research. The REU program, through both Sites and Supplements, aims to provide appropriate and valuable educational experiences for undergraduate students through participation in research. REU projects involve students in meaningful ways in ongoing research programs or in research projects designed especially for the purpose. REU projects feature high-quality interaction of students with faculty and/or other research mentors and access to appropriate facilities and professional development opportunities.

REU opportunities are an excellent way to reach broadly into the student talent pool of our nation. NSF is particularly interested in increasing the numbers of women, underrepresented minorities, and persons with disabilities in research. REU projects are strongly encouraged to involve students who are members of these groups. Underrepresented minorities are Blacks, Hispanics, American Indians, Alaska Natives, and Native Hawaiians or Other Pacific Islanders.

REU Site and Supplement projects may be carried out during the summer months, during the academic year, or both. REU Sites may be proposed for durations of one to five years, with a three-year duration being typical in most NSF directorates. The term of REU Supplements may not exceed that of the underlying research project.

REU Sites

REU Sites are based on independent proposals, submitted at an annual deadline date, to initiate and conduct projects that engage a number of undergraduate students in research. Funds for the establishment of an REU Site may be requested from any of NSF's directorates, the Office of Polar Programs, and the Office of International Science and Engineering. Proposers are encouraged to talk with the NSF REU point-of-contact in their disciplinary area (see http://www.nsf.gov/crssprgm/reu/reu_contacts.jsp).

REU Sites must have a well-defined common focus that enables a cohort experience for students. These projects may be based in a single discipline or academic department, or on interdisciplinary or multi-department research opportunities with a coherent intellectual theme. A proposal should reflect the unique combination of the proposing organization's interests and capabilities and those of any partnering organizations. Cooperative arrangements among organizations and research settings will be considered so that a project might increase the quality or availability of undergraduate research experiences. To extend research opportunities to a larger number of undergraduates, proposers might also consider incorporating approaches that exploit cyberinfrastructure or other advanced technologies that facilitate research, learning, and collaboration over distances. REU Sites are encouraged to involve students in research who might not otherwise have the opportunity, particularly those from academic institutions where research programs are limited. Thus, a significant fraction of the student participants should come from outside the host institution or organization.

REU Supplements

An REU Supplement typically provides support for one or two undergraduate students to participate in research, as part of a new or ongoing NSF-funded research project. However, centers or large research efforts may request support for a number of students commensurate with the size and nature of the project. REU Supplements are supported by the various disciplinary and education research programs throughout the Foundation, including programs such as Small Business

Innovation Research (SBIR).

REU Supplements may be obtained in either of two ways: (1) Investigators holding an existing NSF research award may submit a request for supplemental funding. For guidance, contact the cognizant program officer for the NSF grant or cooperative agreement that would be supplemented. (2) Proposers may include an REU Supplement activity as part of a new (or renewal) research proposal to NSF. For guidance, contact the program officer who manages the research program to which the proposal would be submitted.

Special Opportunities

Partnership with the Department of Defense

NSF engages in a partnership with the Department of Defense (DoD) to expand undergraduate research opportunities in DoD-relevant research areas through the REU Sites program. The DoD activity is called *Awards to Stimulate and Support Undergraduate Research Experiences* (ASSURE; <http://www.afosr.af.mil/ASSURE.htm>). Any proposal submitted to NSF for the REU Sites program that is recommended for funding through the NSF merit review process will be considered by DoD representatives for possible support through ASSURE. Proposals selected for the DoD funding target DoD-relevant research and may come from any of the NSF directorates or divisions that handle REU Site proposals. Like NSF, DoD encourages proposals that reach underrepresented minorities and women, as well as students from academic institutions where access to research opportunities is limited. DoD also has a special interest in proposals from predominantly undergraduate four-year institutions. A proposer to the NSF REU Sites program does not need to take any additional steps to be considered for funding through ASSURE.

International Projects

The REU program welcomes projects with an international dimension. The design of such projects is based on the opportunity at hand, but typically involves partnering of an experienced REU project in the United States with international collaborators in a selected institution or organization. Successful projects arise from shared commitment to research and education in a focused area. Possible projects should be discussed with a program officer in NSF's Office of International Science and Engineering (OISE), as well as with the appropriate disciplinary program officer for REU. OISE will also entertain requests to supplement an REU award in order to add an international dimension, including the participation of K-12 teachers of science, technology, engineering, and mathematics. The OISE Website (<http://www.nsf.gov/div/index.jsp?div=OISE>) provides information concerning international opportunities and programs. Useful guidance for those planning international research experiences for undergraduates can be found in the report *Looking Beyond the Borders: A Project Director's Handbook of Best Practices for International Research Experiences for Undergraduates* (<http://www.nsf.org/REU/>).

Ethics in Science or Engineering

Proposals for REU Sites are invited to include an optional component addressing ethics in science or engineering. Up to \$4,000 in direct costs may be requested to support the ethics activities, and the proposal must include a distinct description and cost breakdown for these activities. Specific instructions for requesting funding for the optional ethics component are provided below, under "Supplementary Documentation" in Section V.A. ("Proposal Preparation Instructions"). Information about current activities is available through a link on the home page of the Science and Society (S&S) program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5323&org=SES). In addition, the Website of the NSF-supported Science and Engineering Ethics Center (<http://www.onlineethics.org/>) contains many useful resources for developing a pedagogically sound ethics component.

Research Experiences for Teachers

NSF encourages research experiences for K-12 teachers of science, technology, engineering, and mathematics and the coordination of these experiences with REU projects. The Directorate for Biological Sciences and the Directorate for Engineering have formal activities supporting Research Experiences for Teachers (RET). Other directorates respond to requests on a case-by-case basis or permit the inclusion of an RET component (with a distinct description and cost breakdown) as part of an REU proposal. Teachers may also be included in an international REU project. Information about RET activities is available on directorate Websites.

III. ELIGIBILITY INFORMATION

The categories of proposers identified in the [Grant Proposal Guide](#) are eligible to submit proposals under this program solicitation.

Principal Investigator: For REU Site proposals, a single individual should be designated as the Principal Investigator. This individual will be responsible for overseeing all aspects of the award. However, one additional person may be designated as Co-Principal Investigator, if developing and operating the REU Site would involve such shared responsibility. Other anticipated research supervisors should be listed as Non-Co-PI Senior Personnel.

Eligible Student Participants: Undergraduate student participants supported with NSF funds in either Supplements or Sites must be citizens or permanent residents of the United States or its possessions. An undergraduate student is a student who is enrolled in a degree program (part-time or full-time) leading to a baccalaureate or associate degree. Students who are transferring from one college or university to another and are enrolled at neither institution during the intervening summer may participate. High school graduates who have been accepted at an undergraduate institution but who have not yet started their undergraduate study are also eligible to participate. Students who have received their bachelor's degrees and are no longer enrolled as undergraduates are generally not eligible to participate. For REU Sites, a significant fraction of the student participants should come from outside the host institution or organization. Some NSF directorates encourage inclusion in the REU program of K-12 teachers of science, technology, engineering, and mathematics. Please contact the appropriate disciplinary program officer for guidance. Within the framework of the basic eligibility guidelines outlined here, most REU Sites and Supplements further define recruitment and selection criteria, based on the nature of the particular research and other factors.

IV. AWARD INFORMATION

An REU activity may be funded as a standard or continuing grant (for REU Sites), as a supplement to an existing award, or as a component of a new or renewal grant or cooperative agreement. REU Sites and Supplements are funded by various disciplinary and education research programs throughout NSF, and the number of awards made varies across the Foundation from year to year, as does the amount of funds invested. In FY2006, NSF anticipates investing approximately \$33 million (pending availability of funds) in approximately 150 new Site awards and 1,600 new Supplement awards. REU Site awards have durations of one to five years, with a three-year duration being typical in most NSF directorates. The term of REU Supplements may not exceed that of the underlying research project.

A grantee may pay stipends as either scholarships or wages, as it determines appropriate. In either case, funding received by individuals may be taxable income under the Internal Revenue Code of 1986 and may also be subject to state or local taxes. Please consult the [Internal Revenue Service](#) for additional information.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

PROPOSAL FOR REU SITE

The following instructions supplement those found in the GPG.

Cover Sheet. When preparing the Cover Sheet in FastLane's Proposal Preparation module, select the Program Announcement/Solicitation No. for this solicitation from the pull-down list. On the screen that appears next, select the Division (s) to which the proposal is directed. If the proposal has a cross-disciplinary research focus, choose the Division(s) that seems most relevant, and NSF staff will ensure that the proposal is reviewed by people who have expertise that is appropriate to the proposal's content. The REU-associated program within the Division(s) that you selected will appear automatically in the "Current List of NSF Selected Units" at the bottom of the screen. Begin the title of the proposed project with the label "REU Site:" and carefully choose a project title that will permit prospective student participants to easily identify the focus of the site. A single individual should be designated as Principal Investigator. This individual will be responsible for overseeing all aspects of the REU Site award. However, one additional person may be designated as Co-Principal Investigator, if developing and operating the REU Site would involve such shared responsibility. Other anticipated research supervisors should be designated as Non-Co-PI Senior Personnel and are not listed on the Cover Sheet.

Project Summary (limited to one page). So that program officers can sort proposals efficiently and accurately for review, please structure this section as follows, with a list of "Project Elements" followed by a short, narrative "Project Summary":

- **PROJECT ELEMENTS:**
 - New REU Site, or renewal of previously funded REU Site (provide previous NSF Award No.)?:
 - Project title (as shown on Cover Sheet):
 - Principal Investigator:
 - Submitting organization:
 - Other organizations involved in the project's operation:
 - Location(s) (universities, national labs, field stations, etc.) at which the proposed undergraduate research will occur:
 - Main field(s) and sub-field(s) of the research:
 - No. of undergraduate participants per year:
 - Summer REU Site, or academic year REU Site?:
 - No. of weeks per year that the students will participate:
 - Does the project include an international component, ethics component, or RET component?:
 - Name, phone number, and e-mail address of point-of-contact for student applicants:
 - Web address (URL) for information about the REU Site (if known):

- **PROJECT SUMMARY:** Briefly describe the project's objectives, activities, students to be recruited, and intended impact. In separate sections clearly labeled "Intellectual Merit" and "Broader Impacts," address NSF's two merit review criteria. *Proposals that do not separately address both merit review criteria within the one-page Project Summary will be returned without review.*

Project Description. Address items "(a)" through "(f)" below. The Project Description must not exceed 15 pages.

- a. **Overview.** Provide a brief description of the objectives of the proposed REU Site, targeted student participants, intellectual focus, organizational structure, timetable, and participating organizations' commitment to the REU activity.

- b. **Nature of Student Activities.** Proposals should address the approach to undergraduate research training being taken, and should provide detailed descriptions of examples of research projects that students will pursue. NSF believes that undergraduate research experiences have their greatest impact in situations that lead the participants from a relatively dependent status to as independent a status as their competence warrants. Proposals must present plans that will ensure the development of student-faculty interaction and student-student communication. Development of collegial relationships and interactions is an important part of the project.

- c. **The Research Environment.** This subsection should describe the experience, and the record of the involvement with undergraduate research, of the Principal Investigator, the faculty who may serve as research mentors, and the institution(s) or organization(s) where the research will occur. The description should include information on the record of faculty/mentors in publishing work involving undergraduate authors and in providing professional development opportunities for student researchers. This subsection should also discuss the diversity of the mentor pool and any training, mentoring, or monitoring that mentors have received or will receive to help them mentor students effectively during the research experience. The facilities, equipment, and other resources available to support the proposed undergraduate research activities should be described in relation to those activities. The NSF form on Facilities, Equipment, and Other Resources is not required; instead, such information should be included in this subsection.

- d. **Student Recruitment and Selection.** The overall quality of the student recruitment and selection processes and criteria will be an important element in the evaluation of the proposal. The recruitment plan should be described with as much specificity as possible, including the types and/or names of academic institutions where students will be recruited and the efforts that will be made to attract members of underrepresented groups (women, minorities, and persons with disabilities).

In addition to increasing the participation of underrepresented groups, another goal of the program is to involve students in research who might not otherwise have the opportunity, particularly those from academic institutions where research programs are limited. Thus, a significant fraction of the student participants should come from outside the host institution or organization. The number of students per project should be appropriate to the institutional or organizational setting and to the manner in which research is conducted in the discipline. Proposals involving fewer than six students total are discouraged.

Undergraduate student participants supported with NSF funds in either REU Sites or REU Supplements must be citizens or permanent residents of the United States or its possessions.

- e. **Project Evaluation and Reporting.** Describe the plan to measure qualitatively and quantitatively the success of the project in achieving its goals, particularly the degree to which students have learned and their perspectives on

science, engineering, or education research related to these disciplines have been expanded. Evaluation may involve periodic measures throughout the project to ensure that it is progressing satisfactorily according to the project plan, and may involve pre-project and post-project measures aimed at determining the degree of student learning that has been achieved. In addition, it is highly desirable to have a structured means of tracking participating students beyond graduation, with the aim of gauging the degree to which the REU Site experience has been a lasting influence in the students' career paths. Proposers may wish to consult *The 2002 User-Friendly Handbook for Project Evaluation* (NSF 02-057; http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf02057) for guidance on the elements in a good evaluation plan. Although not required, REU Site PIs may wish to engage specialists in education research (from their organization or another one) in planning and implementing the project evaluation.

PIs are required to submit annual project reports through Fastlane's Project Reports System. When preparing these reports, REU Site PIs should follow the guidelines in the publication *REU Site Awards: Guidelines for Use of NSF FastLane Project Reports System* (NSF 01-124; http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf01124). The data needed for the project report should feed into the project evaluation plan. For projects that have received funding for the optional Ethics in Science or Engineering component, the project report should include a description of the progress of the ethics-related activities and the evaluation of their effectiveness.

- f. *Results from Prior NSF Support (if applicable)*. If the submitting organization has received prior support through an REU Site award in the disciplinary area(s) of the proposal, the Project Description must include a subsection entitled "Results from Prior NSF Support," which may occupy up to five pages of the 15-page Project Description. This subsection must describe the earlier REU project(s) and outcomes in sufficient detail to permit reviewers to reach an informed conclusion regarding the value of the results achieved. Valuable information typically includes results from the project evaluation; summary information about recruiting efforts and the number of applicants, the demographic make-up of participants and their home institutions, and career choices of participants; and a list of publications or reports (already published or to be submitted) resulting from the NSF award.

Biographical Sketches. Provide Biographical Sketches for all Senior Personnel, up to a total of 12 people. Senior Personnel include the PI, the Co-PI (if one has been designated), and other faculty/professionals who are anticipated to serve as research mentors. Biographical Sketches should follow the GPG's specifications for format and length but should include, if applicable, any publications with undergraduate co-authors (with the student labeled by an asterisk) and other activities or accomplishments relevant to a successful REU Site.

Budget. Project costs are predominantly for student support and may include such items as participant stipends, housing, meals, travel, tuition, or laboratory use. An REU Site may not charge the student an application fee. The level of other allowable costs, such as faculty salaries, varies among NSF units. Proposers are urged to contact the appropriate disciplinary REU program officer (see http://www.nsf.gov/crssprgm/reu/reu_contacts.jsp) with any questions about the project budget. The Budget Justification (limited to three pages) should explain and justify major cost items and any unusual items or situations, such as field work or international collaborations, and should address the cost-effectiveness of the project. If the proposal includes funds for the optional ethics component, the Budget Justification should include a cost breakdown and total for the ethics activities.

An administrative allowance, limited to 25% of Line F.1 (Participant Support Costs: Stipends) only, is allowed for REU awards in lieu of indirect costs; enter the administrative allowance on Line I (Indirect Costs) of the proposal budget. As a guide to budget development, student stipends for summer projects are expected to be approximately \$400 per student per week, in addition to other participant costs of room and board, fees, and travel, with academic-year stipends comparable on a pro rata basis. All student costs should be entered on Line F (Participant Support Costs) of the proposal budget. Total project costs are expected to be typically \$600 to \$800 per student per week. *This is a guideline figure, neither a floor nor a ceiling.*

Current and Pending Support. Provide this information for all Senior Personnel, up to a total of 12 people. Senior Personnel include the PI, the Co-PI (if one has been designated), and other faculty/professionals who are anticipated to serve as research mentors.

Facilities, Equipment, and Other Resources. This form is not required, but the relevant information should be included in the subsection of the Project Description that addresses the research environment.

Supplementary Documentation. The following two additional items may be provided:

Optional Ethics Component (limited to three pages). REU Site proposals may include support for activities focusing on ethics in science or engineering. The proposed ethics component should be described fully in the Supplementary Documentation section of the proposal, not in the Project Description. The description of the ethics component should include the following:

- (1) ethics issues or topics that relate to the scientific content of the project and/or to issues of professional conduct of research;
- (2) participating faculty and other individuals with appropriate credentials in ethics, including outside ethicists as necessary;
- (3) activities that show how students and REU mentors will be engaged in ethics discussions designed to present ethics concepts and skills for resolution of ethical issues, using approaches such as seminars, student presentations and

reports, role-playing, case studies, and outside speaker presentations; (4) products such as reports, presentations, and Web-based materials; (5) a formative evaluation plan to be used to improve the component; and (6) results from any prior support for an ethics component.

Proposal budgets may include up to \$4,000 per year in direct costs to support ethics activities; these funds are not included in the guideline of \$600 to \$800 per student per week. Because a separate budget sheet for the ethics activities is not possible in FastLane, the ethics activities should be added into the yearly proposal budget. In the Budget Justification, the ethics activities must be itemized separately and clearly, and the total (up to \$4,000) for the ethics items must be indicated. Questions regarding the ethics component should be directed to John Perhonis, Program Director for Ethics and Values Studies, at jperhoni@nsf.gov or 703-292-7279.

Letters of Commitment. Up to five signed letters documenting collaborative arrangements of significance to the proposal may be scanned and placed in this section. Letters may be relevant where the awardee and performing organizations are different, where faculty or facilities at more than one institution or organization are to be employed, or where international activities are planned. Other letters--for example, letters of endorsement--are not permitted.

REQUEST FOR REU SUPPLEMENT

Many of the research programs throughout the Foundation support REU activities that are requested either (1) as a supplement to an existing grant or cooperative agreement or (2) as a component of a new (or renewal) research proposal. Specific guidance for the use of either mechanism is given in the last two paragraphs of this section (below). Regardless of which mechanism is used to request an REU Supplement, the description of the REU activity should discuss the following: (1) the form and nature of each prospective student's involvement in the research project; (2) the experience of the PI (or other prospective research mentors) in involving undergraduates in research, including any previous REU Supplement support and the outcomes from that support; and (3) the process and criteria for selecting the student(s). If the student has been pre-selected (as might be true in the case of a supplement for an ongoing award), then the grounds for selection and a brief biographical sketch of the student should be included.

Normally, funds may be requested for up to two students, but exceptions will be considered for training additional qualified students who are members of underrepresented groups (women, minorities, and persons with disabilities). Centers or large research efforts may request support for a number of students commensurate with the size and nature of the project. As a guide to budget development, student stipends for summer projects are expected to be comparable to those of REU Site participants, approximately \$400 per week per student, in addition to other participant support costs of room and board, fees, and travel, with academic-year stipends comparable on a pro rata basis. Total costs for a summer are expected to be typically \$600 to \$800 per student per week. *This is a guideline figure, neither a floor nor a ceiling.*

Results from any REU Supplement activities must be included in the annual project report for the associated award.

For guidance about preparing REU Supplement requests, contact the cognizant program officer for the existing NSF grant or cooperative agreement that would be supplemented or the program officer who manages the research program to which the new (or renewal) proposal would be submitted.

A request for an REU Supplement to an existing NSF award should be prepared by the PI in accordance with the guidelines found in the GPG; the following instructions supplement those found in the GPG. After logging into FastLane, choose "Award and Reporting Functions," and then "Supplemental Funding Request." Next, choose the award to be supplemented. In the form entitled "Summary of Proposed Work," state that this is a request for an REU Supplement. In the form entitled "Justification for Supplement," include the information described above in the first paragraph under the subheading "REQUEST FOR REU SUPPLEMENT"; limit your response to three pages. If an REU student has been pre-selected, you may place a brief biographical sketch in Supplementary Documents. Prepare a budget, including a justification of the funds requested for student support and their proposed use. All student costs should be entered on Line F (Participant Support Costs) of the proposal budget. An administrative allowance, limited to 25% of Line F.1 (Participant Support Costs: Stipends) only, is allowed for REU awards in lieu of indirect costs; enter the administrative allowance on Line I (Indirect Costs) of the proposal budget. After you have prepared the request for supplemental funding, forward it to your organization's Sponsored Research Office (SRO), which will submit the request to NSF. The term of an REU Supplement may not exceed that of the underlying research project.

A request for an REU Supplement as part of a proposal for a new or renewal grant or cooperative agreement should be embedded in the proposal as follows. Enter the description of the REU activity (namely, the information described above in the first paragraph under the subheading "REQUEST FOR REU SUPPLEMENT") in FastLane in the section for Supplementary Documentation. Limit this description to three pages. Include the budget for the REU activity in the yearly project budget. Enter all student costs on Line F (Participant Support Costs). An administrative allowance, limited to 25% of the REU portion of Line F.1 (Participant Support Costs: Stipends) only, is allowed for the REU portion in lieu of indirect costs; add the administrative allowance into Line I (Indirect Costs) of the proposal budget. As part of the Budget Justification, provide a separate explanation of the REU Supplement request, with the proposed student costs itemized and justified and a total given for the items plus administrative allowance. If the intent is to engage students as technicians, then an REU

Supplement is not the appropriate support mechanism; instead, support should be entered on Line B.4 (Undergraduate Students) of the proposal budget.

When preparing an REU Site proposal, proposers are reminded to identify the program announcement/solicitation number (05-592) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required by NSF in proposals submitted under this Program Solicitation.

Indirect Cost (F&A) Limitations:

An administrative allowance, limited to 25% of Line F.1 (Participant Support Costs: Stipends) of the proposal budget, is allowed for REU Site and Supplement awards in lieu of indirect costs.

C. Due Dates

Proposals must be submitted by the following date(s):

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

Deadline for REU Site proposals: September 7, 2005; August 17, 2006.

Deadline for REU Site proposals to the Antarctic Program: June 7, 2006; June 6, 2007. Note that the June 2, 2005, deadline is covered by the previous REU program solicitation, [NSF 04-584](#).

Deadline for REU Supplement requests: Varies with the research program. Contact the cognizant program officer for the award or proposal that would be supplemented.

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the [Grant Proposal Guide](#) for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: <http://www.fastlane.nsf.gov>

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 ([NSB 97-72](#)). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued [Important Notice 127](#), Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the [Grant Proposal Guide](#) Chapter III.A for further information). The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which he/she is qualified to make judgments.

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria:

Reviewers will be asked to interpret the two basic NSF review criteria in the context of the REU program. In addition, they will be asked to place emphasis on the following considerations:

1. The appropriateness and value of the educational experience for the student participants, particularly the appropriateness of the research project(s) for undergraduate involvement and the nature of student participation in these activities.
2. The quality of the research environment, including the record of the mentor(s) with undergraduate research

- participation, the facilities, and the professional development opportunities.
3. Appropriateness of the student recruitment and selection plan, including plans for involving students from underrepresented groups and from academic institutions with limited research opportunities.
 4. Quality of plans for student preparation and follow-through designed to promote continuation of student interest and involvement in research.
 5. For REU Sites: effectiveness of the plans for managing the project and evaluating the outcomes, appropriateness and cost-effectiveness of the budget, and commitment of partners, if relevant.
 6. For REU Sites that request funding for the optional Ethics in Science or Engineering component: the appropriateness and quality of the proposed ethics activities.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Ad Hoc and/or panel review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

NSF is striving to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation, or the date of proposal receipt, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at <http://www.nsf.gov/awards/managing/>. Paper copies of these documents may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Website at <http://www.gpo.gov>.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project reporting system, available through FastLane, for preparation and submission of annual and final project reports. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

- NSF REU Contacts: http://www.nsf.gov/crssprgm/reu/reu_contacts.jsp

For questions related to the use of FastLane, contact:

- FastLane User Support: telephone 800-673-6188, email: fastlane@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at <http://www.nsf.gov/cgi-bin/getpub?gp>. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF *E-Bulletin*, which is updated daily on the NSF Website at <http://www.nsf.gov/home/ebulletin>, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's *MyNSF News Service* (<http://www.nsf.gov/mynsf/>) to be notified of new funding opportunities that become available.

Related NSF programs that provide research experiences for students:

- [Cooperative Activity with Department of Energy Programs for Education and Human Resource Development](#)
- [Engineering Research Centers \(ERC\)](#)
- [Enhancing the Mathematical Sciences Workforce in the 21st Century \(EMSW21\)](#)
- [Historically Black Colleges and Universities Undergraduate Program \(HBCU-UP\)](#)
- [Interdisciplinary Training for Undergraduates in Biological and Mathematical Sciences \(UBM\)](#)
- [International Research Experiences for Students \(IRES\)](#)
- [Louis Stokes Alliances for Minority Participation \(LSAMP\)](#)
- [Materials Research Science and Engineering Centers \(MRSEC\)](#)
- [Research Experiences for Teachers \(RET\): Directorate for Biological Sciences](#)

- [Research Experiences for Teachers \(RET\): Directorate for Engineering](#)
- [Research in Undergraduate Institutions \(RUI\)](#)
- [Science and Technology Centers \(STC\)](#)
- [Tribal Colleges and Universities Program \(TCUP\)](#)
- [Undergraduate Research Centers \(URC\): Division of Chemistry](#)

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
 - Send an e-mail to: pubs@nsf.gov
 - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as

part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

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