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# **Undergraduate Research Collaboratives (URC)**

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## **Program Solicitation**

**NSF 06-521**

*Replaces Document NSF 05-539*



**National Science Foundation**  
Directorate for Mathematical and Physical Sciences  
Division of Chemistry

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

March 21, 2006

## **SUMMARY OF PROGRAM REQUIREMENTS**

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### **General Information**

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**Program Title:**

Undergraduate Research Collaboratives (URC)

**Synopsis of Program:**

The Undergraduate Research Collaboratives (URC) Program seeks new models and partnerships with the potential (1) to expand the reach of undergraduate research to include first- and second-year college students; (2) to broaden participation and increase diversity in the student talent pool from which the nation's future technical workforce will be drawn; and (3) to enhance the research capacity, infrastructure, and culture of participating institutions. Collectively, these outcomes will substantially strengthen the nation's research enterprise. For this program, research should be in the chemical sciences or in interdisciplinary areas supported by the chemical sciences. Projects should allow students to create new knowledge that is potentially publishable by providing exposure to research of contemporary scientific interest that is addressed with modern research tools and methods.

**Cognizant Program Officer(s):**

- Richard Foust, Program Director, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4948, email: [rfoust@nsf.gov](mailto:rfoust@nsf.gov)
- Susan H. Hixson, Program Director, Directorate for Education & Human Resources, Division of Undergraduate Education, 835 N, telephone: (703) 292-4623, fax: (703) 292-9015, email: [shixson@nsf.gov](mailto:shixson@nsf.gov)
- Jessie A. DeAro, Assistant Program Director, Directorate for Education & Human Resources, Division of Human Resource Development, 815 N, telephone: (703) 292-5350, fax: (703) 292-9018, email: [jdearo@nsf.gov](mailto:jdearo@nsf.gov)

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

- 47.049 --- Mathematical and Physical Sciences

### **Eligibility Information**

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• **Organization Limit:**

Proposals may be submitted by U. S. academic institutions with undergraduate programs in areas generally supported by the NSF.

- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** No institution may submit more than one proposal as a lead institution.

## Award Information

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- **Anticipated Type of Award:** Continuing Grant
- **Estimated Number of Awards:** 1 to 5 - Up to a maximum of 5 URC awards, depending upon the quality of proposals and award size
- **Anticipated Funding Amount:** \$3,500,000 in Fiscal Year 2006, depending upon availability of funds.

## 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 by NSF.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

### C. Due Dates

- **Full Proposal Deadline Date(s)** (due by 5 p.m. submitter's local time):  
March 21, 2006

## Proposal Review Information

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- **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

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

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# I. INTRODUCTION

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The Division of Chemistry in the Directorate for Mathematical and Physical Sciences and the Divisions of Human Resource Development and of Undergraduate Education in the Directorate for Education and Human Resources expect to make awards in Fiscal Year 2006 to support activities of Undergraduate Research Collaboratives (URCs). The Undergraduate Research Collaboratives (URC) Program seeks new models and partnerships with the potential (1) to expand the reach of undergraduate research to include first- and second-year college students; (2) to broaden participation and increase diversity in the student talent pool from which the nation's future technical workforce will be drawn; and (3) to enhance the research capacity, infrastructure, and culture of participating institutions. Collectively, these outcomes will substantially strengthen the nation's research enterprise. For this program, research should be in the chemical sciences or in interdisciplinary areas supported by the chemical sciences. Projects should allow students to create new knowledge that is potentially publishable by providing exposure to research of contemporary scientific interest that is addressed with modern research tools and methods.

The recent National Academies report, *Rising Above The Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, makes the recommendation to "Sustain and strengthen the nation's traditional commitment to long-term basic research ...." The report notes that "We live in a knowledge-intensive world ... [in which] the focus of global competition is no longer only on manufacturing and trade, but also on the production of knowledge and the development and recruitment of the 'best and brightest' from around the world to produce it. ... The National Science Board and the Council on Competitiveness have recommended a national effort to increase the numbers of both domestic and international students pursuing science, technology, engineering, and mathematics degrees in the United States." The report states, "Increasing participation of underrepresented minorities is critical to ensuring a high quality supply of scientists and engineers in the United States over the long-term." The full document may be found at <http://www.nap.edu/books/0309100399/html>. The Science, Technology, Engineering and Mathematics (STEM) Talent Expansion Program (STEP) for increasing the number of undergraduate STEM majors and the Robert Noyce Scholarship Program for recruiting K-12 science and mathematics teachers are examples of NSF programs that address these STEM workforce issues. In addition, a traditional method that has contributed substantially to STEM workforce development – undergraduate research – presents significant potential for expanded participation.

NSF has long recognized the value of research in undergraduate education, as evidenced by support of such activity through individual investigator awards, collaborative projects, and the NSF Research Experiences for Undergraduates (REU) program. Traditionally, PIs have included advanced undergraduates on their research projects. This approach is effective in introducing undergraduates to the excitement of research, but typically engages a relatively small number of advanced undergraduates.

An NSF workshop considered new models and partnerships that might substantially expand opportunities for undergraduate research. Workshop participants explored the feasibility of establishing undergraduate research collaboratives (URCs) that could enable large numbers of students, including first- and second-year students, from across the full spectrum of postsecondary institutions to participate in research. The workshop report, *Exploring the Concept of Undergraduate Research Centers: A Report on the NSF Workshop*, endorses the concept of establishing URCs and provides a variety of examples that illustrate new models and partnerships for conducting research with first- and second-year undergraduates. The report may be accessed at <http://urc.arizona.edu/>.

URC program solicitations were released following this workshop (NSF 03-595 and NSF 05-539). For a link to URC award abstracts, see: <https://www.fastlane.nsf.gov/a6/A6Start.htm>. A second workshop, "Workshop on the Implementation of Undergraduate Research Centers," was held to provide additional opportunities for community input. The report from this workshop may be accessed at <http://www.scu.edu/cas/research/urc.cfm>. In this year's program announcement the title of this program has been changed to Undergraduate Research Collaboratives, a more accurate description of the activity.

# II. PROGRAM DESCRIPTION

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The URC program aims to support the establishment and evaluation of new models in the chemical sciences and allied disciplines that will:

1. expand collaborations;
2. broaden undergraduate research opportunities; and
3. enhance capacity and infrastructure in support of and commitment to excellence in undergraduate education.

Individually, the URCs will have significant impact on the undergraduate programs of participating institutions. Collectively, they will strengthen the nation's research enterprise by providing new mechanisms for attracting a larger, more diverse group of students to careers in the chemical sciences. Their emphasis on participation of first- and second-year students in authentic research – the creation of new knowledge that is potentially publishable – will challenge the *imagination* and *creativity* of the community to rethink the directions of undergraduate education.

A URC is an experiment to implement and evaluate a new model to involve large numbers of 1<sup>st</sup>- and 2<sup>nd</sup>-year students in authentic, potentially publishable research in the chemical sciences and/or in interdisciplinary fields supported by the chemical sciences. A proposal should be clear on the research that

students will conduct using the URC model and how the new model will be evaluated. The second NSF workshop on the URC program, <http://www.scu.edu/cas/research/urc.cfm>, highlighted the following issues that will be key features of URC projects:

1. inclusiveness of student recruitment;
2. scalability and sustainability;
3. effective partnerships and overall project management;
4. integration with the curriculum; and
5. project evaluation and dissemination plans.

### Expanding Collaborations

A URC is expected to serve as a national model for collaboration that significantly expands undergraduate research opportunities in the chemical sciences and allied disciplines. It may bring together scientists and engineers from associate-, baccalaureate-, masters- and/or PhD. -degree-granting institutions, minority-serving institutions, national and regional institutions, and it may include industrial and/or government laboratories. (A large number of minority-serving and community college institutions are supported in the programs of the NSF Division of Human Resource Development, described at <http://www.nsf.gov/dir/index.jsp?org=EHR>, and the NSF Division of Undergraduate Education, described at <http://www.nsf.gov/div/index.jsp?div=DUE>. The Department of Education maintains a list of accredited minority-serving institutions at [http://cdmrp.army.mil/funding/pdf/2004\\_mi\\_list.pdf](http://cdmrp.army.mil/funding/pdf/2004_mi_list.pdf). Large institutions may develop an intra-institutional model of collaboration that meets the URC objectives. A URC might be regional or it might be a virtual center/collaboratory serving a wider geographical area, including international sites, via Internet/grid connections among participants. The use of cyberinfrastructure/technology to promote partnerships falls naturally within the URC concept.

Collaboration across disciplines can provide a complementary approach to collaboration across institutions. Involving substantial numbers of first- and second-year undergraduates may require collaboration with fields that rely on introductory chemistry as a core course for their majors. Schools of education may become partners, as students preparing to become K-12 science teachers experience the process of creating new knowledge. URCs may invite participation of K-12 teachers and students, and of local communities. Finally, URCs are inherently collaborations of undergraduate and graduate students, postdoctoral associates, faculty, technical staff, research staff, and administrators in support of expanded undergraduate research opportunities and enhanced capacity for excellence. Models of successful collaboration initiated through the URC program have the potential to make a significant contribution to strengthening the research enterprise.

### Broadening Undergraduate Research Opportunities

URCs will provide new opportunities for discovery-based learning and for an introduction to professional experiences in the chemical sciences at the earliest possible stage of the collegiate experience. Students should have as much opportunity as possible to participate in the creation and communication of scientific knowledge. URC research projects should be designed appropriately for the background and skills of the participating students. Inclusiveness should be reflected in a large, demographically diverse group of student participants, including many who would not otherwise share in the excitement of conducting original research in the chemical sciences. The exposure to aspects of research provided by URCs should encourage many participating students to pursue additional opportunities for technical training; and provide all participating students with a better appreciation for the technical and ethical nature of high-quality scientific research, and the use of the scientific method as a tool for lifelong problem solving. URCs should contribute substantially to the technical literacy and professional growth of participating students across the full range of geographic, demographic, and institutional diversity comprising the URC.

### Enhancing Research Capacity, Infrastructure, and Culture

URCs should strengthen research capacity, infrastructure, and culture at participating institutions. Research capacity is reflected in the number and inclusiveness of participating mentors and students and in the quality of their research experience. Research infrastructure is evident in the space, instrumentation, technology, time, and other resources that are available for conducting research. Research culture is linked to campus resource investment and to the value placed on participation by mentors in the undergraduate research enterprise by the institution. Research culture also embraces the fostering of student learning and professional development and an appreciation for the integration of research and education. URCs should contribute substantially to an enhanced and sustainable undergraduate research enterprise at the partnering institutions.

### Summary

The Undergraduate Research Collaboratives Program will develop, implement, and evaluate models for (1) collaboration; (2) expansion of undergraduate research participation; and (3) enhancement of capacity, infrastructure and commitment to excellence in undergraduate education in the chemical sciences and related disciplines. There is *significant intellectual challenge* in the design of such models, particularly in creating the structural elements that allow for interplay of these three goals and in ensuring that the research elements are of interest to the scientific community. Effective models have the potential for broader impacts through their inclusiveness, evaluation, dissemination, and replication or adaptation on a larger scale.

## III. ELIGIBILITY INFORMATION

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Proposals may be submitted by U. S. academic institutions with undergraduate programs in areas generally supported by the NSF. No institution may submit more than one proposal as a lead institution.

## IV. AWARD INFORMATION

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Awards will be made as continuing grants for 5 years at up to \$500,000 per year plus up to an additional \$200,000 in the first year for equipment. The anticipated funding is approximately \$3.5 million in Fiscal Year 2006 to make up to five awards. The estimated program budget, number of awards, and average award size/duration are subject to the quality of the proposals and availability of funds.

Continued funding of a URC is contingent on satisfactory performance as measured by annual reports and a site visit to be scheduled during the third year of the award.

## 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/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

Proposers should follow the formatting and page limits described below. Proposals that do not follow the NSF proposal formatting criteria, as modified in this solicitation, may be returned without review.

Proposals submitted to the URC solicitation should include the project design elements and the research to be performed; a description of the partnerships and the management of the project; an evaluation plan; a dissemination plan; and relevant results from prior NSF support. The project description may be up to 15 pages long and include (in this order)

- approximately 8 pages on Project Design Elements and Research
- approximately 2 pages on Partnerships and Management
- approximately 2 pages on Student Assessment and Project Evaluation
- approximately 1 page on Dissemination
- approximately 2 pages of Results of Prior Support (if a PI or co-PI has had NSF support in the last 5 years)

The Project Design Elements and Research section needs to describe not only the research to be conducted by students, but the structure in which the research is to be accomplished. The structure impacts the quality of the research experience, as reflected in the type of activities that will be offered, the professional growth opportunities for students and mentors, and the number and demographic inclusiveness of the students and mentors that will be served by the project. Institutional elements of this section allow proposers to discuss what resources or facilities will be available at the lead institution and any other institutions of a consortium, during and beyond the duration of the URC award. The section of the proposal devoted to Partnerships and Management should describe how the elements of the project will be coordinated and how strong, continuous leadership over the life of the project will be ensured. Evaluation and Dissemination plans should enable proposers to benchmark their progress and share their results with the broader community. There are many potential types of inputs to URCs and many possible desirable outcomes. For this program, proposers should propose bold experiments while being realistic about their outcomes.

Proposers are reminded to identify the program announcement/solicitation number (06-521) 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 by NSF in proposals submitted under this Program Solicitation.

#### Budget Preparation Instructions:

Proposals for URC Awards may request support for up to \$500,000 per year for 5 years plus up to an additional \$200,000 in the first year for equipment to support URC activities.

Proposals submitted for URC awards may request salaries (and associated fringe benefits) for senior personnel, administrative or managerial personnel,

postdoctoral associates, graduate students and other scientific and professional personnel working on the project. The roles of all participants should be described in the Project Description and the level of support should be justified in the Budget Justification. All support for undergraduate participants (stipends, travel, subsistence, other costs) should be budgeted under Participant Support Costs (budget lines F.1-4). No overhead or indirect costs may be applied to Participant Support Costs.

The proposal budget may include:

1. equipment necessary to implement the URC (up to an additional \$200,000 in the first year of the project).
2. travel for project personnel (except undergraduates, for whom it is budgeted under Participant Support Costs), including funds for the PI and at least one other member of the URC management team to attend biennial URC workshops in the Washington, DC area.
3. administrative or managerial personnel necessary to execute the project plan.

### Multi-institutional Proposals

Multi-institutional proposals are required to use the award-subaward mechanism. Partnerships with industry, government laboratories and international institutions are encouraged. However, NSF funds from the URC Program may be used only at U.S. academic institutions.

For award-subaward proposals, the budget for the lead institution should include the subawardee budgets on line G5. Detailed budgets for the subawardee institutions must also be included. PIs are encouraged to contact their institution's sponsored research office to discuss their institutions' requirements for subawards.

## 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. submitter's local time):

March 21, 2006

## 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: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail [fastlane@nsf.gov](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.

**Additional Review Criteria:**

1. The extent to which the URC creates and tests a new model for building a research community and performing undergraduate research.
2. The extent to which the URC model is scalable, sustainable, able to be replicated or adapted, and integrated into the curriculum.
3. The quality of the research experience that URC-supported students will have, including the extent to which students will create new knowledge that is potentially publishable.
4. The extent to which the URC will increase the number and diversity of students participating in undergraduate research, including students who might not otherwise be exposed to chemical research.
5. The extent to which the URC builds research capacity, infrastructure and culture that is sustainable beyond the URC award at partnering institutions.
6. The extent to which the URC partnership and management promotes inclusive and effective mentoring and enhances the professional development of mentors.
7. The quality of the evaluation and dissemination plans.

A site visit or reverse site visit may be part of the URC review process.

**B. Review Protocol and Associated Customer Service Standard**

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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 Ad Hoc and/or 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 proposers whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation, or the date of proposal receipt, whichever is later. 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 are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC). 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.

Consistent with the requirements of OMB Circular A-16, *Coordination of Geographic Information and Related Spatial Data Activities*, and the Federal Geographic Data Committee, all NSF awards that result in relevant geospatial data must be submitted to Geospatial One-Stop in accordance with the guidelines provided at: [www.geodata.gov](http://www.geodata.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/publications/pub\\_summ.jsp?ods\\_key=gpm](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=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/>.

\*These documents may be accessed electronically on NSF's Website at <http://www.nsf.gov/awards/managing/>. Paper copies of these documents may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

#### Special Award Conditions:

The following special award conditions will apply to URC awards:

Continued funding of an URC is contingent on satisfactory progress as measured by annual reports and a site visit to be scheduled during the third year of the award.

The awardees will be expected to participate in an external review of the URC program supported by the Division of Chemistry and the Division of Research, Evaluation and Communication.

### 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.

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

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General inquiries regarding this program should be made to:

- Richard Foust, Program Director, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4948, email: [rfoust@nsf.gov](mailto:rfoust@nsf.gov)
- Susan H. Hixson, Program Director, Directorate for Education & Human Resources, Division of Undergraduate Education, 835 N, telephone: (703) 292-4623, fax: (703) 292-9015, email: [shixson@nsf.gov](mailto:shixson@nsf.gov)
- Jessie A. DeAro, Assistant Program Director, Directorate for Education & Human Resources, Division of Human Resource Development, 815 N, telephone: (703) 292-5350, fax: (703) 292-9018, email: [jdearo@nsf.gov](mailto:jdearo@nsf.gov)

For questions related to the use of FastLane, contact:

- Paul G. Spyropoulos, Computer Specialist, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4968, fax: (703) 292-9037, email: [pspyropo@nsf.gov](mailto:pspyropo@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.

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- Research Experiences for Undergraduates ([NSF 05-592](#))
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