Advanced Technological Education (ATE)

PROGRAM SOLICITATION
NSF 07-530

REPLACES DOCUMENT(S):
NSF 05-530

National Science Foundation

Directorate for Education & Human Resources
Division of Undergraduate Education
Research on Learning in Formal and Informal Settings

Preliminary Proposal Due Date(s)*:*

April 26, 2007

April 24, 2008

April 23, 2009

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 11, 2007

October 16, 2008

October 15, 2009

REVISION NOTES

Preliminary Proposals. All preliminary proposals must be submitted via Fastlane.

Changes in the ATE program solicitation for FY2008, FY2009, and FY2010 include:

1. A new project's category "Small Grants for Institutions New to ATE" has been added for institutions that have not had an ATE award in the past 10 years.
2. Program Improvement within the ATE projects track has an expanded set of opportunities.
3. Institution-level reform projects should be submitted under program improvement.
4. Teacher preparation has been rewritten to broaden the types of projects that can be supported.
5. The Research on Technician Education activity under projects has been changed to Targeted Research on Technician Education and is now a third track of the ATE program.

Please be advised that the*NSF Proposal & Award Policies & Procedures Guide* (PAPPG) includes revised guidelines to implement the mentoring provisions of the America COMPETES Act (ACA) (Pub. L. No. 110-69, Aug. 9, 2007.) As specified in the ACA, each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review (see the PAPP Guide Part I: *Grant Proposal Guide* Chapter II for further information about the implementation of this new requirement).

As announced on May 21st, proposers must prepare and submit proposals to the National Science Foundation (NSF) using the NSF FastLane system at http://www.fastlane.nsf.gov/. This approach is being taken to support efficient Grants.gov operations during this busy workload period and in response to OMB direction guidance issued March 9, 2009. NSF will continue to post information about available funding opportunities to Grants.gov FIND and will continue to collaborate with institutions who have invested in system-to-system submission functionality as their preferred proposal submission method. NSF remains committed to the long-standing goal of streamlined grants processing and plans to provide a web services interface for those institutions that want to use their existing grants management systems to directly submit proposals to NSF.

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. The program also 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: 75

Anticipated Funding Amount: $46,000,000 each year in FY2008, FY2009, and FY2010, for both new and continuing ATE awards, subject to the availability of funds.

Eligibility Information

Organization Limit:

None Specified

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

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.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposals:** Submission of Preliminary Proposals is optional but encouraged. Please see the full text of this solicitation for further information.
- **Full Proposal Preparation Instructions:** This solicitation contains information that supplements the standard NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required under this solicitation.
- **Indirect Cost (F&A) Limitations:**

  In all planning grants for centers and small grants for institutions new to the ATE program, 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 solicitation for further information.

C. Due Dates

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

  April 26, 2007

  April 24, 2008

  April 23, 2009

  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 11, 2007

  October 16, 2008

  October 15, 2009

Proposal Review Information Criteria

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

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation 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 in which two-year colleges work with four-year colleges and universities, secondary schools, business, industry, and government, and should respond to employers' need for well-prepared technicians with adaptable skills.

Because the foundation of America's competitiveness is a well-educated and skilled workforce, the ATE program is a vital component of the American Competitiveness Initiative as the program prepares science and engineering technicians for the many fields on which the nation's prosperity hinges. Many of these fields also play a vital role in national security and sustainable energy production and management. 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 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;
- research on the effectiveness of various approaches or practices in technician education;
- 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; and
- career pathways for technicians from two-year college programs to four-year institutions.

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 with those in four-year colleges and universities, secondary schools, business, industry, and government; and
- provide insight on why projects work, with whom, and under what circumstances.

2007 is the 14th year of the ATE program. Almost 800 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 NSF web site (http://www.nsf.gov/) The ATE Centers maintain a website (http://www.atecenters.org/) that provides information about resources that projects may wish to adapt. DUE's Project Information Resource System (PIRS) allows proposers to search for awards made to the ATE program (https://www.ehr.nsf.gov/pirs_prs_web/search/) by technology field and year. 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 three major tracks: ATE Projects, ATE Centers, and Targeted Research in Technician Education. Proposals in all 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;
- addressing the knowledge, skills, and competencies needed for the evolving, converging, and emerging technical workplace;
- incorporating global issues and international technological and business practices into technical programs;
- providing professional development for educators;
- improving articulation between programs at secondary schools and two-year colleges, or providing pathways from two-year colleges to four-year college or university programs;
- developing life-long career and educational pathways for technicians to support the changing workplace;
- using appropriate assessment instruments to measure student learning,
- providing educational opportunities for an increasingly diverse student body; 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, 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 that build on smaller scale efforts whose success has been demonstrated through evaluation. 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. Such projects involve several diverse academic institutions, often bringing different kinds of expertise to the project. Evaluation activities are deep and broad, demonstrating the impact of the project on many students and faculty. Dissemination and outreach activities that have national impact are an especially important element of LSMD projects, as are the opportunities for faculty to learn how to best adapt project innovations to the needs of their students and academic institutions. Materials may be pilot tested locally, but field tests must be done at a wide range of academic institutions. Evaluation must include measures of increased student learning of content and processes and have input from employers.

Teacher Preparation: The foundation for advanced technological education is grounded in strong mathematics, science, and technology education in K-12 schools. The preparation of future teachers who will facilitate student learning in mathematics and science and cultivate an interest in technological careers is an important component of the ATE program. ATE teacher preparation projects help prepare a future K-12 teaching workforce that is skilled in teaching science and mathematics, 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.iteaconnect.org/.) A project may be designed to prepare either (a) 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 or (b) future middle and high school technology teachers that also have strong backgrounds in mathematics and science.

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.

The project's evaluation plan must describe how the effectiveness of efforts to recruit prospective K-12 teachers, transfer those students into four-year teacher preparation programs, enhance their understanding of advanced technologies used in the workplace, and enhance their ability to improve the technological literacy of their students will be measured. 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.

Small Grants for Institutions New to the ATE Program: The primary objective of this category of ATE Project grants is to increase the incentive and opportunity for community colleges that have little or no previous experience with the ATE program to undertake projects to improve science and engineering technician education programs or teacher preparation programs that focus on technological education. This small grants opportunity is designed to stimulate implementation, adaptation, and innovation in all areas supported by the ATE program and to broaden the base of community colleges participating in the program. Proposers are strongly encouraged to utilize resources developed by other ATE or other NSF awardees and to include people from these projects and centers as consultants and subawardees. The budget request for these proposals is limited to $150,000.

These projects strengthen the role of community colleges in meeting the needs for businesses and industries in the United States for a well-prepared technical workforce. Projects, even those that involve a local implementation, should address issues and produce results that have the potential for broad application in technician or teacher education. Typically, projects should address one or two components or activities listed in the "Program Improvement" or "Teacher Preparation" categories and should involve faculty members and students at one or a few academic institutions. Projects with a broader scope or larger scale may be proposed, provided they can be carried out effectively within the $150,000 budgetary limitation. It is expected that many of the funded projects in this category will serve as a prototype or first phase for an idea that may be expanded in a future proposal for an ATE project or center.

Only community college campuses that have not had an ATE award within the past 10 years may be the "performing organization" on a proposal in this category. It is acceptable for a system administrative office or other governing organization to submit the proposal and be the "awardee organization," even if that organization has received a previous ATE award. But the campus that is the "performing organization" must not have been the performing organization on an ATE award within the past 10 years and must be geographically distinct and have its own chief academic officer. (Note: Community colleges that have had an ATE award within the past 10 years and other institutions may still submit a proposal for a small project under the other categories of ATE Project grants.)

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 in which two-year colleges work with 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 III. 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 should establish collaborations with ATE projects in the same or related technological fields. 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 two-year colleges and secondary schools and between 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 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.

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 constitute a highly visible source of educational materials, ideas, contacts, and mentoring and have a national focus and a broad impact. Resource Centers may focus on a particular field of technological education or cut across several technology fields to promote best practices in areas such as recruitment, retention, curriculum development, teaching practices, and industry partnerships. 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 because leaders of these centers must demonstrate that they have already made substantial, high-quality contributions to technological education.

Resource Centers partner with business and industry, government agencies, professional societies; and academic institutions. They work on national initiatives to bring about systemic changes in the way students are prepared for our national technical workforce and to expand the role that community colleges play as agents of change towards this goal. Resource Centers typically undertake activities such as:

- providing support and mentoring for institutions that wish to start or improve educational programs in a particular field of technology;
- establishing and supporting additional industry, business and academic partnerships;
- organizing and offering professional development opportunities for educators;
- promoting technician careers and visibility and the public image in the field(s) on which the Center is focused;
- addressing technician knowledge, skills, and competencies needed for the evolving, converging, and emerging technical workplace; and
- screening, validating, updating, and broadly distributing exemplary materials, curricula, and pedagogical practices adapted or designed by ATE centers and projects and other appropriate sources.

3. **Targeted Research on Technician Education**

The ATE program supports targeted research on technician education, employment trends, the changing role of technicians in the workplace, and other topics that advance the knowledge base needed to make technician education programs more effective and more forward-looking. Employing rigorous standards of research and scholarship, project proposals should pose a research question or outline a topic of broad interest, survey previous research and scholarship on the issue, conduct original research and compile data, prepare cogent analyses, present conclusions, and describe how the results can inform practices in technician education programs. The results must be broadly disseminated to researchers and practitioners. Projects must represent a true collaboration--reflected in the activities, the leadership, and the budget--between well-qualified researchers and two-year college educators and, when appropriate, participants from four-year colleges and universities, secondary schools, business and industry, professional societies, and other non-profit organizations.

The following examples illustrate targeted research studies in which the ATE program is particularly interested:

- For specific high-technology fields supported by the ATE program (e.g., biotechnology, cybersecurity, nanotechnology),
    - what are the future trends of the roles of technicians, and how can technician education stay abreast of rapid advances in the field?
    - which components of technician education programs work (or don't work), with whom, why, and under what circumstances?
    - which educational strategies have proven most effective in improving student learning in these specific high technology fields? Can these strategies be translated to other fields of technology?
- Across multiple technology fields, what impacts have strategies such as project-based learning, particular recruiting and retention strategies, and remote laboratories had on

the effectiveness of technician education programs? What are the reasons for these impacts?
- How can stakeholders in technician education (e.g.; community colleges in collaborations with business and industry, government, economic development groups, four-year institutions, secondary schools, and professional societies) develop meaningful and mutually beneficial partnerships?
- What model educational programs and industry partnerships prepare students for sustained success in a technician career (as opposed to training for a specific job)? What are the characteristics of the employees who adapt most readily to an evolving technological work environment? What educational strategies develop such characteristics? What model educational programs and industry partnerships prepare students for sustained success in a technician career (as opposed to training for a specific job)?

The list above is not intended to be exhaustive; these topics should suggest a number of other interesting ones. Investigators who are interested in conducting a targeted research project are strongly encouraged to submit a preliminary proposal.

B. **INFORMATION ABOUT PREVIOUS AWARDS**

- DUE's web-based Project Information Resource System contains award abstracts and 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 $46 million each year will be available for this program in FY2008, FY2009, and FY2010. The program expects to make approximately 75 new awards per year. Grants may be awarded in a wide variety of sizes and durations, as summarized below. The categories below are expected to encompass most of the activities supported through the ATE program; however, additional activities and mechanisms may be proposed after consultation with an NSF program officer. 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 45 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.
- ATE small grants for institutions new to the ATE program: approximately 15 awards for up to $150,000 (each) typically spread over two years.
- National Centers of Excellence: up to 2 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 3 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 4 new awards for up to $1.6 million (each) spread over four years with the possibility of renewal.
- Planning Grants for Centers: up to 4 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).
- Targeted Research on Technician Education: approximately 5 to 8 new awards, ranging from $100,000 to $300,000 per year for up to 4 years.

IV. ELIGIBILITY INFORMATION

Organization Limit:

None Specified

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

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.

Additional Eligibility Info:

The categories of proposers identified in the Grant Proposal Guide (Chapter 1, Section E) 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 leadership roles. 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.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Preliminary Proposals:

Preliminary Proposal Deadline Dates: April, 26, 2007; April 24, 2008; and April 23, 2009

The submission of a preliminary proposal is optional, but strongly recommended, especially for institutions or departments that have not previously submitted to the ATE program. Preliminary proposals are read by experienced reviewers and NSF staff. On the basis of these readers' judgment of the likelihood that a full proposal based on the preliminary proposal could be successful in the formal peer review process, NSF will either encourage or discourage the submission of a full proposal. This is an advisory opinion only; a proposer may submit a formal proposal even if NSF recommends against it. Reviews of preliminary proposals should be available via FastLane approximately 10 weeks after the deadline date. These reviews provide comments to help proposers strengthen their ideas and project plans before submitting a full proposal.

Preliminary proposals must be submitted through FastLane. A preliminary proposal must include the following sections/forms:

- Cover Sheet: See description under Full Proposal Instructions below.
- Project Data Form: See description under Full Proposal Instructions below.
- Project Summary: See description under Full Proposal Instructions below.
- Project Description: See description under Full Proposal Instructions below. In preliminary proposals, the length of the Project Description is limited to 6 pages (single-spaced).
- References Cited: See description under Full Proposal Instructions below.
- Biographical Sketches: See description under Full Proposal Instructions below.
- Budget: See description under Full Proposal Instructions below. In preliminary proposals, budgets for subawards are not required.

A preliminary proposal may NOT include the following sections/forms:

- Current and Pending Support
- Facilities, Equipment, and Other Resources
- Special Information and Supplementary Documentation
- Appendices
- Budgets for subawards

Full Proposal Instructions: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the guidelines specified 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-PUBS (7827) or by e-mail from nsfpubs@nsf.gov.

All preliminary proposals must be submitted via the NSF FastLane System.

When preparing proposals (both preliminary and full), proposers should follow the standard NSF guidelines for format and content except where the instructions below specifically allow a departure from that guidance. The following instructions for particular sections of the proposal supplements the guidance found in the GPG.

- 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. (Supplementary documents 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)
  - 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 of the FastLane budget should be "0".
- Special Information and Supplementary Documentation: 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 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 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 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 must be submitted via FastLane and will be treated as a single proposal (with a single Project Summary, Project Description, and References Cited) during the review process.

Proposers are reminded to identify the program solicitation number (NSF 07-530) 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.

B. Budgetary Information

Cost Sharing: Cost sharing is not required under this solicitation.

Indirect Cost (F&A) Limitations:

In all planning grants for centers and small grants for institutions new to the ATE program, 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, 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 Centers enlist eight to ten members. The proposal should only include names of NVC members who have agreed to serve should an award be made. 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/piresources.htm.)

C. Due Dates

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

  April 26, 2007

  April 24, 2008

  April 23, 2009

  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 11, 2007

  October 16, 2008

  October 15, 2009

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this program solicitation through use of the NSF FastLane system. Detailed instructions regarding the technical aspects of proposal preparation and submission via FastLane are available at: http://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 funding opportunity.

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. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. 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 of interest with the proposal.

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, original, or potentially transformative 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?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

NSF staff also 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?
- Has an assessment of workforce needs for technicians been conducted?
- 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 deadline or target date, or receipt date, whichever is later. 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 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.B. 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 (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

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:

- Eileen L. Lewis, Lead Program Director, ATE, Division of Undergraduate Education, 835 N, telephone: (703) 292-4627, email: ellewis@nsf.gov
- Gerhard L. Salinger, Lead Program Director, ATE, Division of Research on Learning in Formal and Informal Settings, 885 S, telephone: (703) 292-5116, email: gsalinge@nsf.gov
- Linnea A. Fletcher, Co-Lead Program Director, ATE, Division of Undergraduate Education, 835 N, telephone: (703) 292-4634, email: lafletch@nsf.gov
- David B. Campbell, Co-Lead Program Director, ATE, Division of Research on Learning in Formal and Informal Settings, 885 S, telephone: (703) 292-5093, email: dcampbel@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 T. Allen, Information Technology Specialist, Division of Undergraduate Education, 835 N, telephone: (703) 292-4646, email: duefl@nsf.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, National Science Foundation Update is a free e-mail subscription service 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 when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

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: nsfpubs@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