Course, Curriculum, and Laboratory Improvement (CCLI)

Adaptation and Implementation (A&I) Track

National Science Foundation
Directorate for Education and Human Resources
Division of Undergraduate Education

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

December 04, 2003

REVISIONS AND UPDATES

The anticipated funding amount has been reduced from $18 million in FY2003 to approximately $12 million in FY2004.

Information about "Tagging Products for Dissemination and Retrieval" has been added to Section II ("PROGRAM DESCRIPTION").

An increased emphasis has been placed on making use of the research that is the basis for all efforts proposed and on encouraging projects to contribute to the research base, by highlighting this perspective in the Synopsis and adding a paragraph in Section I ("INTRODUCTION").

The following sentence has been aded to Section IV ("AWARD INFORMATION") for clarification purposes: "These amounts include indirect costs, and the upper limits include the total costs of projects carried out by collaborating organizations."

Although the requirement of a 1:1 match on equipment has been retained, the requirement of matching on non-equipment items--in particular, items of instrumentation costing less than $5,000--has been dropped. Language has been added to remind proposers that the Proposal Budget should not show cost sharing on Line M in excess of the required 1:1 match on equipment.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Course, Curriculum, and Laboratory Improvement (CCLI)
Adaptation and Implementation (A&I) Track

Synopsis of Program:

The Course, Curriculum, and Laboratory Improvement (CCLI) program seeks to improve the quality of science, technology, engineering, and mathematics (STEM) education for all students, based on research concerning needs and opportunities in undergraduate education and effective ways to address them. It targets activities affecting learning environments, course content, curricula, and educational practices, with the aim of contributing to the relevant research base that will support efforts to enhance STEM education.

The CCLI program has four tracks that emphasize, respectively, the development of new educational materials and practices for a national audience (EMD); the local adaptation and implementation of previously developed exemplary materials and practices, including laboratory experiences and support for instrumentation (A&I); the national dissemination of exemplary materials and/or practices through faculty professional development (ND); and the assessment of student achievement, including research on assessment and the development of assessment tools and practices (ASA). Projects may address the needs of a single discipline or cut across disciplinary boundaries. Abstracts of previously funded projects can be found at http://www.ehr.nsf.gov/pirs_prs_web/search/.

Through the Adaptation and Implementation (A&I) track, the CCLI program supports and encourages faculty, departments, and institutions to use innovative materials and practices of demonstrated effectiveness, including laboratory experiences and instrumentation. This track has been designed to increase the pace of innovation diffusion and address the "not invented here" syndrome that is often mentioned as a retardant to the diffusion of innovation. A&I proposals are expected to provide evidence that the innovative materials and practices they propose to implement have been effective on other campuses, to explain why they are anticipated to be effective for students on the proposing institution's campus, and to provide evaluation data by the end of the project. Through the subsequent synthesis of evaluation results, NSF seeks to continue building knowledge about effective practices and materials (what works under what circumstances), thereby strengthening the cycle of innovation. The A&I track is prepared to support educational improvement efforts at the departmental and even the institutional level. It is NSF's vehicle for supporting major efforts at reform.

Cognizant Program Officer(s):

- Dr.Russell L Pimmel, Lead Program Director (CCLI-A&I), Division of Undergraduate Education, telephone: 703-292-8666, fax: 703-292-9015, email: rpimmel@nsf.gov

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

- 47.076 --- Education and Human Resources

Eligibility Information

- **Organization Limit:** Proposals are invited from organizations in the United States and its territories: two-year colleges, four-year colleges, universities, professional societies, consortia, and non-profit and for-profit organizations. See Section III ("ELIGIBILITY INFORMATION") for additional information.
- **PI Eligibility Limit:**

An individual may be the lead PI on only one CCLI-A&I proposal submitted for this deadline date and may also be a co-PI on other proposals. There is no restriction on the number of proposals for which a person may serve as a co-PI.

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

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 110
- **Anticipated Funding Amount:** $12,000,000 in FY2004, pending availability of funding

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

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

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is Specialized. Please see the full text of this solicitation for further information.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline Date(s)** (due by 5 p.m. proposer's local time):
  December 04, 2003

Proposal Review Information

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

Award Administration Information

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Undergraduate education is central to the National Science Foundation's mission in human resource development. Whether preparing students to participate as citizens in a technological society, to enter the workforce with two- or four-year degrees, to continue their formal education in graduate school, or to further their education in response to new career goals or workplace expectations, undergraduate education provides the critical link between the Nation's secondary schools and a society increasingly dependent upon science and technology.

The CCLI program's major goal is to support efforts in colleges and universities to develop the capacity to meet the learning needs of all undergraduate students in science, technology, engineering, and mathematics (STEM), including in particular:

- STEM majors.
- Students preparing for the technological workplace.
- All students, as citizens in a society increasingly dependent upon science and technology.
- Prospective pre-Kindergarten through grade 12 (preK-12) teachers.

Although prospective teachers are not the primary focus of the CCLI program, they may, nevertheless, be included as target populations in CCLI proposals. The Teacher Professional Continuum (TPC) program (new in 2003) supports projects addressing research issues related to teacher pre-service and in-service education, including the development of professional education materials; see http://www.ehr.nsf.gov/ehr/due/programs/tpc/.

The most competitive CCLI proposals will be those that either refer to an existing research base or provide credible plans to (1) research the needs and opportunities that exist, (2) assess the impact of innovative educational practices and materials on student learning, (3) develop assessment tools and practices to support efforts to measure student achievement, and (4) study how best to prepare faculty to use the materials effectively.

This program solicitation describes the Adaptation and Implementation (A&I) track of the CCLI program. Separate solicitations describe the Assessment of Student Achievement (ASA) track (NSF 03-584) and the Educational Materials Development (EMD) and National Dissemination (ND) tracks (NSF 03-558). The program has different proposal deadlines for the tracks in order to spread the reviewing and processing of CCLI proposals more evenly throughout the year.

Rationale for the CCLI Program

The component tracks of the CCLI program collectively encourage and nurture innovative improvements in undergraduate education through processes that reflect a "cycle of innovation." Effective educational innovation is a multi-faceted and challenging process. Knowledge is advancing about effective instructional practices and how students learn. (See, for example, John Bransford, A.L. Brown, and R.R. Cocking, eds., *How People Learn: Brain, Mind, Experience, and School*, Expanded Edition [NAS Press, 2000].) Educational technology has made large gains that have not been fully explored. Basic scientific and technological knowledge is advancing at a rapid pace, and modern technology has made it possible for researchers and students to gain access to data and information reflecting those advances. As a consequence, there is an ever present opportunity and need to develop new undergraduate modules, courses, curricula, and instructional methods, supported by modern technology, and to evaluate the impact of these innovations on student learning and achievement.

The Educational Materials Development (EMD) track seeks to support this needed innovation. EMD "Proof-of-Concept" projects are intended to develop the scientific and educational feasibility of an idea. Some of these will lead to "full scale" EMD projects to develop "products" and practices that by the end of project have been tested in diverse institutions and carefully evaluated. That development process contributes to our understanding of what works and under what circumstances, so that others can use and build on this base of knowledge. The completion of an EMD project is often only a starting point in the further development and testing of innovative products and practices. The other three tracks of the CCLI program are designed to encourage further research and development and to support broad dissemination of those new courses, curricula, and instructional methods that have been proven effective in some circumstances.

The Assessment of Student Achievement track (ASA) invites projects to develop tools and practices to measure learning achievement. The ASA track is the newest track of the CCLI program. Established initially as a separate program in March 2001, it is now combined with the other three tracks because of its potential for providing formative guidance to EMD, A&I, and ND projects and because it is an important link to research on learning in the STEM disciplines. Some current ASA projects have been derived from evaluation issues that arose in earlier EMD projects by the same principal investigator. CCLI staff anticipate that EMD, A&I, and ND projects will use assessment materials created under the ASA track (or other validated materials) increasingly over time as they become available, in order to support project-level efforts to evaluate and assess their impact (for example, as reflected in the National Research Council report *Evaluating and Improving Undergraduate Teaching in Science, Technology, Engineering, and Mathematics* [National Academies Press, 2002]).

DUE expects that CCLI projects will draw from research on learning in STEM disciplines. For example, the design and sequencing of content knowledge, "end-of-chapter" problems, and student experiments in an EMD project might draw on findings from current research on learning (e.g., on models of how students acquire increasing expertise in a subject area). In turn, evaluations of EMD projects (as judged through the use of assessment instruments and practices) have the potential to contribute useful knowledge to basic and applied research on learning in STEM disciplines. Similarly, the design and testing of new assessment tools and practices will ideally be built on (and aligned with) both evidence of how students learn (learning models) and the subject matter that students are expected to master. There are currently two NSF programs that support research on learning on a large scale: Research on Learning and Education (ROLE), managed by the Division of Research, Evaluation, and Communication (see NSF 03-542); and the new, cross-directorate Science of Learning Centers (SLC) program (see NSF 03-573).

Through the Adaptation and Implementation (A&I) track--the focus of this solicitation--the CCLI program supports and encourages faculty, departments, and institutions to use innovative materials and practices of demonstrated effectiveness, including laboratory experiences and instrumentation. This track has been designed to increase the pace of innovation diffusion and address the "not invented here" syndrome that is often mentioned as a retardant to the diffusion of innovation. A&I proposals are expected to provide evidence that the innovative materials and practices they propose to implement have been effective on other campuses, to explain why they are anticipated to be effective for the students enrolled on the applicant's campus, and to provide evaluation data by the end of the project. Through the subsequent synthesis of evaluation

results, NSF seeks to continue building knowledge about effective practices and materials (what works under what circumstances), thereby strengthening the cycle of innovation. The A&I track is prepared to support educational improvement efforts at the departmental and even the institutional level. It is NSF's vehicle for supporting major efforts at reform.

The National Dissemination (ND) track provides STEM faculty with professional development opportunities, and is both a complement and stimulant to the A&I track. ND projects are required to be offered at the national level, be open to all faculty, and be focused on offering knowledge about new courses, educational materials, laboratory practices, instructional methods, and assessment tools and practices that have been used and evaluated to the point where they can be considered to be proven effective in many circumstances. The logic of ND is to provide faculty with enough information about new effective materials and practices so that they can make informed decisions about their own courses and teaching activities, and become part of a national network of faculty working to institute modern teaching methods in their departments. ND projects are encouraged to create and nurture these networks.

II. PROGRAM DESCRIPTION

The Adaptation and Implementation (A&I) track of the CCLI program promotes the improvement of STEM education in the funded organization(s) through the adaptation and implementation of specific exemplary materials, laboratory experiences, and/or educational practices that have been developed and proven successful at other institutions. CCLI-A&I projects should effect change within or across departments or other institutional units by having broad faculty and administrative support.

This track invites proposals for two types of projects that aim to achieve these goals: those that intend to undertake direct curriculum improvement (Type I projects), and those that enable a group of faculty to explore strategies for overcoming identified challenges and barriers to educational reform (Type II projects).

Type I Projects

Type I projects are expected to adapt and implement high-quality STEM curricula, materials, and/or techniques in order to achieve specific curricular changes. The acquisition of instrumentation and its integration into the curriculum is appropriate as part of a Type I project. When possible, projects are expected to include students in meaningful ways in the activities so that they are able to provide input to the planning and decisions. Proposers are encouraged to consider including developers of the model(s) being adapted as consultants for the adaptation and evaluation efforts. Projects might include, for example, one or more of the following:

- The incorporation of laboratory experiments or field experiences that effectively engage students in scientific processes and exploration of scientific concepts.
- The adaptation and testing of exemplary materials for use by a student audience significantly different from the one for which they were originally developed.
- The enhancement of teaching and learning through the use of resources, particularly instructional and information technologies, demonstrated to be of high quality.
- The development and use of collaborative learning, learning communities, and other innovations that aim to improve pedagogy in courses.
- The integration of the study of pedagogy and content in STEM core courses for prospective preK-12 teachers.
- The integration of significant advances or techniques from research fields into the undergraduate curriculum.

Project scope may range from improvements in an individual course or laboratory to a more comprehensive effort that impacts entire curricula or programs. Funds may be requested in any budget category supported by NSF or may be entirely for equipment or instrumentation.

Proposals must specifically identify the materials and/or practices developed elsewhere that are being adapted, including references to the literature or to other institutions using the materials and/or practices, and must describe the modifications to be effected. Materials and/or practices for adaptation may be drawn from more than one source.

The *outcomes* expected of funded Type I projects include all of the following:

- *Adaptation and implementation* of exemplary practices and/or materials for course, curriculum, or laboratory improvements in innovative ways.
- An *evaluation* that informs the institution and others of the *effectiveness* of the implemented materials and practices in improving student learning, and also guides development of the project.
- *Faculty professional development*, as needed, in support of curricular adaptation and implementation.
- Efforts to build on the project and to *broaden its impact* at the institution, within the discipline or across disciplines.
- Effective *dissemination* of project results to the broader community.

Tagging Products for Dissemination and Retrieval: Project products and materials should be described using standard metadata elements and tags, to ensure the resources can be indexed and cataloged within the appropriate collections of the National Science Digital Library (NSDL; see http://nsdl.org). This is particularly important for materials that are originally in digital form and Web-based. However, for other materials intended for analog distribution (e.g., print or CD), it is also important that web pages that provide information about these resources are suitably tagged with descriptive metadata. For further information about metadata standards, see the Dublin Core Metadata Initiative at http://dublincore.org and the NSDL Metadata Primer at http://metamanagement.comm.nsdlib.org/outline.html.

Type II Projects

Type II projects provide support for a group of faculty who have identified the challenges or barriers that are currently preventing curriculum reform, to pursue a plan that details their strategies for overcoming these problems. In order to begin significant curriculum reform, projects are expected to explore exemplary STEM curricula, materials, and/or practices. The projects also are expected to include students in meaningful ways in the activities so that they are able to provide input to the planning and decisions. Projects might include, for example, one or more of the following:

- A combination of intensive faculty enhancement activities (such as attendance at workshops, seminars, or discussion groups that bring in outside experts; visits to exemplary programs; or other activities) to prepare a group of faculty to implement new curricula or practices.
- A series of pilot efforts within a department or program to determine which of several reform methods is most effective within that environment.
- A modification of the curriculum in ways that will broaden student participation by determining student opinions and perceptions that restrict student participation in courses, programs, and/or majors.
- An investigation of important curricular changes that can be implemented to take advantage of new technologies or facilities that have become available at the institution(s).
- A combination of faculty enhancement efforts and retreats in which faculty explore together how to incorporate a theme (writing, communications, greater quantitative ability, international perspectives, undergraduate research) across a number of courses.
- A multi-institutional effort that allows a group of faculty to prepare for the implementation of joint or parallel curricula among the institutions, or for the implementation of coordinated curricula that ensure a seamless articulation for students moving among the institutions.

The proposing group may be an entire department or larger unit, or a logical subset of a department, cross-departmental group, or cross-institutional group. The proposal must provide evidence that the proposed effort is a priority for all of those involved. The proposal must describe the ultimate long-term curricular goals that are to be achieved, the challenges or barriers to be overcome, the steps to be undertaken during the grant period, and the benchmarks that will be used to measure progress as the project moves forward. Funds may be requested in any budget category supported by NSF.

Proposals must specifically identify the materials and/or practices developed elsewhere that are being explored, including references to the literature or to other institutions using the materials and/or practices, and must describe the relationship of these materials and/or practices to the defined goals of the project. Materials and/or practices for adaptation may be drawn from more than one source.

The *outcomes* expected of funded Type II projects include all of the following:

- *Lowering of the challenges or barriers* that were defined in the proposal.
- A description of the exemplary curricula, materials, and/or practices that were explored by the group and the *progress* that has been made *toward implementation* of curricular reform.
- A summary of *student contributions* to the project.
- An *evaluation*, using the benchmarks defined in the proposal, that informs the institution and others of the progress made toward the goals defined in the proposal.
- Effective *dissemination* of project processes and results to other members of the proposer's academic community.
- A specific *plan*, including a timeline, for continuing the reform that was initiated at the participating institution(s) as a result of the project.
- *Submittal to the appropriate academic officer* at the institution(s) of the *evaluation results* and the specific plan for continuing the reform.

Additional Information for All Projects

In the CCLI program, the word "laboratory" includes experiences ranging from those fully integrated within a course to those forming separate components in the curriculum. The setting may involve, for example, a field site, an observatory, a computer room, or an integrated laboratory/classroom, as well as the traditional laboratory, and may involve a redesign of instructional approaches using technology to enhance student learning.

Institutional commitment and plans to build upon the project are critical to the success of CCLI-A&I projects. The CCLI-A&I track discourages proposals that:

- Are justified solely on the basis of financial need or increased enrollments.
- Seek replacement instrumentation without a well-conceived plan for enhancing learning.
- Provide only the basic level of support for STEM instruction needed to maintain a viable program.
- Replicate an existing program without further adaptation.
- Describe a project that will not serve as a basis for further change at the institution.

Information about the results of projects funded through DUE programs can be obtained through DUE's *Project Information Resource System* (http://www.ehr.nsf.gov/pirs_prs_web/search/). Many of these previously funded projects are in progress, and proposers may wish to contact the projects' PIs for further information.

III. ELIGIBILITY INFORMATION

Eligible Fields

Proposals may be submitted for support of projects in any field of science, technology, engineering, and mathematics ordinarily supported by NSF. Projects involving fundamental scientific, mathematical, or engineering concepts within technical, professional, or pre-professional programs are appropriate. Multidisciplinary and interdisciplinary proposals are especially encouraged.

Specifically excluded are projects that address clinical fields such as medicine, nursing, clinical psychology, and physical education, and those that primarily involve social work, home economics, the arts, and the humanities.

Eligible Organizations and Individuals

Proposals are invited from organizations in the United States and its territories: two-year colleges, four-year colleges,

universities, professional societies, consortia, and non-profit and for-profit organizations. Proposals from a formal consortium should be submitted by the consortium; proposals from an informal consortium or coalition may be submitted by one of the member organizations.

Projects may involve a single organization, collaboration with business and industrial partners, or collaboration among several organizations. For example, projects may include collaborative efforts that improve the transition of students between the collaborating academic institutions, such as transfer between two-year and four-year colleges.

An individual may be the lead PI on only one CCLI-A&I proposal submitted for this deadline date and may also be a co-PI on other proposals. There is no restriction on the number of proposals for which a person may serve as a co-PI.

IV. AWARD INFORMATION

NSF anticipates having $12 million in FY2004 for this program, pending the availability of funds. The awards will be made as standard or continuing grants. The number and size of awards will depend on the quality of the proposals received and the availability of funds. Grant duration is typically 2-3 years. The minimum budget request is $5,000. The expected range of total NSF/DUE support over the lifetime of a CCLI-A&I project is as follows:

- *Type I projects:* efforts of varying scope, up to $100,000 for a single course and up to $200,000 for comprehensive projects.
- *Type II projects:* up to $75,000.

These amounts include indirect costs, and the upper limits include the total costs of projects carried out by collaborating organizations.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Website at: http://www.nsf.gov/cgi-bin/getpub?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.

Except as modified by the guidelines below (in particular, the word limit for the Project Summary, the page limit and double-spacing requirement for the Project Description, the cost sharing requirement, and the guidelines for appendices), standard NSF guidelines contained in the GPG are applicable.

Advice to Proposal Writers

DUE staff often provide informal guidance to proposers about potential projects. The advice most frequently sought about proposal writing in general has been collected in *A Guide for Proposal Writing* (NSF 98-91). For examples of DUE-funded projects, refer to DUE's Project Information Resource System at http://www.ehr.nsf.gov/pirs_prs_web/search/. See the *Supplemental Information for Principal Investigators and Applicants to NSF's Course, Curriculum, and Laboratory*

Improvement Program (NSF 00-117) for information that will assist proposers in (1) developing proposals that are responsive to CCLI program tracks, (2) describing the objectives of proposed projects so that reviewers can more easily determine how well the project responds to the objectives of the corresponding CCLI track, and (3) managing projects to achieve the objectives and to enable reporting consistent with the program's and NSF's goals.

Formal Proposal Preparation

Cover Sheet: The proposal title should include informative key words that indicate, for example, the discipline, the target audience, and the nature of the problem or innovative solution.

Project Summary *(500 words)*: The Project Summary is the first statement that reviewers and NSF staff will read about a proposed project, and it sets the context in which the rest of the proposal will be read. Thus, the summary should be a clear, concise, self-contained description of the project. It should be informative to other persons working in the same or related fields, and insofar as possible, be understandable to a scientifically literate reader. It should not contain extraneous descriptions of the proposing organization, department, or PIs. In no more than 500 words, the summary should describe:

- The problem(s) being addressed by the proposal.
- The objectives and expected outcomes.
- How the objectives will be accomplished.
- Special audiences targeted by the project, as appropriate.
- Notable collaborations with other organizations.

All project summaries **must** include separate paragraphs addressing the National Science Board approved review criteria of *intellectual merit* and *broader impacts*, or the proposal will be returned without review. These paragraphs are included in the 500-word limit.

Project Description, including Results from Prior NSF Support *(15 double-spaced pages)*: Text in this section of the proposal must be double-spaced (3 lines per 2.5 cm). The format must be readily legible. Use no less than 2.5-cm margins and a standard font with size no smaller than 12 points. The following page limit applies:

> **DUE will not accept proposals in which the Project Description (including Results from Prior NSF Support) exceeds the page limit of 15 double-spaced pages. Proposals that are not in compliance will not be reviewed or considered for funding.**

This section of the proposal presents most of the information that determines whether or not the proposal will be recommended for an award. Write the proposal to respond to the criteria that will be used by reviewers in judging the merit of the proposal.

The Project Description should contain:

- **Goals and Objectives:** Describe the goals clearly and concisely, relating them, as appropriate, to local or national needs and recent trends.
- **Detailed Project Plan:** This should be the longest section of the Project Description. Describe the project's features, clearly delineating the need or problem you will address, what you plan to do, how you plan to achieve the outcomes expected from the project, the timetable for executing the project, and the facilities and resources available for realizing the project's objectives. Where appropriate, include evidence of past successes that support the methods you plan to use; such evidence may come from the current literature or from pilot programs. You may specify a URL for your materials if you think that providing a URL would enhance the reviewers' ability to appreciate how you plan to achieve your objectives. However, the reviewers are not required to visit the URL, and they may not have access to the Internet during the review process. *All essential material must be contained, in written format, within the 15-page (double-spaced) Project Description.*
- **Experience and Capability of the Principal Investigator(s):** Briefly describe the experience and capability of the

PI(s). Include a brief description of the rationale for including the specific faculty members and organizational units within the project. State the role of each and cite the expertise that each will contribute to the project.

- **Evaluation Plan:** Describe the criteria that will be used to evaluate the quality and impact of the project, how the project's impact on student learning will be assessed, and the process for collecting and analyzing information at the proposer's organization or from others involved in testing developed materials. Provide a timeline for the evaluation activities. Describe the qualifications of the individuals who will perform the evaluation tasks. The objectivity and credibility of the evaluation team should be evident. The breadth of the evaluation plan and the composition of an advisory committee should be appropriate to the size and complexity of the project. The following references may be helpful in designing the evaluation plan:
  - *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,* http://oerl.sri.com
  - *Field-tested Learning Assessment Guide (FLAG),* http://flaguide.org

- **Dissemination of Results:** Describe plans to communicate the results of the project to other professionals in the STEM and education communities, both during and after the project. Identify the audience to be reached and describe the information or materials to be disseminated (e.g., textbooks, laboratory manuals, software, multimedia materials), how the material will be made available to other organizations, the means of dissemination (e.g., faculty development workshops, journal articles, conference presentations, electronic networks and media), and the procedures for determining the success of the dissemination effort. Describe the procedures to be used to maintain the quality and currency of any material developed, to provide support for faculty users, and to publicize the availability of materials.

- **Results from Prior NSF Support** *(if applicable)***:** If the prospective PI or co-PI(s) has received support from NSF pertaining to undergraduate education in the past five years, briefly describe the earlier project(s) and outcomes or ongoing progress. Do not include information on research projects unless those projects have a direct bearing on the new proposal. For each project, include the NSF award number, the amount and period of support, the project title, a summary of the results of the completed work, and a list of publications and formal presentations that acknowledged the NSF award (but do not submit copies with the proposal). Provide sufficient detail to permit a reviewer to reach an informed conclusion regarding the value of the results achieved. (Note that the PI and all co-PIs must submit a Final Project Report for any completed NSF-funded project before a new grant can be awarded.)

References Cited: The literature cited in the Project Description should reflect an understanding of the knowledge base in the field in which the problem or question is posed. Appropriate literature on research in teaching and learning should be cited. Any literature cited should be clearly and specifically related to the proposed project, and the Project Description should should make it clear how the information in a reference has played a role in the design of the project.

Budget and Budget Justification: The amounts indicated on the Proposal Budget should include only the amounts requested of NSF. For example, a 1:1 match is required on equipment (see Section V.B ["BUDGETARY INFORMATION"] below), so only the amount requested of NSF (typically, half of the total cost) should be included on budget Line D (Equipment*)*, while the matching amount should be included on Line M (Cost Sharing*)*. (In this solicitation, "cost sharing" and "matching funds for equipment" mean the same thing.)

The Budget Justification is limited to no more than 3 pages. For budgets that include matching funds for equipment, please include a four-column table that lists (1) in the first column, all items to be supported under the project; (2) in the second column, the amount that NSF is being asked to contribute; (3) in the third column, the amount that will come from non-federal sources as matching funds for items of equipment; and (4) in the fourth column, the total cost of each item.

For multi-organizational submissions, the Budget Justification should include the contributions of each organization and the amount each will receive from the grant. For multi-year projects, the results of the project are expected to be integrated into the academic programs of the organizations within the period of the award.

NSF funds may not be used to support expenditures that would have been undertaken in the absence of an award, such as the cost of activities that are considered part of a faculty member's normal duties.

Current and Pending Support: All current and pending external support to the PI(s)--including the CCLI-A&I proposal that is being submitted--must be listed. This information is needed to ensure that project leaders will have time to conduct the project and that there is no duplication of support.

Project Data Form: The information requested on DUE's Project Data Form is used to direct the proposal to appropriate reviewers and to announce and advertise the nature of NSF-supported projects. In FastLane, this 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.

Appendices: Appendices are allowed but must be be relevant and concise. For materials development proposals, a sample of prior work or work in progress is recommended. Appendices should be uploaded in the "Supplementary Docs" section of the proposal in FastLane.

Collaborative Proposals

Organizations intending to submit *simultaneous* Collaborative Proposals (i.e., simultaneous submission of proposals from different organizations) must 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 anticipated award sizes specified in Section IV ("AWARD INFORMATION") above. 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.

Requests for Equipment and Instrumentation

Scientific and computing equipment or instrumentation, to be used in any phase of undergraduate STEM education, may be requested. Items must be for use in specific curricular improvements discussed in the Project Description. A proposal that seeks support for equipment or instrumentation for several unrelated projects, or for a list of equipment or instrumentation to be used in unrelated ways, is not appropriate.

Purchase of software essential to the scientific, technical, and educational objectives of the project is permitted.

Construction of instrumentation, including material and labor costs, is allowed. Sufficient justification must accompany requests for instrumentation construction funds, such as a detailed explanation of the advantages of the proposed units over commercially available items. Requests for instrumentation fabrication must be supported by drawings, diagrams, parts lists, and estimates for labor charges, as appropriate.

Instrumentation assembly costs for on-site assembly of multi-component instruments--as distinct from instrumentation installation or building or laboratory modification--are allowable. Specialized safety instrumentation may be purchased where necessary for the safe utilization of the instrumentation requested.

Shipping costs are allowable, and required taxes may also be included if the institution cannot be exempted from paying them.

Ineligible items: In any DUE project, neither NSF funds nor institutional matching funds may be used to purchase:

- Teaching aids (e.g., films, slides, projectors, "drill and practice" software), word-processors, or library reference materials.

- Equipment or instrumentation that is not mainly for undergraduate use.
- Vehicles, laboratory furnishings, or general utility items such as office equipment, benches, tables, desks, chairs, storage cases, routine supplies, general consumables, and items that are considered a routine part of a laboratory setting.
- Maintenance items and maintenance or service contracts--even when these are for items procured through a DUE program.
- Building or laboratory modifications or construction required for installation of the equipment or instrumentation (as distinct from simply integrating multiple computational resources or interfacing computers to instruments).
- A flat percentage inflation allowance.
- Replacement equipment and instrumentation that does not significantly improve instructional capability.

Information to include in the Project Description: The Project Description must show how the proposed curriculum improvement will incorporate the requested equipment or instrumentation, and how the equipment or instrumentation will be used to improve student learning. Be sure to include the following:

- Indicate why the particular equipment or instrumentation was chosen, what alternatives were considered and rejected, and why. Reviewers do not need to be told what functions the equipment or instrumentation can perform unless those functions are unusual. Specifically explain requests for (1) apparatus of a quality or cost not usually encountered in undergraduate instruction, (2) instrumentation that is to be fabricated rather than purchased as a unit, and (3) purchases that might appear to be at variance with the academic setting in which the project would operate. Justification of these items must be related to the improvement of undergraduate education. Arguments based on enhancement of graduate-level courses, improvement of faculty research capabilities, or other activities outside the scope of undergraduate education are inappropriate.
- Briefly, but explicitly, outline the proposing organization's plan for starting the project and for maintaining the equipment or instrumentation beyond the duration of the grant.

Preparing the Proposal Budget and the Budget Justification: Reviewers must be able to recognize the function of the requested equipment or instrumentation. Therefore, in the Budget Justification, list all individual items by a descriptive name and the probable brand, model, and price. Such selections may be changed after an award. As described in Section V.B ["BUDGETARY INFORMATION"] below, cost sharing (a 1:1 match) is required on requested equipment.

Many manufacturers routinely offer educational or institutional discounts. Contact manufacturers or distributors to obtain discounted prices. On the list of equipment and instrumentation in the Budget Justification, show both the list price and the discounted price used to compute the total cost of the project. For equipment, if it is possible to negotiate on an individual basis a special discount not routinely available to educational institutions, list the usual discounted price in the project's budget. The amount by which the special discount exceeds the standard educational discount may be counted as matching funds for equipment.

Any software packages must also be itemized and justified, and the cost indicated.

Shipping costs, if not included in the purchase price, should be separately itemized. Reasonable estimates should be used, as opposed to a percentage of equipment or instrumentation costs.

Workshops

In proposals that involve professional development workshops, it is generally expected that the home institutions of the faculty participants will bear the cost of travel to and from the workshop unless a compelling reason can be offered to request NSF support for this travel.

The budget request may include participant support costs for subsistence (lodging and meals) during the workshop, except lodging for participants who reside in the local area where the workshop is being held. In addition, funds may be requested for a stipend of up to $60 per workshop day for each workshop participant. Requests for such stipends must be specific to the target audience and fully justified--for example, to assure participation by faculty who have few professional development

opportunities or who come from resource-poor institutions. No tuition or other fees may be charged to participants. The host organization is expected to provide the facilities, equipment, and instrumentation necessary to conduct the workshop; therefore NSF will ordinarily support no permanent facilities, equipment, or instrumentation for such workshops. The host organization is also expected to cover the expenses incurred by its own faculty participants. Note that indirect costs may not be charged on participant support costs.

With the exceptions noted above, the NSF grant may provide for planning and provision of the workshop, follow-through activities, participant support, and indirect costs for budget categories other than participant support. The total cost per participant-day varies considerably depending on the proposed activity.

Proposers are reminded to identify the program announcement/solicitation number (03-598) in the program announcement/ solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Except for certain organizations described below that are exempt from the requirement, all requests for equipment must be matched 1:1 by funds or equipment from non-Federal sources. That is, the project must obtain, from non-Federal sources, matching funds or equipment equal in value to the funds requested for equipment from NSF. (In this solicitation, "cost sharing" and "matching funds for equipment" mean the same thing.) To qualify as matching, these resources must be used specifically for the equipment listed in the budget approved for the project. An awardee organization may obligate its matching funds or receive gifts of equipment to be counted toward matching at any time following the program deadline date under which the awarded proposal was submitted, but before the grant expiration date specified in the grant document. This normally provides a lengthy period during which the organization must fulfill the requirement to match NSF equipment funds.

The CCLI program no longer requires matching on non-equipment items--in particular, items of instrumentation costing less than $5,000. Proposal budgets should not show on Line M any cost sharing beyond the required 1:1 match on equipment.

Exemption: Consistent with the objectives of Executive Orders 12876, 12900, and 13021, NSF will waive the above cost sharing requirement for Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and Universities that do not offer STEM degrees beyond the master's level, and for Minority Postsecondary Institutions that do not offer STEM degrees beyond the bachelor's level. (For additional information on this exemption, see http://www.ehr.nsf.gov/due/programs/general/msi.asp.) Eligible organizations must describe their eligibility for the waiver in the Budget Justification.

The proposed cost sharing must be shown on Line M on the proposal budget. Documentation of the availability of cost sharing must be included in the proposal. Only items which would be allowable under the applicable cost principles, if charged to the project, may be included as the awardee's contribution to cost sharing. Contributions may be made from any non-Federal source, including non-Federal grants or contracts, and may be cash or in-kind (see OMB Circular A-110, Section 23). It should be noted that contributions counted as cost-sharing toward projects of another Federal agency may not be counted towards meeting the specific cost-sharing requirements of the NSF award. All cost-sharing amounts are subject to audit. Failure to provide the level of cost-sharing reflected in the approved award budget may result in termination of the NSF award, disallowance of award costs and/or refund of award funds to NSF.

Other Budgetary Limitations:

See the range of expected award sizes in Section IV ("AWARD INFORMATION") above.

NSF funds may not be used to support expenditures that would have been undertaken in the absence of an award, such as the cost of activities that are considered part of a faculty member's normal duties.

C. Due Dates

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

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

> December 04, 2003

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: 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 announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

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

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

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

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

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

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

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

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

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

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

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

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

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

Additional Review Criteria:

With regard to the CCLI program, NSF's two general merit review criteria lead to questions such as the following, which are often raised during the review process.

Intellectual merit:
  - Does the proposed project address a major challenge facing undergraduate STEM education?
  - Does the project have potential for improving student learning of important STEM principles?
  - Are the goals and objectives, and the plans and procedures for achieving them, worthwhile, well developed, and realistic?
  - Is the rationale for selecting particular activities or components for development or adaptation clearly articulated?
  - Does the project design consider the background, preparation, and experience of the target audience?

- Is the project informed by research in teaching and learning, current pedagogical issues, the efforts of others, and relevant literature?
- Does the project provide for effective assessment of student learning, which reflects the proposed educational objectives and practices?
- Are plans for evaluation of the project appropriate and adequate for the project's size and scope, and will the evaluation appropriately inform project development?
- Does the project have the potential to provide fundamental improvements in teaching and learning through effective uses of technology?
- Is the project led by, and supported by, the involvement of capable faculty (and where appropriate, practicing scientists, technicians, engineers, mathematicians, teachers, and student assistants), who have recent and relevant experience in education, in research, or in the workplace?
- Is the project supported by adequate facilities, resources, and departmental commitment?
- Is there evidence of faculty and institutional endorsement of this effort?

Broader impacts:

- Are the proposed activities integrated into the proposing organization's academic program?
- To what extent will the results of the project contribute to the knowledge base of activities that enhance student learning?
- Will the project evaluation inform others through the communication of results?
- Are the results of the project likely to be useful at other academic institutions?
- Will the project result in significantly improved content and pedagogical preparation of faculty and teachers of science, technology, engineering, and mathematics?
- Does the project effectively address one or more of the following objectives:
  - Ensure the highest quality education for those students planning to pursue STEM careers?
  - Increase the participation of women, underrepresented minorities, and persons with disabilities?
  - Provide a foundation for scientific, technological, and workplace literacy?
  - Develop multi- and interdisciplinary courses and curricula?
  - Develop courses and curricula that are aligned with national standards, as appropriate?

B. Review Protocol and Associated Customer Service Standard

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

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

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

In most cases, proposers will be contacted by the Program Officer after his or her recommendation to award or decline funding has been approved by the Division Director. This informal notification is not a guarantee of an eventual 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.

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 pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/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 PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

The Division of Undergraduate Education maintains the *Project Information Resource System* (PIRS), http://www.ehr.nsf.gov/pirs_prs_web/search/, to provide the public with current information about funded projects. Some of the information provided by PIs in interim, annual, and final project reports will be available through PIRS. Proposers are encouraged to review the information that PIRS now provides about projects that NSF has funded in undergraduate education. When preparing a project report in FastLane, PIs are encouraged to make use of PIRS to provide additional descriptive information about their project by accessing the "DUE Information" link in the menu under "Prepare Report" on the "Project System Control Screen." For example, PIs may enter information about the curricular targets of their project (disciplines, subjects, courses), the pedagogical approaches used, and additional funding sources.

PIs of CCLI grants will also be asked to complete a Web-based survey each spring about their project's plans and accomplishments to date. A response to the survey is requested even if the grant has been active for only a short time. This survey asks PIs to indicate the tasks they plan to accomplish during the project (e.g., product development, assessment, dissemination, faculty development) and the progress that has been made in accomplishing these tasks. This information is used by DUE to indicate the success of the CCLI program in meeting its objectives, and is reported in aggregate form to Committees of Visitors, NSF's management, and Congress to meet the requirements of the Government Performance and Results Act (GPRA).

The Final Project Report for a Type II CCLI-A&I project must describe a specific plan, including a timeline, for continuing the reform that was initiated at the participating organization(s) as a result of the project.

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

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

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

- Dr.Russell L Pimmel, Lead Program Director (CCLI-A&I), Division of Undergraduate Education, telephone: 703-292-8666, fax: 703-292-9015, email: rpimmel@nsf.gov

For questions concerning proposals in particular STEM disciplines, contact a program director in the relevant discipline; see the directory at http://www.ehr.nsf.gov/ehr/due/staff/pd.asp or phone 703-292-8666.

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188, email: fastlane@nsf.gov

- Ms. Antoinette Allen, Division of Undergraduate Education, telephone: 703-292-4646, email: duefl@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

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

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year

programs occurring after press time for the *Guide to Programs* will be announced in the NSF E-Bulletin, which is updated daily on the NSF Website at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

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

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

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230

- **For General Information** (NSF Information Center)**:** (703) 292-5111

- **TDD (for the hearing-impaired):** (703) 292-5090 or (800) 281-8749

- **To Order Publications or Forms:**

    Send an e-mail to: pubs@nsf.gov

    or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

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

OMB control number: 3145-0058.