

NSF GRADUATE TEACHING FELLOWS IN K-12 EDUCATION

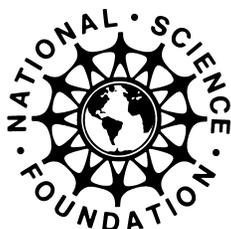
Program Announcement
NSF 99-75

DIRECTORATE FOR EDUCATION AND HUMAN RESOURCES

DEADLINE: MAY 5, 1999



NATIONAL SCIENCE FOUNDATION



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SUMMARY OF PROGRAM REQUIREMENTS

GENERAL INFORMATION

Program Name: NSF Graduate Teaching Fellows in K–12 Education (GK-12)

Short Description/Synopsis of Program:

This program supports fellowships and associated training that will enable graduate students and advanced undergraduates in the sciences, mathematics, engineering, and technology to serve in K–12 schools as resources knowledgeable about both the content and applications of science, mathematics, engineering, and technology. Academic institutions apply for awards to support fellowship activities, and are responsible for selecting fellows. The fellows will serve as resources for teachers in science and mathematics instruction. Expected outcomes include improved communication and teaching skills for the fellows, enriched learning by K–12 students, professional development opportunities for K–12 teachers, and strengthened partnerships between institutions of higher education and local school districts.

Cognizant Program Officer: Dr. Dorothy L. Stout, Division of Undergraduate Education, Room 835, telephone (703) 306-1670, e-mail <dstout@nsf.gov>

Applicable Catalog of Federal Domestic Assistance (CFDA) Nos.: 47.041, 47.049, 47.050, 47.070, 47.074, 47.075, 47.076, and 47.078

ELIGIBILITY

- ◆ Limitation on the categories of organizations that are eligible to submit proposals:

Proposals may be submitted only by academic institutions that grant master's or doctoral degrees in the sciences, mathematics, engineering, or technology.

- ◆ PI eligibility limitations:

The PI must be a faculty member in the sciences, mathematics, engineering, or technology.

- ◆ Limitation on the number of proposals that may be submitted by an organization:

An institution may submit no more than two proposals in which it is the only participating institution in the prospective award, and no more than one proposal in which it is the lead institution in a multi-institution collaboration, per round of competition.

AWARD INFORMATION

- ◆ Type of award anticipated: **Continuing Grant**
- ◆ Number of awards anticipated in FY1999: **20**
- ◆ Amount of funds available: **Approximately \$7.5 million in FY1999**
- ◆ Anticipated date of award: **September 1999**

Proposal Preparation & Submission Instructions

◆ Proposal Preparation Instructions

- Letter of intent requirements: **A letter of intent is requested, but not required, by April 1, 1999.**
- Preproposal requirements: **None**
- Proposal preparation instructions: **Standard NSF *Grant Proposal Guide* (GPG) instructions and supplemental instructions in this program announcement**
- Supplemental proposal preparation instructions: **See the detailed instructions later in this program announcement.**
- Deviations from standard (GPG) proposal preparation instructions: **The *Project Description* (including *Results from Prior NSF Support*) may not exceed 25 pages. (This limit deviates from the 15-page limit specified in the GPG.) See the other detailed instructions later in this program announcement.**

◆ Budgetary Information

- Cost sharing/matching requirements: **None**
- Indirect cost (F&A) limitations: **8% of Total Direct Costs, excluding fellowship stipends, cost-of-education allowances, and equipment**
- Other budgetary limitations: **None**

◆ FastLane Requirements

- FastLane proposal preparation requirements: **Use of FastLane is required.**
- FastLane point of contact: Romona Truesdale, Division of Undergraduate Education, Room 835, telephone (703) 306-1670, e-mail <duefl@nsf.gov>

◆ Deadline/Target Dates

- Letter of intent deadline (optional): April 1, 1999
- Full proposal deadline: May 5, 1999

PROPOSAL REVIEW INFORMATION

- ◆ Merit review criteria: **Standard National Science Board approved criteria, supplemented by program-specific criteria described in this program announcement**

AWARD ADMINISTRATION INFORMATION

- ◆ Grant Award Conditions
- ◆ Special grant conditions anticipated: **None**
- ◆ Special reporting requirements anticipated: **None**

INTRODUCTION

The National Science Foundation (NSF) recognizes that graduates of higher education programs in science, mathematics, engineering, and technology (SMET) can contribute to the national effort to address the challenging issues in K-12 education across a broad spectrum of schools and educational levels. In particular, with sufficient training, SMET graduate students can serve K-12 teachers and schools as valuable resources for SMET content and applications. Although the focus of this initiative is on graduate students serving as resources for K-12 education, it is important to note the benefits of undergraduate students having similar opportunities. Consequently, advanced undergraduate SMET majors may be included as appropriate to further the goals of individual projects. NSF anticipates that, in the future, these fellows will continue to contribute toward the improvement of the nation's educational enterprise. Education will benefit from the contributions of professionals who will have classroom experience and an understanding of topics in SMET education such as how scientific knowledge and the process of inquiry can be communicated to diverse novice learners in a variety of settings, how teaching and learning can be assessed, how new disciplinary knowledge can be incorporated in curriculum development, and how technology can be used to advance the teaching of SMET. The higher education community will benefit from the improved preparation of pre-college students in SMET.

To support these opportunities, the Foundation has initiated the program **NSF Graduate Teaching Fellows in K-12 Education (GK-12)**. In this pilot year of the program (FY1999), approximately \$7.5 million is expected to be available to support up to 20 GK-12 awards. Awards are expected to be in the range of \$200,000 to \$500,000 per year for two to three years.

GK-12 is an NSF-wide program including the Directorates for Biological Sciences (BIO), Computer and Information Science and Engineering (CISE), Education and Human Resources (EHR), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), and Social, Behavioral, and Economic Sciences (SBE); and the Office of Polar Programs (OPP).

PROGRAM DESCRIPTION

The primary objective of the program is to provide fellowships to highly qualified SMET graduate students in support of their chosen studies and opportunities to directly serve as SMET resources in K-12 science and mathematics education. Projects may also include advanced undergraduate SMET majors when such participation would clearly strengthen the proposed effort.

GK-12 fellows, selected by awardee institutions, will work directly with teachers to, for example:

- demonstrate key concepts,
- connect elementary and secondary learning to the habits and skills required for future study in SMET disciplines,
- provide role models for future SMET professionals,
- enhance teachers' content knowledge and understanding of principles of science and mathematics, and
- assist in science and mathematics instruction.

Expected outcomes include (1) improved communication and teaching-related skills for fellows, (2) enriched learning by K-12 students, (3) professional development opportunities for K-12 teachers, and (4) strengthened partnerships between higher education institutions and local school districts.

Projects may draw participants from two or more departments within one institution or from more than one institution.

All projects are expected to incorporate the following features:

- training activities for fellows based on a comprehensive multidisciplinary theme, integrating instructional strategies and assessment procedures that are consistent with mathematics and science standards established by national organizations, states, and school districts;
- an administrative and organizational structure that ensures the effective management of the requested resources to achieve the goals of the project and promotes strong interaction among fellows, faculty, and K-12 teachers;
- an institutional strategy and operation plan for student recruitment, with special consideration to groups underrepresented in the sciences and engineering, i.e., women, racial and ethnic minorities, and persons with disabilities;
- a well-defined strategy for assessing project performance and tracking participants; and
- a detailed plan indicating how the GK-12 fellows will enhance K-12 SMET instruction in the specific school districts.

The K-12 school(s) must be involved in the development of the project plan. Although training activities on the campus of an institution of higher education may be part of the project plan, it is expected that the preponderance of participant activities with K-12 teachers and students will occur in K-12 schools. Proposers are encouraged to establish collaborative arrangements with other institutions (e.g., industry, non-profit institutions, museums) to support their activities.

The Principal Investigator (PI) will have overall responsibility for the administration of the award, the management of the project, and interactions with the NSF. The PI and the home institution are expected to develop an administrative structure that enables faculty, K-12 teachers, school administrators, fellows, and others involved in the group effort to interact productively during the award period. The PI is expected to be an integral participant in the education and training activities of the GK-12 project.

PIs are expected to attend a meeting convened by NSF to exchange ideas, to establish and strengthen communication networks, to learn about the activities of GK-12 fellows, and to discuss ways of measuring progress. This group will also discuss the effectiveness of GK-12 activities in preparing the fellows for leadership careers and enhancing K-12 instruction.

For fellows selected in projects funded in this round of GK-12 awards, the stipend will be \$18,000 per year per graduate student. In addition to the stipend, the grantee institution will be allowed a cost-of-education allowance of \$10,500 per year per graduate student. In consideration of the cost-of-education allowance, graduate student fellows will be exempt from paying tuition and fees normally charged to students of similar academic standing, unless such charges are optional or are refundable. The stipend for an undergraduate student will be \$5,000 per academic year and \$5,000 per summer. All fellows will spend a minimum of ten hours per week providing direct assistance to K-12 teachers and five hours of preparation outside of the classroom.

ELIGIBILITY

A. Institutions

Academic institutions in the United States and its territories that grant master's or doctoral degrees in SMET disciplines are invited to submit proposals. Projects involving more than one U.S. institution are eligible, but a single institution must accept overall management responsibility. Collaborating institutions need not be academic and may include industry, non-profit institutions, museums, etc. Details of complex, multi-institutional arrangements should be discussed with one of the directorate representatives listed at the end of this announcement before proposal submission. NSF does not anticipate making more than one GK-12 award to a single institution as a result of any single competition. However, an institution may submit up to two single-institution proposals, and as lead institution, one multi-institution proposal, per round of competition. Projects involving majors from any of the SMET fields normally supported by NSF are eligible.

B. Principal Investigator

The PI must be an institutional leader within the discipline-based SMET faculty.

C. Fellows

GK-12 fellows will be selected by awardee institutions, but must be:

- citizens, nationals, or permanent residents of the United States at the time of application, and
- graduate students enrolled in SMET programs or advanced undergraduate SMET majors who have demonstrated a strong proficiency in mathematics and science.

AWARD INFORMATION

The number and size of awards will vary depending upon the scope of projects and availability of funds; however, it is anticipated that about 20 institutional awards in the range of \$200,000 to \$500,000 per year for a period of two to three years will be made as a result of this competition.

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

A. Letter of Intent

A letter of intent to submit a proposal is requested (but not required) from all applicants, to assist NSF in plans for review. The letter of intent is not a preliminary proposal. It is a brief statement and should be received no later than April 1, 1999. Letters of intent must be sent by electronic mail to <gk-12@nsf.gov>.

B. Proposal Preparation Instructions

Proposals submitted in response to this program announcement should be prepared and submitted in accordance with the general guidelines contained in the *Grant Proposal Guide* (GPG), NSF 99-2. The complete text of the GPG (including electronic forms) is available electronically on the NSF Web site <<http://www.nsf.gov/>>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722, or by e-mail from <pubs@nsf.gov>.

Proposers are reminded to identify the program announcement number (NSF 99-75) in the program announcement/solicitation block on the NSF Form 1207 (“Cover Sheet for Proposal to the National Science Foundation”). Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

FastLane must be used to prepare and submit GK-12 proposals.

Proposals must contain the following elements in the order indicated. Proposals that do not strictly adhere to the specified page limitations (given below) will be ineligible for consideration and will be returned without review.

1. Cover Sheet for Proposals (NSF Form 1207): In the “For consideration by the following NSF Organizational Unit” field, click on the “Add Org. Unit” button and then select “GRAD TEACHING FELLOWS IN K-12.” In the “Program Announcement/Solicitation No.” field, enter the program announcement number NSF 99-75. A short, informative title should be provided in the appropriate field; enter “GK-12” at the beginning of this proposal title. Mail the signed cover sheet to NSF in accordance with the instructions given below in Section C (“Proposal Due Dates”).

2. **Project Summary:** Provide a brief description (*200 words or less*) of the training program, including the activity theme, educational features, and objectives. This section is expected to indicate benefits to be achieved by both the K-12 and higher education partners.
3. **Project Description:** *This section is limited to 25 pages, including any visual materials (figures, charts, graphs, maps, photographs, etc.).* The Project Description should include the following subsections. Approximate lengths for these subsections are suggested in parentheses; the suggested lengths are intended only as rough guidance for constructing the Project Description within the overall 25-page limit.
 - a. **Results from Prior NSF Support** (*no more than 5 pages*): As specified in the GPG, Section II.D.4, provide information about relevant NSF funding that the PI or co-PI(s) has received during the past five years.
 - b. **List of Faculty Participants** (*1 page*): Include departmental and, if appropriate, institutional affiliation of all faculty participants expected to mentor students or to otherwise play an important role in the project.
 - c. **School District Support** (*2 pages*): A statement of support from the superintendent(s) of the local K-12 school district(s) where the GK-12 fellows are expected to conduct their activities should be included with the application. The statement should indicate the coordinated plans of the district to receive fellows into its schools, plans for coordination with standards-based instruction, and any financial commitments or other support to be provided to the fellows and/or cooperating teachers. The local superintendent(s) or chief school officer(s) who can represent the school district and honor its financial commitments must sign this statement. (The statement with the original signature may be electronically scanned and incorporated into the Project Description PDF file.)
 - d. **Goals, Objectives, and Thematic Basis** (*2 pages*): Provide the conceptual focus, goals, and objectives of the project. Describe the activity themes that will form the foundation for project activities. At least one of the following three themes is expected to be evident in the proposed effort:
 - **Learning processes.** Disciplinary knowledge may be used to enhance how people learn; how cognition is affected by learning styles; how students acquire facts, concepts, and skills; how to apply cognitive principles to facilitate effective learning; and what kinds of learning tasks are best suited to different kinds of students.
 - **Knowledge transfer/curriculum development.** Projects may be centered on the communication of SMET content to different learners (e.g., different ages, diverse cultural backgrounds, and various learning styles) and using understandings of different learning processes to design curricula and instructional materials.
 - **Uses of technology as teaching and learning tools.** Projects may be focused on the use of advanced technologies in teaching and learning the changing content of SMET, taking into account the different ways people think, learn, and solve problems. An aspect of this kind of project may be of immediate use in assisting teachers with the use of computers, newly developed software, and other technologies in the classroom.
 - e. **Project Plan** (*8 pages*): Provide examples of ongoing or planned K-12 outreach, enrichment, or enhancement activities that are expected to serve as the foundation of the multidisciplinary participant training program. Identify the faculty member(s) or other participants responsible for each activity, and provide sufficient detail for reviewers to assess each activity's scientific and educational merit and relevance to the theme. The description of each activity should highlight those aspects that link to the thematic focus.

The project plan is expected to:

- demonstrate a clear partnership and active participation by the institution(s) of higher education, GK-12 fellows, local K-12 school district(s), and any participating community resources;
- indicate any relevant history by the higher education institution(s) in service learning activities;

- indicate alignment with teacher preparation and/or enhancement activities by the participating institution(s) of higher education and the local K-12 school district(s);
 - address plans to prepare fellows to serve as content resources to instructors of novice learners; and
 - clarify in sufficient detail the benefit to GK-12 fellows and to K-12 education in supporting this type of project.
- f. **Recruitment, Selection, and Retention (2 pages):** For each participating graduate program, use a tabular format to provide the following information about the recruitment and retention of students during the past three years (cumulative): (1) total number of applicants, (2) total number of applicants accepted, (3) total number of accepted applicants who enrolled, (4) average GPA of those who enrolled, (5) total number of students currently enrolled in the program (indicate full- or part-time status), (6) total number of master's and doctoral degrees awarded, (7) average time-to-degree, and (8) other relevant measures of student success. Specify the number of members of underrepresented populations (i.e., women, underrepresented minorities, and persons with disabilities) included in items (5) and (6).

Describe plans and procedures for the recruitment, selection, and retention of GK-12 fellows, including specific provisions for success with members of groups underrepresented in SMET.

Also provide reasonable estimates of the number of students eligible and likely to be interested in participating, and explain the basis for these estimates.

- g. **Organization and Management (3 pages):** Describe plans and procedures for the development and management of the proposed activity. The plan should include use of a formal mechanism that assures the fair and effective allocation of group resources. Procedures for selection of GK-12 fellows and others who will receive stipends or otherwise share in group funds must be described, as should methods for allocation of use of shared equipment to be acquired with GK-12 funds. Needs for special materials, shared instruments, travel to outreach sites, or special courses must be justified in the context of the program(s) for which they are required. If relevant, the relationship of GK-12 project resources to other faculty and equipment at the participating institutions and elsewhere should be described, as should the relationship to any existing grants that provide funds for training and educational activities.

This section is expected to:

- provide plans to achieve maximum leverage at the K-12 school level from the limited number of GK-12 fellows expected to be available to any given K-12 school district;
 - specify a school-level implementation plan to optimize use of GK-12 fellows as resources in support of K-12 teachers;
 - include assurances from the institution of higher education and the school district that the NSF funds will not supplant extant financial resources assigned to science and mathematics education; and
 - describe how the activities will be sustained after the period of NSF funding.
- h. **Performance Assessment (2 pages):** Describe a performance evaluation plan, including the indicators and other specific measures that will be used to assess the project's success in meeting its goals and objectives. Examples of some indicators that may be useful are assessments of GK-12 fellows' performance, fellows' time-to-degree (from beginning of graduate studies), numbers and types of higher education participants' placements, percentages of members of underrepresented groups among higher education participants and faculty, effectiveness of the multidisciplinary enterprise, impact of the project on graduate education within the institution(s), and the impact on K-12 education. Although each project should propose its own indicators, some later standardization is anticipated so that NSF can meet the requirements of the Government Performance and Results Act of 1993.

This section is expected to:

- indicate plans for evaluation of the efficacy of project activities, including the development of a process for collecting and interpreting evaluative data and attributing impacts; and
 - include timetables and metrics for accomplishments, as well as indicate who will be responsible for monitoring and evaluating the progress of this effort.
4. Biographical Sketches: ***This section must not exceed 2 pages per individual.*** For each of the personnel included on the list of faculty participants (Item 3b), provide:
- a curriculum vitae or short biographical sketch (one or two paragraphs), a list of up to ten publications (including the individual's five most important and up to five other relevant publications), and a complete list of current support.
 - information about recent training activities. This should include the number (by category) of undergraduates, graduate students, and postdoctoral fellows who carried out research under the faculty member's direction in each of the last three years. Also list the titles of courses taught by the faculty member during the past three years. Other relevant activities, such as organization of workshops or special courses, may be included.
 - a list of current and past collaborators. This should include the names of graduate and postdoctoral mentors, all graduate students and postdoctoral fellows who have trained with the faculty member, and persons with whom the faculty member has co-authored papers within the past four years.
5. Budget: Provide a Summary Proposal Budget (NSF Form 1030) for each year of support requested, as well as a cumulative budget for all years requested.

Recognizing the importance of infrastructure support and the significant involvement of faculty and K-12 teachers, up to 30% of the budget may be designated for direct costs other than student stipends and cost-of-education allowances. These funds are intended to supplement institutional and school district resources in support of GK-12 activities.

Funds may be requested for personnel for the development and construction of special instruments, as may funds for the purchase of computer software or other special-purpose materials. The total requested for software and special-purpose materials may not exceed \$10,000.

Funds should be included for the PI and up to three participants to attend a meeting convened by NSF. The participants should include at least one school district representative and one GK-12 fellow.

Indirect costs are limited to 8% of total direct costs, excluding stipends, cost-of-education allowances, and equipment.

Budget Justification: A brief justification for funds in each budget category should be provided. This section should also include details of institutional cost sharing, if any, and of other sources of support for the GK-12 project, such as government, industry, or private foundations. (Although cost sharing is not required and will not be a review criterion, any such commitment specified in the proposal will be referenced and included as a condition of an award resulting from this announcement.) As part of this section, provide a list of all relevant documentation, including that for commitments by participating institutions and organizations and commitments by any other sources of funding. Letters or other documentation on the list of commitments should be included either (1) at the end of the Budget Justification PDF file or (2) at the end of the Project Description PDF file. (Such letters will not count against the three-page limit for budget justification specified in the GPG or the 25-page limit for the Project Description specified in this program announcement.) While there is no limit on the number of letters that may be *listed*, no more than six letters of commitment may be included as part of the proposal itself. Do not include additional letters of commitment, and do not list or include letters whose sole purpose is to endorse the project.

C. Proposal Due Dates

Proposals must be submitted electronically by 5:00 p.m. (submitter's local time) on May 5, 1999. Copies of the signed proposal cover sheet must be submitted in accordance with the instructions identified below. The PI is responsible for the completeness and accuracy of the proposal as submitted. Unless requested by the NSF, additional information may not be sent following proposal submission.

Submission of Signed Cover Sheets: A printed copy of the cover sheet (NSF Form 1207) must be endorsed by the PI(s) and authorized institutional representative and mailed to NSF at the following address for receipt within five working days of the proposal deadline:

GK-12 Program Cover Sheet
National Science Foundation
Division of Undergraduate Education
4201 Wilson Blvd., Rm. 835
Arlington VA 22230

A proposal may not be processed until the complete proposal (including the signed cover sheet) has been received by NSF.

D. FastLane Requirements

The NSF FastLane system is available for electronic preparation and submission of a proposal through the Web at the FastLane Web site at <<http://www.fastlane.nsf.gov/>>. The Sponsored Research Office (SRO) or equivalent must provide a FastLane Personal Identification Number (PIN) to each Principal Investigator (PI) to gain access to the FastLane "Proposal Preparation" application. PIs that have not submitted a proposal to NSF in the past must contact their SRO to be added to the NSF PI database. This should be done as soon as the decision to prepare a proposal is made.

In order to use NSF FastLane to prepare and submit a proposal, the following are required:

Browser (must support multiple buttons and file upload)

- Netscape 3.0 or greater
- Microsoft Internet Explorer 4.01 or greater

PDF Reader (needed to view/print forms)

- Adobe Reader 3.0 or greater

PDF Generator (needed to create project description)

- Adobe Acrobat 3.01 or greater
- Aladdin Ghostscript 5.10 or greater

A list of registered institutions and the FastLane registration form are located on the FastLane Web page.

PROPOSAL REVIEW INFORMATION

A. Merit Review Criteria

Review 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, adjacent disciplines to that principally addressed in the proposal, etc.

General Review Criteria

Proposals will be reviewed against the following general merit review criteria established by the National Science Board. Following each criterion are potential considerations that the reviewer may employ in the evaluation. These are suggestions and not all will apply to any given proposal. Each reviewer will be asked to address only those that are relevant to the proposal 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 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?

In light of the GK-12 program's objectives, reviewers will be asked to consider the above two merit review criteria with emphasis placed on:

- **Team Composition.** Project teams should reflect extensive collaboration between the proposing institution of higher education and the participating K-12 school district(s).
- **Design.** GK-12 project designs are expected to be consistent with mathematics and science standards established by national organizations, states, and school districts. Project designs are expected to incorporate appropriate preparation for GK-12 fellows to serve as resources in the K-12 system, as well as appropriate development and support for the participating K-12 teachers. The design should pay attention to assessment of progress and impacts on GK-12 fellows, K-12 teachers, and K-12 students using longitudinal data and process data.
- **Expected Benefits.** Proposers should clearly indicate anticipated benefits to participating fellows, their institutions of higher education, and K-12 education and the schools.
- **Importance and coherence of the comprehensive multidisciplinary activity theme,** including its effectiveness as an intellectual focus for the project.
- **Excellence of the proposed outreach activity as reflected in the major outreach efforts.**
- **Quality of the planned education and training activities for fellows.**
- **Appropriateness of the formal administrative plan and organization structure in assuring fair and effective allocation of group resources.**
- **Effectiveness of the strategy for preparing a diverse science and engineering workforce,** including operational plans for student recruitment and retention.
- **Appropriateness of the plans for evaluation of project performance.**
- **Appropriateness of the budget.**
- **Sustainability of the project activities beyond the period of NSF funding.**

Additional Factors

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 learner perspectives. PIs should address this issue in their proposal to provide

reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

Integrating Diversity into NSF Program, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens—women and men, underrepresented minorities, and persons with disabilities—are 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. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

B. Merit Review Process

Most of the proposals submitted to NSF are reviewed by mail review, panel review, or some combination of mail and panel review. Proposals submitted in response to this announcement will be reviewed by panel review; the panel reviews may be supplemented by ad hoc reviews and site visits as appropriate.

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Reviewers will be asked to formulate a recommendation to either support or decline each proposal. A program officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation. In most cases, proposers will be contacted by the program officer after his or her recommendation to award or decline funding has been approved by his or her supervisor, the division director. This informal notification is not a guarantee of an eventual award. NSF will be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 95 percent of proposals in this category. In those cases where a proposal is being considered for joint funding by separate divisions, directorates, or agencies, NSF will be able to inform applicants within nine months in 95 percent of proposals. The time interval begins on the proposal deadline or target date, or from the date of receipt if deadlines or target dates are not used by the program. The interval ends when the division director accepts the program officer's recommendation.

In all cases, after final programmatic approval has been obtained, award recommendations are then forwarded to the Division of Grants and Agreements (DGA) 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 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 an NSF program officer. A PI or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF grants officer does so at its own risk.

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 (DGA). Organizations whose proposals are declined will be advised as promptly as possible by the NSF office or division administering the program. Verbatim copies of reviews, not including the identity of the reviewers, will be provided automatically to the PI.

B. Grant Award Conditions

An NSF grant consists of (1) the award letter, which includes any special provisions applicable to the grant 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 grant conditions, such as Grant General Conditions (NSF GC-1) or Federal Demonstration Partnership Phase III (FDP) Terms and Conditions,* and (5) any

NSF brochure, program guide, announcement or other NSF issuance that may be incorporated by reference in the award letter. Electronic mail notification is the preferred way to transmit NSF grants 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 Web site <<http://www.nsf.gov/>>. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722, or by e-mail from <pubs@nsf.gov>.

Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). More comprehensive information on NSF Award Conditions is contained in Chapter II of the NSF *Grant Policy Manual* (GPM) (NSF 95-26), which is available electronically on the NSF Web site. The GPM is also available in paper copy by subscription from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. The GPM may be ordered through the GPO Web site <<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 expiration of a grant, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented a new electronic project reporting system, available through FastLane, which 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. Reports will continue to be required annually and after the expiration of the grant, but PIs will not need to re-enter information previously provided, either with the proposal or in earlier updates using the electronic system.

Effective October 1, 1998, PIs are required to use the new reporting format for annual and final project reports. PIs are strongly encouraged to submit reports electronically via FastLane. For those PIs who cannot access FastLane, paper copies of the new report formats may be obtained from the NSF Clearinghouse as specified above. NSF expects to require electronic submission of all annual and final project reports via FastLane beginning in October 1999.

D. New Awardee Information

If the submitting organization has never received an NSF award, it is recommended that the organization's appropriate administrative officials become familiar with the policies and procedures in the NSF *Grant Policy Manual* which are applicable to most NSF awards. The *Prospective New Awardee Guide* (NSF 97-100) includes Administration and Management Information; Accounting System Requirements and Auditing Information; and information on Payments to Organizations with Awards. This information will assist an organization in preparing documents that NSF requires to conduct administrative and financial reviews of an organization. The guide also serves as a means of highlighting the accountability requirements associated with Federal awards. This document is available electronically on NSF's Web site <<http://www.nsf.gov/>>.

ADDITIONAL INFORMATION

If warranted, NSF may assemble a list of Frequently Asked Questions (FAQ) relating to this announcement. Any FAQ prepared will be accessible through the GK-12 program's home page <<http://www.nsf.gov/home/crsspgrm/gk12/>>.

Inquiries regarding the GK-12 program should be directed to one of the following staff contacts:

Dorothy Stout (Chair of the GK-12 Committee)
Directorate for Education and Human Resources (703-306-1670; <dstout@nsf.gov>)

Carter Kimsey
Directorate for Biological Sciences (703-306-1469; <ckimsey@nsf.gov>)

Anthony Maddox
Directorate for Computer and Information Science and Engineering (703-306-1981; <amaddox@nsf.gov>)

Wyn Jennings
Directorate for Education and Human Resources (703-306-1696; <pjenning@nsf.gov>)

Mary Poats
Directorate for Engineering (703-306-1380; <mipoats@nsf.gov>)

Michael Mayhew
Directorate for Geosciences (703-306-1557; <mmayhew@nsf.gov>)

Henry Blount
Directorate for Mathematics and Physical Sciences (703-306-1946; <hblount@nsf.gov>)

Steven Breckler
Directorate for Social, Behavioral, and Economic Sciences (703-306-1728; <sbreckle@nsf.gov>)

Fae Korsmo
Office of Polar Programs (703-306-1029; <fkorsmo@nsf.gov>)

OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding opportunities for research and education in science, mathematics, and engineering. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter. Beginning in fiscal year 1999, the *Guide* will only be available electronically. It is accessible at the NSF Web site <<http://www.nsf.gov/>>. The direct URL for the *Guide* is <<http://www.nsf.gov/cgi-bin/getpub?gp>>. Many NSF programs offer announcements concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices listed in Appendix A of the GPG.

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 also available electronically at the NSF Web site. The direct URL for the most recent issue of the *E-Bulletin* is <<http://www.nsf.gov/home/ebulletin/>>. Subscribers can also sign up for NSF's Custom News Service to find out what funding opportunities are available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees 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 (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) 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 program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation regarding NSF programs, employment, or general information. TDD may be accessed at (703) 306-0090 or through FIRS on 1 (800) 877-8339.

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 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.

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: Reports Clearance Officer; Information Dissemination Branch, DAS; National Science Foundation; Arlington, VA 22230.

YEAR 2000 REMINDER

In accordance with Important Notice No. 120 dated June 27, 1997, Subject: Year 2000 Computer Problem, NSF awardees are reminded of their responsibility to take appropriate actions to ensure that the NSF activity being supported is not adversely affected by the Year 2000 problem. Potentially affected items include: computer systems, databases, and equipment. The National Science Foundation should be notified if an awardee concludes that the Year 2000 will have a significant impact on its ability to carry out an NSF funded activity. Information concerning Year 2000 activities can be found on the NSF web site at <<http://www.nsf.gov/oirm/y2k/start.htm>>.