

## **Course, Curriculum, and Laboratory Improvement (CCLI)**

### **Educational Materials Development (EMD) and National Dissemination (ND) Tracks**

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#### **Program Solicitation**

**NSF 03-558**

***Replaces Document NSF 02-043***



#### **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):

June 18, 2003  
EMD and ND Tracks

#### **REVISIONS AND UPDATES**

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- Cost sharing and a 1:1 match on equipment is no longer required.
- A Letter of Intent to submit a proposal is not required for either track .
- Assessment of Student Achievement (ASA) has been added as a fourth track in the CCLI program.
- The anticipated funding amount has been reduced from \$24 million in FY03 to approximately \$18 million in FY04.
- The deadline dates have been updated.
- Sections titled *Research Basis of Efforts* and *Tagging Products for Dissemination and Retrieval* have been added under the Full Development section of the Program Description.
- An increased emphasis is 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 section to the Program Description. The importance of a sound research base is further emphasized by placing this section at the start of the Program Description.
- The phrase "including indirect costs" has been added to the Award Information section for clarification purposes.
- The phrase "including projects carried out by collaborating institutions" has been added to the Award Information section for clarification purposes.

#### **SUMMARY OF PROGRAM REQUIREMENTS**

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#### **General Information**

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## Program Title:

Course, Curriculum, and Laboratory Improvement (CCLI)  
Educational Materials Development (EMD) and National Dissemination (ND) Tracks

## 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 the needs and opportunities that exist 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. The program has four tracks:

### 1. *Educational Materials Development (CCLI-EMD)*

Projects are expected to produce innovative materials that incorporate effective educational practices to improve student learning of science, technology, engineering, and mathematics. Projects to develop textbooks, software, or laboratory materials for commercial distribution are appropriate. Two types of EMD projects will be supported: a) those that intend to demonstrate the scientific and educational feasibility of an idea, a "proof-of-concept" or prototype, and b) those based on prior experience with a prototype that intend to fully develop and test the product or practice, a "Full Development" project. Such materials are expected to be disseminated nationally for adoption and adaptation.

### 2. *National Dissemination (CCLI-ND)*

Projects are expected to provide faculty with professional development opportunities to enable them to introduce new content into undergraduate courses and laboratories, and to explore effective educational practices to improve the effectiveness of their teaching. Projects should be designed to offer workshops, short courses, or similar activities on a national scale in single or multiple disciplines.

### 3. *Adaptation and Implementation (CCLI-A&I)*

Projects are expected to result in improved education in science, technology, engineering, and mathematics at academic institutions through adaptation and implementation of exemplary materials, laboratory experiences, and/or educational practices that have been developed and tested at other institutions. Proposals may request funds in any budget category supported by NSF, or may request funds to purchase only instrumentation. This track will be described in detail in a separate solicitation to be released in the summer of 2003. A November or December 2003 proposal deadline is anticipated.

### 4. *Assessment of Student Achievement in Undergraduate Education (ASA)*

This track supports the development and dissemination of assessment practices, materials (tools), and measures to guide efforts that improve the effectiveness of courses, curricula, programs of study, and academic institutions in promoting student learning in science, mathematics, engineering, and technology. ASA also promotes the full integration of assessment with these educational efforts. It supports projects in three areas:

1. **New Development:** developing new assessment materials (tools) and practices for use in single or multiple undergraduate disciplines.
2. **Adaptation:** adapting assessment materials and practices that have proven effective for one setting or audience for use in a new setting or with a different audience.
3. **Dissemination:** efforts to spread the use of effective assessment practices through workshops or Web-based materials that are thoroughly documented with detailed instructions.

This track will be described in detail in a separate solicitation to be released in the summer of 2003. A September 2003 proposal deadline is anticipated.

## Cognizant Program Officer(s):

- Division of Undergraduate Education, telephone: 703-292-8666, email: [undergrad@nsf.gov](mailto:undergrad@nsf.gov)
- Dr. Herbert H. Levitan, Lead Program Director, CCLI-EMD, email: [hlevitan@nsf.gov](mailto:hlevitan@nsf.gov)
- Dr. Myles G. Boylan, Lead Program Director, CCLI-ND and CCLI-ASA, email: [mboylan@nsf.gov](mailto:mboylan@nsf.gov)
- Dr. Susan H. Hixson, Lead Program Director, CCLI-A&I, email: [shixson@nsf.gov](mailto:shixson@nsf.gov)

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

- 47.076 --- Education and Human Resources

## Eligibility Information

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- **Organization Limit:** Proposals are invited from organizations located in the United States and its territories and possessions : two-year colleges, four-year colleges, universities, professional societies, consortia of institutions, and non-profit and for-profit organizations.
- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** None Specified.

## Award Information

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- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 100 - total, for EMD and ND
- **Anticipated Funding Amount:** \$18,000,000 in FY 2004, pending availability of funding

## Proposal Preparation and Submission Instructions

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### 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 not required.
- **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):  
June 18, 2003  
EMD and ND Tracks

## Proposal Review Information

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- **Merit Review Criteria:** National Science Board approved criteria apply.

## Award Administration Information

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- **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

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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 has four tracks that emphasize, respectively, the development of new educational materials and practices for a national audience, the adaptation and implementation into an institution of previously developed exemplary materials and practices, the national dissemination of exemplary materials and/or practices, and the assessment of student achievement. 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/](http://www.ehr.nsf.gov/pirs_prs_web/search/). This program announcement describes the *Educational Materials Development* and the *National Dissemination Tracks*. Proposers must identify on the Cover Sheet and on the Project Data Form (Form 1295) the track in which they wish their project to be reviewed. Separate announcements describing the characteristics of the *Adaptation and Implementation Track* and the *Assessment of Student Achievement Track* will be available at a later date.

## RATIONALE FOR CCLI PROGRAM

The challenge that CCLI seeks to meet is multi-faceted. Knowledge is advancing about effective instructional practices and how students learn. (See, for example, J.D. Bransford, A.L. Brown, and R.R. Cocking, editors, *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. Research 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. CCLI invites proposals to the Educational Materials Development (EMD) track to support this needed innovation. These proposals may range from proof-of-concept explorations to full scale development efforts. In all cases, they are expected to be innovative, promising, and supported by beta testing in other institutions and careful evaluation, and contribute to the research base that others can use and build on.

EMD innovation and the evaluation of its early impact occurs within the context of a single project, and is therefore only a starting point. The other three tracks of CCLI are designed to encourage further research on innovative materials and practices, and to support effective dissemination of new courses, curricula, and instructional methods, whether developed under the EMD track or through other means. The Assessment of Student Achievement track (ASA) invites projects to develop tools to measure learning achievement. This track supports assessment at a variety of levels, starting with classroom assessment in individual STEM disciplines. One of its goals is to provide STEM faculty with classroom assessment tools that they can use to evaluate existing and new materials, instructional practices and technology. A number of existing ASA projects have been inspired by evaluation issues from earlier CCLI-EMD projects by the same principal investigator.

Through the Adaptation and Implementation (A&I) track, CCLI supports and encourages faculty, departments, and institutions to use innovative materials and practices of demonstrated effectiveness in their own courses and curricula. 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. Successful A&I proposals must provide research evidence that innovative materials and practices have been effective on other campuses and provide realistic implementation plans. Successful proposals on this track must also include a strong evaluation plan. Through this requirement, we seek to build the base of our research knowledge about effective practices and materials, and lead into the next cycle of innovation. The A&I track is prepared to support educational improvement efforts at the departmental and even the institutional level. It is our 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, open to all faculty in the disciplines covered, and focused on offering knowledge about new courses, laboratory practices, and instructional methods that have been used and evaluated to the point where they can be considered proven. 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. These networks offer support beyond the technical support that many of the ND projects provide their participants. One hallmark of a successful ND project is that a high percentage of its graduates implement effective new methods, or apply for A&I grants to support this implementation. Another is shown in the evaluation of ND projects that demonstrate that faculty implement these materials in their classes.

CCLI's components and leadership efforts reflect the recommendations made in the National Research Council Reports *From Analysis to Action: Undergraduate Education in Science, Mathematics, Engineering, and Technology* (NRC, National Academy Press, 1996), <http://www.nap.edu/catalog/9128.html> and *Transforming Undergraduate Education in Science, Mathematics, Engineering, and Technology* (NRC, National Academy Press, 1999), <http://www.nap.edu/catalog/6453.html>. These reports reflect the informed opinions of faculty from science, technology, engineering, and mathematics (STEM) disciplines; presidents and other academic administrators; employers in business and industry; students; and parents. More recently, the National Panel Report of the Association of American Colleges and Universities reiterated the need for positive change in *Greater Expectations, A New Vision for Learning as a Nation Goes to College* (AAC&U, 2002). This report concluded that "change is urgently needed. ... the college experience is a revolving door for millions of students, while the college years are poorly spent by many others. Broad, meaningful reform in higher education is long overdue." (page vii).

These reports underscore the importance of quality science, technology, engineering, and mathematics (STEM) education for all undergraduate students, including:

- 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 more specifically addresses issues related to teacher education, including the development of professional education materials.

Faculty members who creatively combine teaching with research are essential to the improvement of undergraduate STEM education. This NSF program seeks to stimulate and motivate faculty members so that creative teaching and pedagogical scholarship become a part of the "faculty culture" at all institutions.

In Project Kaleidoscope's Report on Reports 2002 *Recommendations for Action in Support of Undergraduate Science, Technology, Engineering and Mathematics*, [http://www.pkal.org/template2.cfm?c\\_id=387](http://www.pkal.org/template2.cfm?c_id=387), a consistent vision was noted over 17 years of reports. "The vision is of an environment in which all American undergraduates have access to learning experience that motivate them to persist in their studies and consider careers in their fields; it is of an environment that brings undergraduates to an understanding of the role of science and technology in their world. It is a vision that calls for attention to practices and policies that affect shaping the curriculum and building the human and physical infrastructure to sustain programs. It is a vision that calls for collective action." The CCLI program was designed in response to this and other national reports.

In *Shaping the Future, New Expectations for Undergraduate Education in Science, Mathematics, Engineering, and Technology* (NSF 96-139, 1996), <http://www.nsf.gov/cgi-bin/getpub?nsf96139>, the Advisory Committee to the NSF Directorate for Education and Human Resources recommended that "NSF should put emphasis on implementation of what is known to work, on genuine institutional change, on propagation of validated good practices, and on sustainability of hard-won improvements" (Pg 69). They also recognized that implementing valuable reforms would be impeded by rising costs and growing financial constraints: "Public finances for higher education have become constrained for a variety of reasons (e.g. reduced growth in state tax revenues; competing demands from other areas, particularly K-12 education, the penal system, and delivery of health services), and there has been growing resistance to increases in tuition charges that exceed the rise in the Consumer Price Index." (Pg 29).

The CCLI program is well-positioned to support improvements in STEM education in this environment because it is designed to facilitate change within the existing organizational structure of colleges, universities, and current financial constraints. It provides opportunities for faculty professional development directly through its *National Dissemination* track and indirectly through its other tracks. CCLI encourages departments and faculty to make local improvements in STEM curricula and instructional methods through its *Adaptation and Implementation* track. It provides opportunities for faculty to build on promising innovative practices at the national level in its *Educational Materials Development* track and at the institutional level in its *Adaptation and Implementation* track. CCLI also supports the use of evaluation and assessment tools to measure the impact of various educational practices in all its tracks, and supports the development and dissemination of assessment tools in its *Assessment of Student Achievement* track. Projects supported under all CCLI tracks must meet a requirement for documented evidence of effectiveness of the underlying educational materials and practices.

The opportunity for faculty and their institutions to have a major impact on undergraduate education is greater than ever. Increased national recognition of the importance of STEM education, coupled with rapid growth in new teaching and learning technologies, innovations in preK-12 education, increased understanding of how students learn, and successful interdisciplinary approaches, creates new opportunities for improving undergraduate education. These developments provide the foundation for systemic reform, i.e., the totality of effort required of institutions to achieve excellence in STEM undergraduate education for all students.

## II. PROGRAM DESCRIPTION

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### RESEARCH BASIS OF EFFORTS

The EMD and ND tracks of the CCLI program aim to support the development and dissemination of educational materials that are based on research documenting their effectiveness and impact on enhancing student learning. Thus, the most competitive proposals will be those that either refer to an existing research base or provide credible plans to a) research the needs and opportunities that exist, b) assess the impact on student learning, and c) study how best to prepare faculty to use the materials effectively. Proposals may include, for example, research on how best to test the impact of new educational materials on student learning and achievement; the impact on learning of an educational technology, research experiences, and pedagogical innovations; how students choose courses and majors, or how best to disseminate knowledge about measuring student learning. For additional support for research projects relevant to the goals of CCLI see the NSF program [Research on Learning and Education \(ROLE\)](#). Projects that aim to focus on the development of new assessment tools, or the adaptation of existing assessment tools to a new environment, should consider submitting a proposal to the ASA track of CCLI. One source of information about DUE-funded projects is the Project Information Resource System (PIRS), [https://www.ehr.nsf.gov/pirs\\_prs\\_web/search/](https://www.ehr.nsf.gov/pirs_prs_web/search/).

## **TRACK 1: EDUCATIONAL MATERIALS DEVELOPMENT (CCLI-EMD)**

The objective of the CCLI-EMD track is to support the development of educational materials that incorporate practices that are effective in improving learning of science, technology, engineering, or mathematics by undergraduates with diverse backgrounds and career aspirations. Projects are expected to address national needs and/or opportunities in undergraduate STEM education and to produce innovative materials of a quality and significance appropriate for national distribution, adoption, adaptation, and implementation. Projects to develop new materials may be particularly appropriate for incorporating technology, global perspectives, research, and innovative pedagogy to enhance learning of science, technology, engineering, and mathematics.

Because it is the aim of the EMD program track to foster the development of materials that have the potential of being used by and impacting the largest number and diversity of students enrolled at different types of institutions, it is recommended that the individuals involved in materials development demonstrate a knowledge of the needs and background of such students, and involve faculty as appropriate from diverse institutions.

The CCLI-EMD track invites two types of proposals that aim to achieve these goals:

- those that intend to establish a "proof of concept" or a prototype that would be responsive to a national need, and
- those that intend to fully develop a product or practice for national dissemination.

### ***Proof of Concept***

A "proof-of-concept" project is expected to demonstrate the scientific and the educational feasibility of an idea.

The outcomes expected of a CCLI-EMD Proof-of-Concept project shall include all of the following:

- A prototype that addresses a nationally recognized need and is based upon sound, effective pedagogy;
- A pilot test that provides a credible evaluation of the prototype;
- A report of the results of the evaluation; and
- Dissemination to the professional community about the prototype.

The Project Description portion of the proposal should describe the plans to achieve these outcomes.

If development of the prototype proves successful, the project would be expected to move to full-scale development of the materials. In this case, the final report for the proof-of-concept project should include an outline of a plan for the following:

- Developing the prototype into the full project, including beta testing and evaluation of the product at diverse types of institutions and with diverse student populations, and
- Commercial or other self-sustained distribution of a fully developed product or practice.



If the team developing a prototype involves a collaboration between two-year colleges and four-year colleges/universities see the paragraph below about collaborations for potential budget implications.

### **Full Development**

A full development project is expected to produce and evaluate significant new educational materials and pedagogical practices, and to promote their dissemination and effective implementation nationally.

The outcomes expected of the funded projects include all of the following:

- The full development of innovative materials that incorporate effective teaching and learning strategies, and that are based upon prior experience with a prototype;
- A credible evaluation of the effectiveness of the materials or practices at different types of institutions serving students with diverse backgrounds and career goals;
- Faculty at test sites and other potential users who are prepared to use the materials or practice;
- Dissemination of information about the developed materials; and
- Self-sustaining national distribution (for example, distribution through a commercial publisher or discipline-based professional society).

The Project Description portion of the proposal should describe the plans to achieve these outcomes.

### **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 [www.nsdlib.org](http://www.nsdlib.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 please see the Dublin Core Metadata Initiative at <http://dublincore.org> and the NSDL Metadata Primer at <http://metamanagement.com.nsdlib.org/outline.html>.

### **Budget Considerations**

Full development proposals may include a request for funds to conduct workshops or other forms of faculty development to enhance the impact of materials and products developed by the project. Alternatively, when a project is at a stage where materials are ready for use and their effectiveness has been demonstrated, the project PI may submit a request for a supplement to the grant to fund such activities. The request for the supplement must be justified on the basis of the quality of materials developed and the potential value of the proposed activities. PIs interested in supplemental funds should contact the NSF Program Director assigned to the project.

**Collaborations between Two-Year Colleges and Four-Year Colleges/Universities:** In addition to individual submissions by colleges and universities, in FY04 the Educational Materials Development track also encourages proposals from two-year colleges in collaboration with four-year colleges/universities. The goal is to encourage faculty members from different institutions to jointly *design, develop,* and *test* innovative educational materials for the lower-division undergraduate courses, particularly those for which students seek transfer credit. It is hoped that meeting this goal will foster sustainable relationships by leveraging the strengths of all involved institutions. These proposals may be submitted by either a two- or four-year institution but must involve both two- and four-year faculty in the design, development, and testing of materials. If appropriate, activities leading to seamless articulation between two- and four-year institutions may be included. To encourage jointly developed proposals in the "proof-of-concept" category, an additional \$25,000 may be requested for a maximum of \$100,000. NSF also encourages submission of Full Development proposals developed jointly by two- and four year institutions that build on either "proof-of-concept" collaborative activities or other prior work.

### **TRACK 2: NATIONAL DISSEMINATION (CCLI-ND)**

This track supports the national dissemination of exemplary materials and practices by providing current and future faculty with



professional development activities. (Eligible activities are not restricted to the dissemination of results from NSF-funded projects). Projects are invited from organizations that propose to provide faculty professional development opportunities on a national scale. Such organizations should be able to provide efficient administrative support to manage the logistics of these activities at multiple sites. Although it is expected that the primary mechanisms will be workshops, short courses, and distance learning opportunities, other means of dissemination are also encouraged.

These professional development opportunities are expected to enable faculty to introduce new content into undergraduate courses and laboratories, and to explore effective educational practices, thereby improving the effectiveness of their teaching. The new content may be scientific and technical knowledge, laboratory practices, or reformatted and synthesized content that supports new modes of learning. It is expected that the format will provide interaction with experts at a level deep enough to promote and achieve significant gains by participating faculty.

Successful proposals must aim to provide faculty professional development in a variety of disciplines or broadly within one of the following disciplines: behavioral sciences, biological sciences, chemistry, computer and information sciences, engineering, earth sciences, mathematical sciences, physics and astronomy, or social sciences.

Scientific societies may submit proposals to the national dissemination track. Proposals from scientific societies should clearly identify the value that would be added to the current set of activities sponsored by their organization(s) in support of faculty professional development. Scientific societies in the same discipline are urged to work together rather than separately in developing proposals.

The outcomes expected of funded CCLI-ND projects include all of the following:

- Sets of materials for use by attending faculty that are appropriate for their needs.
- Participation by faculty representative of the national demographic and institutional diversity within the included disciplines. [This may require proactive recruitment.]
- Follow-up activities to sustain faculty who participated in the professional development activities.
- A network of faculty actively using the disseminated best practices in their courses and classrooms.
- Evaluation protocols to assess the effectiveness of professional development activities and to improve their effectiveness. [Mature projects are expected to assess the success of efforts by participating faculty to deploy these exemplary materials and practices in their teaching.]

The following outcomes, although not required, would represent outstanding achievement:

- A cadre of faculty who participated in professional development activities who have subsequently become actively involved in further efforts to disseminate information about these practices to others.
- Success in attracting other sponsors or co-sponsors to sustain further professional development and dissemination activities.

### **III. ELIGIBILITY INFORMATION**

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#### ***Eligible Fields and Disciplines***

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 Institutions and Individuals***

Proposals are invited from organizations in the United States and its territories: two-year colleges, four-year colleges, universities, professional societies, consortia of institutions, and nonprofit 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 institutions. Projects may involve a single organization, a collaboration with business and industrial partners, or a collaboration among several organizations. For example, projects may include collaborative efforts that improve the transition of students between collaborating educational institutions, such as transfer between two- and four-year institutions.

An individual may serve as lead Principal Investigator (PI) on either one EMD or ND proposal, one ASA proposal, and one A&I proposal submitted in the same fiscal year. There is no restriction on the number of proposals for which a person may serve as a Co-PI.

## **IV. AWARD INFORMATION**

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The number and size of awards will depend on the quality of the proposals received and the availability of funds. Grant duration for both EMD and ND awards is typically 2-3 years, but support may be requested for up to five years. The expected range of total NSF/DUE support over the lifetime of a project for CCLI projects, including indirect costs, is as follows:

- ***Educational Materials Development***
  - Proof-of-Concept: up to \$75,000 per project. An additional \$25,000 may be requested for projects that involve the collaboration of faculty from two- and four-year institutions, for a total of \$100,000.
  - Full Development: up to \$500,000 per project. This includes projects carried out by collaborating institutions.
- ***National Dissemination***: up to \$1,000,000 per year.

## **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

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### **A. Proposal Preparation Instructions**

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#### **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](mailto:pubs@nsf.gov).

Specific guidance below supplements the GPG's general guidance and modifies some requirements (such as maximum page length, length of the Project Summary, and spacing).

#### ***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 the DUE Project Information Resource System, [http://www.ehr.nsf.gov/pirs\\_prs\\_web/search/](http://www.ehr.nsf.gov/pirs_prs_web/search/). For information that will assist proposers and Principal Investigators to: a) develop proposals that are responsive to CCLI program tracks; b) describe the objectives of their proposed projects so that reviewers can more easily determine how well the proposed project responds to the objectives of the corresponding CCLI track; and c) manage their projects to achieve project objectives and to enable reporting on the project consistent with program and NSF goals, see the *Supplemental Information for Principal Investigators and Applicants to NSF's Course, Curriculum, and Laboratory Improvement Program* (NSF 00-117).

#### ***Formal Proposal Preparation***

Proposals should contain the standard sections described in the [GPG, Chapter II, Section C.2](#). The following guidance supplements the GPG's discussion of particular sections of the proposal.

### 1. 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. After selecting the CCLI program solicitation number, be sure to also choose the specific CCLI track - EMD or ND. Correctly identifying the CCLI program and track on the Cover Sheet is important for processing at NSF.

### 2. Project Summary

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, understandable to a scientifically literate reader. It should not contain extraneous descriptions of the institution, department, or PIs. In no more than 250 words the summary should describe:

- The problem(s) being addressed by the proposal;
- The objectives and expected outcomes, including products;
- How the objectives will be accomplished;
- Special audiences targeted by the project, as appropriate;
- Notable collaborations with other institutions; and
- Themes addressed in a significant way (such as teacher preparation, diversity, faculty development, or integration of technology in education).

All project summaries **MUST** include separate paragraphs addressing National Science Board (NSB) approved review criteria of intellectual merit and broader impacts, or the proposal will be returned without review.

### 3. Project Description, including Results from Prior NSF Support

Text in this section of a formal 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 font size no smaller than 12 point. The following page limits apply:

- Educational Materials Development  
Proof-of-Concept: **15 double-spaced pages**  
Full Development: **30 double-spaced pages**
- National Dissemination: **30 double-spaced pages**

**DUE will not accept proposals in which the Project Description (including Results from Prior NSF Support) exceeds these page limits. Proposals that are not in compliance will be returned to proposers without review.**

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. With regard to CCLI, NSF's two general merit review criteria lead to questions such as the following, which are often raised in 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 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, mathematicians, engineers, technicians, 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 institution's academic program?
- To what extent will the results of the project contribute to the knowledge base of activities that enhance student learning?
- Would the project's results contribute to the base of research on materials and methods that are effective in enhancing student learning?
- Will the project evaluation inform others through the communication of results?
- Are the results of the project likely to be useful at similar institutions?
- What is the potential for the project to produce widely used products that can be disseminated through commercial or other channels?
- Are plans for producing, marketing and distributing these products appropriate and adequate?
- 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?

The Project Description in proposals submitted to both the EMD and ND tracks should contain:

- **Results from Prior NSF Support:** 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 on-going progress. Do not include information on research projects unless those projects have a direct bearing on the new proposal. Provide sufficient detail to permit a reviewer to reach an informed conclusion regarding the value of the results achieved. Include the NSF award number, amount and period of support, the title of the project, a summary of the results of the completed work, and a list of publications and formal presentations that acknowledged the NSF award (do not submit copies with the proposal). 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.
- **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 and the research base on which the project builds, 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 include a URL for your materials if you think that providing a URL will enhance the reviewer's ability to appreciate how you plan to

achieve your objectives. However, the reviewers are not required to access this material, and may not have access to the Internet during the review process. Therefore, all essential material should be submitted in written format. The literature cited in the bibliography 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 it should be clear to a reader how the information in a reference has played a role in the design of the project.

- **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 institutional 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 institution or from others involved in testing of materials developed. 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). See: <http://www.nsf.gov/cgi-bin/getpub?nsf02057>
  
  - *User Friendly Handbook for Mixed Method Evaluations* (NSF 97-153). See: <http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf97153>
  
  - *Online Evaluation Resource Library*. See: <http://oerl.sri.com>
  
  - *Field-tested Learning Assessment Guide (FLAG)*. See: <http://www.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, and to disseminate products. 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 institutions; 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. Plans for involving commercial publishers in the production, marketing, and dissemination of all appropriate products should be provided.

#### 4. Budget and Budget Justification

The amounts indicated on the FastLane budget forms should include only the amounts **requested of NSF**. Text for the budget justification is limited to a total of no more than 3 pages.

For a proposal involving multiple organizations, the budget justification should include 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, and therefore it is expected that the budgets will reflect the assumption of financial responsibility by the participating organizations as the educational innovations are fully implemented.

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.

##### **Preparation of Instrumentation Budget Items and Justification**

Reviewers must be able to recognize the function of the requested instrumentation. Therefore, on a separate page list all individual items by a descriptive name and the probable brand, model, and price. Such selections may be changed after an award.

Many manufacturers routinely offer educational or institutional discounts. In preparing the budget, contact manufacturers or distributors

to obtain discounted prices. On the detailed instrumentation budget page show both the list price and the discounted price used to compute the total cost of the project.

### **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.

In all DUE programs, the NSF grant may include participant support costs for subsistence (lodging and meals) during the workshop. In addition, funds may be requested for a stipend of up to \$60 per day of the workshop for participants. Requests for such stipends must be specific to the target audience and fully justified; for example, to assure participation by faculty with few professional development opportunities or from resource-poor institutions. No tuition or other fees may be charged to the participants. Note that indirect costs may not be charged on participant support costs. The host institution is expected to provide the facilities and instrumentation necessary to operate the project, and therefore NSF will ordinarily support no permanent instrumentation or facilities. The host institution is also expected to cover the expenses incurred by their own faculty participants.

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. The total cost per participant-day varies considerably depending on the proposed activity.

### **Collaborative Proposals**

Collaborative Proposals (see [GPG, Chapter II, Section D.3](#)) may be submitted either as a single proposal or by simultaneous submission of proposals from different organizations. In the latter case, 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 award size limits specified in this solicitation. In particular, note that the maximum total that may be requested for an EMD Full Development project is \$500,000, including projects carried out by collaborating institutions. Simultaneous Collaborative Proposals will be treated as a single proposal (with a single Project Summary, Project Description, and References Cited) during the review process.

## **5. Project Data Form**

The information on the Project Data Form (NSF Form 1295) 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.

## **6. Special Information and Supplementary Documentation**

For materials development proposals, a sample of prior work or work in progress is recommended. Such information should be relevant and concise, and uploaded in the "Supplementary Docs" section in FastLane.

### **FastLane Requirements**

FastLane, NSF's System for conducting business over the Internet, must be used to prepare and submit proposals. PIs who have not used FastLane before are asked to make sure that their institution is a registered FastLane institution and to contact this institution's Sponsored Research Office (which might also be known as the Office of Grants Administration, Office of Sponsored Research, Office of Research, etc.) to be added to the NSF PI database. (All Co-PIs listed in the proposal must also be in the NSF PI database.) PIs who intend to use sub-awards in their proposal (see [GPG, Chapter II, Section C.2.g.\(vi\)\(e\)](#)) are reminded that the subcontract organization(s) must also have an NSF Institution ID Number before FastLane can be used to prepare the subaward budget(s). *New FastLane users should acquaint themselves with the system as early as possible--well before the proposal deadline.*

Detailed instructions for proposal preparation and submission via FastLane are available at <http://www.fastlane.nsf.gov/a1/newstan.htm>. If there are extenuating circumstances, the institution may apply to the Assistant Director of EHR for a waiver to submit a paper proposal. Requests should be sent via electronic mail to [undergrad@nsf.gov](mailto:undergrad@nsf.gov), with "FastLane Waiver request" in the subject line. If such a waiver is granted, the paper proposal must be postmarked by the deadline date.

Proposers are reminded to identify the program announcement/solicitation number (03-558) 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

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### Cost Sharing:

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

### Other Budgetary Limitations:

See the detailed range of expected award sizes in Section IV ("Award Information") of the program solicitation.

## C. Due Dates

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

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

June 18, 2003  
EMD and ND Tracks

## D. FastLane Requirements

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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](mailto: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

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### A. NSF Proposal Review Process

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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.

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**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.

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**

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### **A. Notification of the Award**

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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**

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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](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](mailto: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**

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

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

If in your judgment a completed proof-of-concept award proves successful, an outline of a plan for the following should be included in

the final report:

- Developing the prototype into the full project, including beta testing and evaluation of the product at diverse types of institutions and with diverse student populations, and
- Commercial or other self-sustained distribution of a fully developed product or practice.

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.

The Division of Undergraduate Education maintains the "Project Information Resource System" (PIRS) to provide the community at large current information about funded projects. Some of the information provided by PIs in the interim, annual, and final report will be available through PIRS. Applicants are encouraged to review the information now available through PIRS [http://www.ehr.nsf.gov/pirs\\_prs\\_web/search/](http://www.ehr.nsf.gov/pirs_prs_web/search/) about projects NSF has funded in undergraduate education. Principal investigators are encouraged to make use of the opportunity to provide additional descriptive information about their project by accessing the "DUE Information" link in the FastLane menu under "Prepare Report" on the "Project System Control Screen."

Information is requested, for example, about the curricular targets of the project (disciplines, subjects, courses), pedagogical approaches used, and additional funding sources. PIs of CCLI grants will 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 the Division of Undergraduate Education to indicate the success of the CCLI program in meeting its objectives, and is reported in aggregate form to Committee's of Visitors, NSF management, and Congress, to meet the requirements of the Government Performance and Results Act (GPRA).

## VIII. CONTACTS FOR ADDITIONAL INFORMATION

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General inquiries regarding this program should be made to:

- Division of Undergraduate Education, telephone: 703-292-8666, email: [undergrad@nsf.gov](mailto:undergrad@nsf.gov)
- Dr. Herbert H. Levitan, Lead Program Director, CCLI-EMD, email: [hlevitan@nsf.gov](mailto:hlevitan@nsf.gov)
- Dr. Myles G. Boylan, Lead Program Director, CCLI-ND and CCLI-ASA, email: [mboylan@nsf.gov](mailto:mboylan@nsf.gov)
- Dr. Susan H. Hixson, Lead Program Director, CCLI-A&I, email: [shixson@nsf.gov](mailto:shixson@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188, email: [fastlane@nsf.gov](mailto:fastlane@nsf.gov)
- Ms. Antoinette Allen, Division of Undergraduate Education, telephone: 703-292-4646, email: [duefl@nsf.gov](mailto:duefl@nsf.gov)

## IX. OTHER PROGRAMS OF INTEREST

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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.

The following programs might also be of interest.

- EHR/DUE - [Advanced Technological Education \(ATE\)](#)
- EHR/DUE - [Computer Science, Engineering, and Mathematics Scholarships \(CSEMS\)](#)
- EHR/DUE - [Federal Cyber Service: Scholarship for Service \(SFS\)](#)
- EHR/DUE - [National Science, Technology, Engineering, and Mathematics Education Digital Library \(NSDL\)](#)
- EHR/DUE - [NSF Director's Award for Distinguished Teaching Scholars \(DTS\)](#)
- EHR/DUE - [Science, Technology, Engineering, and Mathematics Talent Expansion Program \(STEP\)](#)
- EHR/ESIE and EHR/DUE - [Teacher Professional Continuum \(TPC\)](#)
- EHR/DGE - [NSF Graduate Teaching Fellows in K-12 Education \(GK-12\)](#)
- EHR/HRD - [Historically Black Colleges and Universities Undergraduate Program \(HBCU-UP\)](#)
- EHR/HRD - [The Louis Stokes Alliances for Minority Participation Program \(LSAMP\)](#)
- EHR/HRD - [Program for Gender Equity in Science, Mathematics, Engineering, and Technology \(GSDE\)](#)
- EHR/HRD - [Program for Persons with Disabilities \(PPD\)](#)
- EHR/HRD - [Tribal Colleges and Universities Program \(TCUP\)](#)
- EHR/REC - [Research on Learning and Education \(ROLE\)](#)
- CISE/EIA - [Minority Institutions Infrastructure Program](#)
- ENG/EEC - [Engineering Education Coalitions](#)
- GEO - [Geoscience Education](#)
- MPS/DMS - [Vertical Integration of Research and Education in Mathematical Sciences \(VIGRE\)](#)
- NSF-wide - [Research Experiences for Undergraduates \(REU\)](#)

## **ABOUT THE NATIONAL SCIENCE FOUNDATION**

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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 (FASSED)* provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the 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](mailto:pubs@nsf.gov)  
  
or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

#### PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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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.



**The National Science Foundation**  
4201 Wilson Boulevard, Arlington, Virginia 22230, USA  
Tel: 703-292-5111, FIRS: 800-877-8339 | TDD: 703-292-5090 or (800) 281-8749

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