

Advanced Technological Education (ATE)

Program Solicitation

NSF 05-530

Replaces Document(s):

NSF 04-541



National Science Foundation

Directorate for Education & Human Resources

Division of Undergraduate Education

Division of Elementary Secondary & Informal Education

Preliminary Proposal Due Date(s):

April 26, 2005

April 25, 2006

Preliminary proposals are optional, but strongly recommended, especially for institutions or departments that have not previously submitted to the ATE program. Please see the full text of this solicitation for further information.

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

October 18, 2005

October 12, 2006

REVISION NOTES

In furtherance of the President's Management Agenda, in Fiscal Year 2006, NSF has identified programs that will offer proposers the option to utilize Grants.gov to prepare and submit proposals, or will require that proposers utilize Grants.gov to prepare and submit proposals. Grants.gov provides a single Government-wide portal for finding and applying for Federal grants online.

In response to this program solicitation, proposers may opt to submit proposals via Grants.gov or via the NSF FastLane system. In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

Changes in the ATE program solicitation for FY2006 and FY2007 include:

1. The Articulation Partnerships track has been eliminated, and most activities previously supported under this track have been incorporated into the projects track.
2. Technical experiences for students and laboratory development are included in program improvement, rather than as separate activities.
3. Teacher preparation activities have been redesigned to focus on technology education for K-12 preservice teachers.
4. Large scale teacher preparation has been eliminated, but the maximum amounts have been increased for teacher preparation activities under projects.
5. Regional centers can be in any technological field supported by the program.
6. In addition to those national centers that focus on a particular field of technology, the ATE program will also consider proposals for national centers that have deep relevance to technician education in multiple fields.
7. Preliminary proposals are optional for all tracks.
8. The limit for equipment requests has been increased from \$100,000 to \$150,000. The \$150,000 limit applies to projects and centers.
9. Information on award size is included under award information, rather than in the program descriptions.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Advanced Technological Education (ATE)

Synopsis of Program:

With an emphasis on two-year colleges, the Advanced Technological Education (ATE) program focuses on the education of technicians for the high-technology fields that drive our nation's economy. The program involves partnerships between academic institutions and employers to promote improvement in the education of science and engineering technicians at the undergraduate and secondary school levels. The ATE program supports curriculum development; professional development of college faculty and secondary school teachers; career pathways to two-year colleges from secondary schools and from two-year colleges to four-year institutions; and other activities. A secondary goal is articulation between two-year and four-year programs for K-12 prospective teachers that focus on technological education. Additionally, the program invites proposals focusing on applied research relating to technician education.

Cognizant Program Officer(s):

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

- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 60

Anticipated Funding Amount: \$39,000,000 in FY2006 and in FY2007, subject to the availability of funds

Eligibility Information

Organization Limit:

None Specified

PI Limit:

An individual may serve as the Principal Investigator (PI) on no more than one proposal submitted for each deadline date, but may serve as a co-PI on multiple proposals. Please see the full text of this solicitation for additional information.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- Full proposals submitted via FastLane:
 - Grant Proposal Guide (GPG) Guidelines apply
- Full proposals submitted via Grants.gov:
 - NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf>) To obtain copies of the Application Guide and Application Forms Package: click on the Apply tab on the Grants.gov website, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations:**

In all planning grants, indirect costs may not exceed 10 percent of modified total direct costs.

- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this announcement for further information.

C. Due Dates

- **Preliminary Proposal Due Date(s):**

April 26, 2005

April 25, 2006

Preliminary proposals are optional, but strongly recommended, especially for institutions or departments that have not previously submitted to the ATE program. Please see the full text of this solicitation for further information.

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

October 18, 2005

October 12, 2006

Proposal Review Information Criteria

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

Award Administration Information

Award Conditions: Standard NSF award conditions apply

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this announcement for further information.

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I. INTRODUCTION

The Advanced Technological Education (ATE) program promotes improvement in the education of science and engineering technicians at the undergraduate and the secondary school levels. Proposals to the program may aim to affect either specialized technology courses or core science, mathematics, and technology courses that serve as prerequisites or corequisites for specialized technology courses. The curricular focus and the activities of all projects should demonstrably contribute to the ATE program's central goals: producing more science and engineering technicians to meet workforce demands, and improving the technical skills and the general science, technology, engineering, and mathematics (STEM) preparation of these technicians and the educators who prepare them.

The ATE program focuses on two-year colleges and expects two-year colleges to have a leadership role in all projects. Effective technological education programs should involve partnerships between two-year colleges, four-year colleges and universities, secondary schools, business, industry, and government, and should respond to employers' need for well-prepared technicians with adaptable skills.

The nation's economic prosperity hinges on the fields served by the ATE program. Many of these fields also play a vital role in national security. Fields of technology supported by the ATE program include, but are not limited to, agricultural technology, biotechnology, chemical technology, civil and construction technology, computer and information technology, cybersecurity and forensics, electronics, environmental technology, geographic information systems, manufacturing and engineering technology, marine technology, multimedia technology, nanotechnology, telecommunications, and transportation technology. The ATE program generally does not support projects that focus primarily on students who will become health, veterinary, or medical technicians.

Activities undertaken in ATE projects in support of technician education may include:

- adaptation of exemplary educational materials, courses, and curricula developed elsewhere;
- professional development of college faculty and secondary school teachers;
- design and implementation of new educational materials, courses, laboratories, and curricula;
- internships and field experiences for students, faculty, and teachers;
- evaluation and broad dissemination of exemplary educational materials and pedagogical strategies;
- programs between two-year colleges and four-year institutions for prospective future K-12 teachers that focus on technological education;
- career pathways for technicians from two-year college programs to four-year institutions; and
- research on the effectiveness of various approaches or practices in technician education.

Activities may have either a national or a regional focus, but not a purely local one. All projects must be guided by a coherent vision of technological education--a vision that recognizes students as life-long learners together with the needs of the modern workplace and the articulation of educational programs at different levels. The program especially encourages efforts that

- give prospective technicians insight into real-world work environments;
- serve the needs of not only first-time students but also returning students and workers wishing to acquire new skills;
- implement national science, mathematics, technology, and industry standards in education;
- use information technology and other educational technologies to improve learning and teaching; and
- link educators and educational programs in two-year colleges, four-year colleges and universities, secondary schools, business, industry, and government.

The nation's technological future depends not only on highly qualified technicians, engineers, and scientists, but also on K-12 teachers who are technologically literate and have been exposed to the range of advanced technologies of the modern workplace and supported by the ATE program. The Standards for Technological Literacy (ITEA, <http://www.iteawww.org/>) calls for students to learn about technology in laboratories and classrooms where they develop practical design and problem-solving skills in the context of real world technological examples. Because many of the nation's teachers begin their professional education and complete a significant portion of their required STEM course work in two-year colleges, the

resources of these institutions must be utilized fully if the national need for a teaching force well-prepared in technology is to be met. (See the report *Investing in Tomorrow's Teachers: The Integral Role of Two-Year Colleges in the Science and Mathematics Preparation of Prospective Teachers* [NSF 99-49].) Thus the ATE program welcomes proposals for enhancing STEM programs for future teachers in community colleges and developing comprehensive articulation agreements and joint programs between two-year and four-year institutions designed to strengthen the broad range of technological knowledge and skills of future K-12 teachers.

2005 is the 12th year of the ATE program. Over 600 ATE projects have been supported to date and provide a base upon which future ATE projects should build. Information about these projects can be found on the ATE web site (<http://www.nsf.gov/ATE>). In addition, a large-scale evaluation of the ATE program has been performed by the Evaluation Center at Western Michigan University and includes several research studies on best practices in technician education. Proposers should visit <http://www.wmich.edu/evalctr/ate/> for information on evaluation and best practices and build proposals on this evaluation and research base.

II. PROGRAM DESCRIPTION

A. PROGRAM TRACKS

The ATE program supports proposals in two major tracks: ATE Projects and ATE Centers. Proposals in both tracks should demonstrate a thorough awareness of previous relevant ATE grants, research in effective technician education, and contemporary developments in the relevant field(s) of technology. Whenever feasible, projects should utilize and innovatively build from successful educational materials, courses, curricula, strategies, and methods that have been developed through other ATE grants, as well as other exemplary resources (including those not supported by NSF) that can be adapted to technological education. Proposers should contact the Principal Investigators (PIs) of previously funded projects to explore the possibilities for adapting materials, evaluating materials, receiving guidance, or collaborating in other ways, such as conducting research projects which focus on the effectiveness of technician education.

The ATE program encourages partnerships in which two-year colleges work with secondary schools and four-year colleges or universities to develop, implement, and evaluate model programs for technicians and future teachers that focus on technological education.

1. ATE Projects

ATE Projects focus on one or more of the activities described below. Multifaceted projects that cut across these activity categories are encouraged. The ATE program also supports a small number of conferences, workshops, and special projects that lead to a better understanding of issues in advanced technological education. Typically, these are short-duration events and are national or international in scope.

Program Improvement : These projects should increase the relevance of technician education to modern practices and assure an increased number of students entering the high performance workplace with enhanced competencies. Proposed activities should enhance a curriculum in multiple ways, producing a coherent sequence of classes, laboratories, and work-based educational experiences that revitalize the learning environment, course content, and experience of instruction for students preparing to be science and engineering technicians. Employers must be involved, and the resulting program should constitute a model that will be disseminated broadly. The improved program should lead students to an appropriate associate degree or specific occupational competency or certification embedded in an associate degree program, provide business and industry and public sector agencies with a larger pool of skilled technicians, and induce an increased proportion of students who enroll to complete programs. Components of the program improvement process might include:

- integrating industry standards and workplace competencies into the curriculum;
- adapting educational materials or courses developed elsewhere;
- adding rigorous STEM content to technician courses and programs;
- incorporating work-based experiences;
- developing innovative methods for using laboratory and field experiences to improve students' understanding of basic principles and the modern workplace;
- using modern instrumentation and new technologies;
- incorporating appropriate pedagogical approaches;
- providing professional development for educators;
- improving articulation between programs at secondary schools and two-year colleges,
- providing pathways to four-year college or university programs;
- using appropriate assessment instruments to measure student learning, and

- improving the recruitment and retention of students.

Professional Development for Educators: The ATE program supports projects that provide current secondary school teachers and college faculty with opportunities for continued professional growth in areas that directly impact technician education. These projects should be designed to enhance the educators' disciplinary capabilities, teaching skills (including skills in using information technology and other educational technologies to enhance instruction), vitality, and understanding of current technologies and practices. Activities typically include workshops, intensive seminars, industrial internships, or a combination of these. Such activities typically last from a few days to several weeks and are usually conducted in the summer, with follow-up activities during the academic year. To effect long-term change, these projects should normally span at least two academic years. The program particularly encourages activities that involve secondary school teachers and two-year college faculty working together. Evaluation should demonstrate use in the classrooms and changes in practice of participating faculty and teachers.

Curriculum and Educational Materials Development (for National Dissemination): Proposed activities should affect the learning environment, course content, and experience of instruction for students preparing to be science and engineering technicians and for their teachers. Projects develop new print, electronic, and multimedia materials, including simulations, scenarios, and web-based collections as well as laboratory experiments and manuals. It is expected that products will be developed with input from business, industry, and government, validated by experts from these organizations, field tested in diverse locations, and validated in terms of their effectiveness in meeting learning goals.

The ATE program also anticipates funding a few Large Scale Materials Development (LSMD) projects. These projects may target course sequences or multiple courses that are integrated and taken concurrently or major changes in teaching strategies. They should be research-based, build upon cognitive science, leverage existing resources, and respond to documented national needs. Materials may be pilot tested locally, but field tests should be done in diverse locations. Evaluation must include measures of increased student learning of content and processes and have input from employers. A realistic national dissemination strategy must be described.

Teacher Preparation: These projects help to prepare a future K-12 teaching workforce that understands the technological workplace and can prepare students to use a variety of approaches to solving real world technology related problems using design processes and principles. (See *Standards for Technological Literacy*, ITEA, <http://www.iteawww.org/>). Classes and programs for future teachers may focus on agricultural technology, biotechnology, energy and power technologies, information and communications, transportation, manufacturing, construction, or any other technology fields supported by the ATE program. A project may be designed to prepare either (a) future middle and high school technology teachers that also have strong backgrounds in mathematics and science or (b) future K-12 mathematics and science teachers who understand how processes and principles of technology may be used to help students learn material and reinforce concepts presented in mathematics, science, and computer classrooms.

Projects must involve both two-year and four-year institutions and should aim to increase the number, quality, and diversity of prospective K-12 science, mathematics, or technology teachers in pre-professional or paraprofessional programs at two-year colleges. These programs are designed to improve the prospective teachers' technological understanding; to provide them with experiences to use in engaging students in real world technological problems; to improve their understanding of the modern workplace; and to strengthen their preparation in science and mathematics (since science and mathematics provide critical underpinnings for advanced technological education). Paraprofessional programs should provide pathways to a four-year degree. Two-year colleges have the unique advantage of having technology faculty, connected with the high performance workplace, who can work with mathematics and science faculty in developing and teaching these programs.

Projects should focus on activities such as recruiting students, improving systems for advising and mentoring, adapting and developing high-quality technology materials, engaging pre-service and in-service teachers in joint activities, providing internships and research experiences for preservice teachers in technology-rich settings, and connecting two-year college programs for prospective teachers with other organizations (such as businesses, industry, public sector agencies, laboratories, professional societies, and museums) that have a stake in technology education. Collaborations among teacher educators and STEM faculty involved in technological education projects or centers such as those supported through the ATE program are of particular interest.

The project's evaluation plan must include metrics for the recruitment of prospective K-12 teachers, the transfer of those students into four-year teacher preparation programs and entry into the teaching workforce, their understanding of advanced technologies used in the workplace, and their ability to improve the technological literacy of their students. Project leaders should also be prepared to contribute to longitudinal studies that track students beyond the grant period, in order to measure the number who graduate with teaching credentials, find positions in K-12 schools, and demonstrate successful performance in the classroom.

Research on Technician Education: The ATE program is committed to supporting research that adds to the knowledge base needed to enhance the effectiveness of technician education programs at the national level. Research studies may be included as a part of the program of work of proposed ATE projects and centers. Research studies may also be independent

efforts that build on the experiences of completed projects or from questions that have been identified in prior ATE projects. These studies should address the unique challenges and opportunities posed by the broad variety of technician education programs, the diversity of two-year colleges that offer them, and the diversity of students in them. Research studies must address the concerns of technician educators and describe how the results will inform practices in technician education programs.

The ATE program is particularly interested in research studies in technician education on such topics as:

- recruiting and retaining students;
- increasing diversity in technician education programs;
- providing definitive career pathways from secondary schools through community colleges (and universities) to successful employment as science and engineering technicians;
- assessing the dimensions of student learning;
- applying adult learning theory in the continuing education of technicians; and
- outcomes of technician education in terms of roles, responsibilities, and rewards for science and engineering technicians who complete the respective levels of preparation and who are employed in such specialties as biotechnology, manufacturing, or information technology.

Institution-Level Reform of Technician Education: Because many institutions need to undertake substantial reform of technician education programs to meet contemporary challenges, the ATE program offers grants for *planning efforts* leading to *Institution Level Reform of Technician Education (ILRTE)*. These planning grants enable institutions to reformulate, streamline, and update the content and pedagogy of technician degree programs at their institutions to meet the emerging educational needs of employers. Focusing on technician programs, ILRTE proposals should be designed to transform the organizational structure, policies and procedures, and curricula; strengthen faculty; and enhance connections with employers to better position the college to meet the needs of its constituencies. At this time, ATE does not plan to fund full development awards as it is expected that the institution will use its own resources to carry out needed activities and reforms, although results of these planning grants may be used as the basis for other types of ATE projects.

Proposals may pursue a range of activities related to contemporary issues and changes facing technician education such as

- addressing the knowledge, skills, and competencies needed for the evolving, converging, and emerging technical workplace;
- providing educational opportunities for an increasingly diverse student body;
- strengthening the academic potential of under-prepared students coming to the college;
- developing life-long career and educational pathways for technicians to support the changing workplace;
- building faculty leadership potential;
- dealing with fiscal constraints;
- incorporating global issues and international technological and business practices into technical programs, and
- establishing a continuous improvement system.

ILRTE proposals require a letter of commitment from the Chief Academic Officer at the institution. Participation by academic administrators and significant faculty involvement on the leadership team are essential and expected. Institutions should be prepared to participate in separately funded studies of ILRTE projects.

2. ATE Centers

ATE Centers are national or regional resources that provide models and leadership for other projects and act as clearinghouses for educational materials and methods. They are typically cooperative efforts involving two-year colleges, four-year colleges and universities, secondary schools, business, industry, and government. Proposals for centers must clearly articulate a vision of technological education for the future and must describe a workable plan for achieving that vision during the period of NSF funding and for sustaining it afterwards. Proposals for ATE centers should be based on a three-pronged alliance of support from (1) NSF, (2) the proposing educational institution or consortium, and (3) employers.

The ATE program also offers planning grants for centers. (See Section IV. Award Information and Section V. Proposal Preparation and Submission Instructions for further information.)

National Centers of Excellence: National Centers should focus on the comprehensive reform of technological education in fields that are central to maintaining the economic competitiveness of the United States. Although National Centers vary in the technological fields that they address, they must have major national impact and visibility. Typically, they focus on a particular field of technology; but the ATE program will also consider proposals for centers that focus on pedagogical issues, core STEM disciplines, or related concepts that have deep relevance to technician education in multiple fields. A National Center should catalyze a broad national network of academic institutions and industrial entities that are interested in a particular area of technology. While the participating organizations should have a national distribution, the center might also

encompass several regional partnerships that collaborate to improve technological education.

A National Center should develop high-quality programs and curricula that reflect the modern technological workplace; provide professional development for educators to support the utilization of these resources; and disseminate and market educational products and services to a national audience through commercial publishers, journals, conferences, workshops, electronic networks, and other means. National Centers typically exhibit the following characteristics:

- a carefully articulated mission that advances the ATE program's mission and emphases;
- broad national outreach and community-building among educational institutions, employers, professional and trade associations, educators, and practicing technicians concerned with the relevant area(s) of technology;
- strong collaboration of educational institutions with employers;
- utilization, creation, or enhancement of skill standards;
- attention to core STEM courses that provide a foundation for technical degree programs;
- articulation of courses and programs between secondary schools, two-year colleges, and four-year colleges and universities;
- specific strategies for recruiting, retaining, and placing students (including students from groups underrepresented in STEM fields), and effective mechanisms for measuring gains in recruitment, retention, and placement;
- evaluation of the center's products and services and their impact on student learning, and of the center's impact on employers and on the institutions that manage the center; and
- a realistic plan for achieving sustainability and institutionalization of key center functions following the period of NSF funding.

Regional Centers of Excellence: Regional Centers should focus on a particular field of technology and have a clear, measurable impact on the workforce and economy in a logically defined geographic region. Regional Centers are cooperative efforts between the region's employers and academic institutions and should be designed so that the relationships developed during the grant period are institutionalized. Although a Regional Center may have some national impacts, the mission, structure, activities, and products of a Regional Center should be carefully designed to fit the region's particular characteristics and needs in the relevant field of technology. When possible, the Center's activities should be coordinated with local, regional, and statewide economic development strategic plans. Regional Centers are expected to focus mainly on reforming academic programs to produce a greater number of highly qualified workers who meet regional workforce demands and who also meet national industry and academic skill standards.

A Regional Center should normally undertake a wide range of activities associated with program improvement and professional development for educators, as described in Section II.A.1 ("ATE Projects") above. Normally, the development of new educational materials is not a mission of a Regional Center, but the collection, adaptation, and implementation of existing exemplary materials is a common activity. The center should lead systemic reform at all or most of the academic institutions in the region, engaging a large number of the region's college faculty and secondary school teachers in the relevant discipline(s). The center must have mechanisms for measuring the number and quality of students who are recruited, achieve competencies in relevant areas, receive industry certifications (when relevant), participate in internships, graduate, and find appropriate employment. The center must also have high visibility and support at the collaborating educational institutions. Center leaders should be prepared to contribute to longitudinal studies that examine students' performance in the workplace and measure employers' satisfaction with graduates.

In past years, proposals for Regional Centers were expected to focus on information technology or manufacturing. This year, proposals for Regional Centers are invited in any field of technology normally supported by the ATE program. However, all proposals must present a strong case for the regional economic significance of the chosen technological field.

Resource Centers: Resource Centers should constitute a highly visible source of educational materials, ideas, contacts, and mentoring in a particular field of technological education, and the leaders of these centers should have already made substantial, high-quality contributions in an area of technological education. Resource Centers (1) serve as clearinghouses for, and broadly distribute, the exemplary materials, curricula, and pedagogical practices adapted or designed by previously funded ATE centers and projects and (2) provide support and mentoring for institutions that wish to start or improve educational programs in a particular field of technology. Generally, only ATE national or regional centers and exemplary ATE projects that have already completed their original grants are well-positioned to become Resource Centers.

B. INFORMATION ABOUT PREVIOUS AWARDS

- DUE's web-based Project Information Resource System contains award abstracts and a variety of additional information provided directly by Principal Investigators. (https://www.ehr.nsf.gov/pirs_prs_web/search/)
- NSF's web site (<http://www.nsf.gov>) provides an Awards Search feature that allows customized searches of NSF's award database.

III. AWARD INFORMATION

NSF anticipates that approximately \$39,000,000 will be available for this program in FY2006 and FY2007. The program expects to make approximately 60 new awards per year. Grants may be awarded in a wide variety of sizes and durations, as summarized below. The actual number of awards and the award sizes are subject to the availability of funds and the quality of proposals received.

Anticipated number, size, and duration of new awards:

- *ATE Projects*: approximately 50 new awards, ranging from \$25,000 to \$300,000 per year and having a duration of up to three years, except for Large Scale Materials Development (LSMD) projects, which are limited to \$500,000 per year for four years, and planning grants for Institution-Level Reform of Technician Education (ILRTE), which are limited to \$150,000 (total) over two years.
- *National Centers of Excellence*: up to two new awards for up to \$5 million (each) spread over four years, with the possibility of renewal, at a lower level of funding, for an additional three years.
- *Regional Centers of Excellence*: up to four new awards for up to \$3 million (each) spread over four years, with the possibility of renewal, at a lower level of funding, for an additional three years.
- *Resource Centers*: up to four new awards for up to \$1.5 million (each) spread over four years with the possibility of renewal for an additional four years.
- *Planning Grants for Centers*: up to five new awards for up to \$70,000 (each) to develop well-formulated plans for future national or regional centers (see Section V.A ["Proposal Preparation"] for additional information).

IV. ELIGIBILITY INFORMATION

Organization Limit:

None Specified

PI Limit:

An individual may serve as the Principal Investigator (PI) on no more than one proposal submitted for each deadline date, but may serve as a co-PI on multiple proposals. Please see the full text of this solicitation for additional information.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

Additional Eligibility Info:

The categories of proposers identified in the Grant Proposal Guide (Chapter 1, Section C) are eligible to submit proposals under this program solicitation. Two-year colleges and other associate degree-granting institutions are especially encouraged to submit proposals, and all proposals are expected to include one or more two-year colleges in a leadership role. A proposal from an informal consortium of institutions should be submitted by one member of the consortium; a proposal from a formal consortium--such as a community college system or school district--should be submitted by the consortium.

An individual may serve as the Principal Investigator (PI) on no more than one proposal submitted for each deadline date, but may serve as a co-PI on multiple proposals.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program 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. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF 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.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (<http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf>). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

When preparing proposals (both preliminary and full), proposers should follow the GPG's guidelines for format and content except where the instructions below specifically allow a departure from the GPG. The following guidance on particular sections of the proposal supplements the guidance found in GPG, Chapter II, Section C.

- Cover Sheet: In FastLane, take special care to select the correct "Program Announcement/Solicitation No."; this number can be found at the beginning of this document. If the proposal is for a planning grant, begin the project title with the words "Planning Grant for...." (See information on planning grants below.)
- Project Data Form: The information on this form is used to direct the proposal to appropriate reviewers and to determine the characteristics of NSF-supported projects. Take special care to identify the proper track for your proposal in Item 1 on the form. For any audience code(s) marked in Item F (e.g., women, minorities, persons with disabilities), include in the Project Description a substantive discussion of the specific strategies that the project will employ to affect the audience(s). Note: In FastLane, the Project Data Form will show up in the list of forms for your proposal only after you have (1) selected the correct Program Announcement/Solicitation No. on the Cover Sheet and (2) saved the Cover Sheet.
- Project Summary: The one-page Project Summary should clearly indicate, in the first few sentences, the disciplinary focus (or foci) of the proposed project, the kinds of activities to be undertaken (e.g. educational materials development, adaptation and implementation, professional development for educators), and the primary audience to be affected by those activities (e.g., two-year college students, high school students, two-year college faculty members). This information is used to assign the proposal to a panel for review. **Proposers are reminded that the Project Summary must explicitly address, in separate statements, both NSB-approved merit review criteria; the statements should contain the phrases "intellectual merit" and "broader impacts." Preliminary or full proposals that do not separately address both merit review criteria within the one-page Project Summary will be returned without review.**
- Project Description (including Results from Prior NSF Support): While the minimum font size allowed is 10 point (no more than 15 characters per 2.5 cm), the ATE program strongly recommends that proposers use 11 or 12-point,

standard font (e.g., Times New Roman, Times, or Arial) to ensure readability. In preliminary proposals, the length of the Project Description is limited to 6 pages (single-spaced). In full proposals, the length is limited to 15 pages (single-spaced). The Project Description should explain the project's motivating rationale, goals, objectives, deliverables, and activities; the timetable; the management plan; the roles and responsibilities of the PI, co-PI(s), and other senior personnel; the plan for sustainability after the period of NSF funding; the evaluation plan; the dissemination plan; and results from evaluations of prior NSF support. The subsection on Results from Prior NSF Support should only cover awards pertaining to education; describe research awards only if they have a direct bearing on the new proposal. **If the proposed project is based on previously funded work, the proposal must thoroughly describe the results of the prior project, demonstrate that the project achieved its objectives, and provide evidence of the quality and effectiveness of the project's deliverables.** (Appendices may also be used, subject to the constraints indicated below, to illustrate prior work.) For information about effective approaches to evaluation, see the following resources:

- The 2002 User-Friendly Handbook for Project Evaluation ([NSF 02-057](#))
- User-Friendly Handbook for Mixed Method Evaluations ([NSF 97-153](#))
- Online Evaluation Resource Library for NSF's Directorate for Education and Human Resources (<http://oerl.sri.com/>)
- Field-Tested Learning Assessment Guide (FLAG) for Science, Math, Engineering, and Technology Instructors (<http://www.flaguide.org/>)
- References Cited: Any literature cited should be specifically related to the proposed project, and the Project Description should make clear how each reference has played a role in the motivation for or design of the project. Any relevant literature on research in teaching and learning should be cited.
- Budget: A Budget Justification of up to three pages must accompany the budget forms and provide details about budget line items. This includes justification for the subawards. Except for preliminary proposals, proposals that involve subawards should include subaward budgets. Note: Because this program solicitation does not require cost-sharing, proposers are advised not to include any cost-sharing on Line M of the proposal budget. Line M should be "0".
- Special Information and Supplementary Documentation and Appendices: In preliminary proposals, these sections may not be included. In formal proposals, they are optional. If included, these sections must be concise and relevant. Reviewers will be strongly encouraged to disregard any supplementary documentation or appendix material in excess of 30 pages. These sections might include, for example, letters of commitment, a sample of previously developed (relevant) educational materials, a published review of such materials, or a draft of a proposed unit or module. Letters of commitment should document collaborative arrangements or pledge resources of significance to the proposal. Letters that merely endorse the proposal or offer nonspecific support for project activities should not be included. FastLane's Supplementary Documents function should be used to upload these sections as one or more PDF files. Note that any letters must be obtained in or converted to electronic format; if necessary, electronically scan paper documents and convert them to PDF. (Proposers should not send videotapes, computer diskettes, CD-ROMs, slides, books, etc., as appendices or supplements to a proposal.)
- Because proposals submitted in response to this solicitation will be reviewed by panel review instead of mail review, there is no need for proposers to submit a list of suggested reviewers unless an NSF program officer specifically requests it.

Planning Grants: A proposal for a planning grant for an ATE Center or Institution Level Reform of Technician Education (ILRTE) should clearly describe the activities that will take place during the planning period. It should also provide details about the workforce demands that the planning grant will address, the organizations and departments that will be (or will likely be) partners in the project, the core faculty members or administrators who will manage the project, and the criteria that will be used to judge the proposer's readiness to form an ATE center or have the institution carry out the recommended institutional activities at the end of the planning period. The proposal should also outline plans for identifying and enlisting faculty and representatives from business, industry, or public sector agencies to provide intellectual leadership for the project's various activities. Planning-grant proposals need not present elaborate plans for evaluation and dissemination.

Certain special types of proposals described in the GPG--i.e., Small Grants for Exploratory Research (SGER) proposals (see GPG, Chapter II, Section D.1), Equipment Proposals (see GPG, Chapter II, Section D.4), and Accomplishment-Based Renewal (ABR) proposals (see GPG, Chapter V, Section B.2)--are not appropriate for the ATE program. Collaborative Proposals (see GPG, Chapter II, Section D.3) should in most cases be submitted as a single proposal. Under unusual circumstances, Collaborative Proposals involving the simultaneous submission of proposals from different organizations will be accepted in the formal proposal cycle. The collaborating organizations must exactly follow the instructions for electronic submission specified in GPG, Chapter II, Section D.3.b. The project titles of the related proposals must be identical and must begin with the words "Collaborative Project," and the combined budgets of the related proposals should conform to the typical award sizes specified in this solicitation. These simultaneous Collaborative Proposals will be treated as a single proposal (with a single Project Summary, Project Description, and References Cited) during the review process.

B. Budgetary Information

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

Indirect Cost (F&A) Limitations:

In all planning grants, indirect costs may not exceed 10 percent of modified total direct costs.

Other Budgetary Limitations:

Funds requested for equipment or instrumentation (computers, computer-related hardware, software, laboratory or field instrumentation, and scientific or industrial machinery) must not exceed \$150,000. NSF funds may not be used to support expenditures that would normally be made in the absence of an award, such as costs for routine teaching activities (including curriculum development) and laboratory upgrades.

NSF project funds may not be used for:

- equipment or instrumentation that is not mainly for use in the project;
- replacement equipment or instrumentation that does not significantly improve instructional capability;
- teaching aids (e.g., films, slides, projectors, "drill and practice" software);
- vehicles, laboratory furnishings, or general utility items such as office equipment (including word-processing equipment), benches, tables, desks, chairs, storage cases, and routine supplies;
- maintenance equipment and maintenance or service contracts;
- the modification, construction, or furnishing of laboratories or other buildings;
- the installation of equipment or instrumentation (as distinct from the on-site assembly of multicomponent instruments--which is an allowable charge).

Workshops: In proposals that involve professional development workshops, it is generally expected that the home institutions of the participants will bear the cost of travel to and from the workshop. However, some travel costs may be included in project budgets. Costs for subsistence (lodging and meals) during the workshop may be included. In addition, funds may be requested for a stipend of up to \$100 per workshop day for participants; requests for such stipends must be specific to the target audience and must be fully justified--for example, to assure participation by faculty with few professional development opportunities or from resource-poor institutions.

The use of NSF funds to hire substitute teachers is allowed under the following conditions: (1) it is necessary to meet the goals and objectives of the project; and (2) it can be documented that the substitute teachers are directly replacing teachers participating in the NSF-funded project. Substitute teachers should be paid in accordance with established school district policies, and in lieu of paying the teachers participating in the project. Records must be maintained on the hiring and use of substitutes.

Note that indirect costs may not be charged on participant support costs.

Extra Compensation Above Base Salary. ATE provides for extra compensation above base salary only for special situations such as teaching evening or weekend classes or workshops. Further, the extra compensation shall be computed at a rate not in excess of the monthly rate of the base academic year salary. Awardees must disclose the intention to pay extra compensation above the base salary in the Budget Justification section of the grant proposal. This extra compensation above the base salary must still be approved by NSF. Permission to charge extra compensation, if granted, will be included by specific clause in the grant award letter.

National Visiting Committee: For centers and large projects (generally those requesting a total of \$850,000 or more), the budget should include provisions for a National Visiting Committee (NVC) to visit the project on an annual basis. An NVC is a group of experts who provide advice to the project staff, assess the plans and progress of the project (and make reports both to the project leadership and to NSF), and enhance the dissemination of the project's products. Typically, ATE Projects enlist four to six members for an NVC, and ATE Centers enlist eight to ten. After an award is made, an NSF program officer will work with the grantee to finalize NVC membership. But the proposal should address how the NVC will be used in the project. (Additional information describing the role of NVCs can be found at http://www.wmich.edu/evalctr/ate/NVC_Handbook_Final_ceh_10_09_03.pdf; information describing ATE Centers advisory boards can be found at <http://www.wmich.edu/evalctr/ate/adv-comm.html>.)

C. Due Dates

- **Preliminary Proposal Due Date(s):**

April 26, 2005

April 25, 2006

Preliminary proposals are optional, but strongly recommended, especially for institutions or departments that have not previously submitted to the ATE program. Please see the full text of this solicitation for further information.

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

October 18, 2005

October 12, 2006

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

Detailed technical 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 solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this 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/>

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: <http://www.grants.gov/CustomerSupport>. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program and, if they meet NSF proposal preparation requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that

reviewers have no conflicts with the proposer.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. 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 the reviewer is qualified to make judgements.

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:

For the ATE program, questions such as the following are often relevant to evaluating proposals in terms of NSF's merit review criteria.

Intellectual Merit

- Does the project have potential for improving student learning in science or engineering technician education programs?
- Are the goals, objectives, and outcomes and the plans and procedures for achieving them, worthwhile, well-developed, and realistic?
- Is the evaluation plan clearly tied to the project outcomes? Is the evaluation likely to provide useful information to the project and others?
- Is the rationale for selecting particular activities or components for development or adaptation clearly articulated and informed by and build on the research literature and the work of others?
- Does the project provide for effective assessment of student learning?
- Is the evidence of institutional support clear and compelling, and have plans for long term institutionalization been addressed?

Broader Impacts

- Does the project work with employers to address their current and future needs for technicians?
- Will the project evaluation inform others through the communication of results?
- Are the results and products of the project likely to be useful at other institutions?
- Are other educational institutions involved in project activities?
- Will the project's results be widely disseminated and will its products be distributed effectively and commercialized when appropriate?
- Does the project promote diversity in the technical workforce?

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by 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.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's 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 Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

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 also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). 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/home/grants/grants_gac.htm.

Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from

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/cgi-bin/getpub?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 Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Failure to provide the required annual or final project reports will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. 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. Such reports provide information on activities and findings, project participants (individual and organizational) 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. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete.

There are two special ATE reporting requirements. When ATE PIs submit interim, annual, and final reports through FastLane, they will be asked to provide information for the *Project Information Resource Systems* (PIRS). In addition, to assist NSF in evaluating the ATE program and meeting the reporting requirements of the Government Performance and Results Act of 1993, the PI must also respond annually to a survey that requests information about the number and characteristics of students and educators that have been affected by the project; the retention, graduation, and placement rates for students; the project's impact on workforce needs; awards and other measures of the quality of the project's products and activities; and other indicators of the project's effect on the quality and quantity of technicians being educated for the high-tech workplace. NSF will provide guidelines for the collection and reporting of data. (NSF may use an external evaluator to gather and analyze the data.)

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Gerhard L Salinger, Lead Program Director, 885 S, telephone: (703) 292-5116, fax: (703) 292-9044, email: gsalinge@nsf.gov
- Elizabeth J Teles, Lead Program Director, 835 N, telephone: (703) 292-8670, fax: (703) 292-9015, email: ejteles@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.
- Antoinette Allen, Computer Specialist, Division of Undergraduate Education, telephone: (703) 292-4646, email: duefl@nsf.gov

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, MyNSF (formerly the Custom News Service) is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. MyNSF also is available on NSF's Website at <http://www.nsf.gov/mynsf/>.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at <http://www.grants.gov>.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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 about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

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; and 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 proposer 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 or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; 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," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). 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 Office of Management and Budget (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 the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services
National Science Foundation
Arlington, VA 22230

