

FEDERAL FUNDING OPPORTUNITY

Professional Research Experience Program (PREP)

1. **Federal Agency Name:** National Institute of Standards and Technology (NIST), Technology Administration, Department of Commerce
2. **Funding Opportunity Title:** Professional Research Experience Program (PREP); Availability of Funds
3. **Announcement Type:** Initial Announcement
4. **Funding Opportunity Competition Number:** 2009-PREP
5. **Catalog of Federal Domestic Assistance (CFDA) Number:** 11.609, Measurement and Engineering Research and Standards
6. **Dates:** All applications, paper and electronic, must be received no later than 5:00 pm Mountain Daylight Time (MDT) on May 28, 2009. Applications received after this deadline will not be reviewed or considered.

Executive Summary: The National Institute of Standards and Technology (NIST) announces that the Professional Research Experience Program (PREP) is soliciting applications for financial assistance from accredited colleges and universities to enable those institutions to provide laboratory experiences and financial assistance to undergraduate and graduate students and post-doctoral associates at the NIST, Boulder Laboratories in Boulder, Colorado.

Full Text of Announcement

a. Funding Opportunity Description:

Authority: 15 U.S.C. § 278g-1

The National Institute of Standards and Technology (NIST) announces that the Professional Research Experience Program (PREP) is soliciting applications for financial assistance from accredited colleges and universities to enable those institutions to provide laboratory experiences and financial assistance to undergraduate and graduate students and post-doctoral associates at the NIST, Boulder Laboratories in Boulder, Colorado. In Boulder, NIST carries out programs in five laboratories – Electronics and Electrical Laboratory (EEEL), Chemical Science and Technology Laboratory (CSTL), Physics Laboratory (PL), Materials Science and Engineering Laboratory (MSEL), and the Office of the Chief Information Officer (OCIO).

The objectives of the PREP are to encourage the growth and progress of science and engineering in the United States by providing research opportunities for students and post-doctoral associates, enabling them to collaborate with internationally known NIST scientists, exposing them to cutting-edge research. The PREP will promote students' pursuit of degrees in science and engineering, and post-doctoral associates' professional development in science and engineering. The NIST PREP Coordinator and NIST scientists will coordinate with appropriate department chairs, outreach coordinators, and directors of multi-disciplinary academic organizations to identify students and programs that would benefit from the PREP experience. Applicants must be able to ensure the availability of students for on site collaborative research experiences at the NIST Laboratories in Boulder, Colorado, concurrent with their university studies. Any participating student must also be enrolled in an academic program acceptable to both the sponsoring institution and NIST.

b. Award Information:

1. Project/Award Period

Successful applicants will be eligible, but are not required, to participate in the PREP for the entire five-year period beginning August 1, 2009.

2. Funding Availability

Funding for the PREP will be provided as fellows are identified by the successful applicant and approved by NIST. Fellowship support from NIST under the PREP is contingent upon the availability of NIST program funds, NIST program objectives, and the discretion of NIST advisors.

NIST anticipates awarding one or more cooperative agreements to eligible institution(s). In FY 2004, seven cooperative agreements were awarded to four institutions. Since their inception on August 1, 2004, these awards have provided approximately \$12.884 million in PREP fellowship support to 170 individuals. For the most recent year of the PREP, FY 2008, NIST supported 114 PREP fellowships (some students received more than one fellowship) totaling approximately \$2.805 million.

3. Type of Funding Instrument

The funding instrument will be a cooperative agreement.

4. NIST Substantial Involvement

NIST will be "substantially involved" in the projects by way of collaboration between NIST and faculty, officials, students, and associates of recipient institutions. This includes NIST collaboration with a University recipient by assisting PREP fellows with their research projects, coordinating as needed with the fellows' faculty advisers

regarding the fellows' progress, and approving changes in the research projects described in the fellows' agreements, consistent with NIST program objectives. Additional forms of substantial involvement that may arise are described in the DoC Grants and Cooperative Agreements Interim Manual which may be found on the Internet at:

http://oamweb.ossec.doc.gov/gmd_updated-doc.html

c. Eligibility Information

1. Eligible Applicants

Eligible applicants are accredited institutions of higher education in the United States and its territories that offer undergraduate and graduate degrees in physics, chemistry, mathematics, computer science, or engineering. Undergraduate and graduate students who receive fellowships under the PREP must show evidence of a 3.0 or higher grade point average in a curriculum acceptable to the sponsoring educational institution and NIST and must be enrolled full-time at a sponsoring institution. Post-doctoral associates must be affiliated with a sponsoring institution of higher education.

2. Cost Sharing or Matching

Cost sharing and matching are not required under this program. However, applicants are encouraged to cost share on a voluntary basis. Voluntary cost sharing may include any eligible costs under the applicable cost principles that meet the test of reasonableness, allocability, and allowability.

Indirect costs also are eligible project costs and applicants are encouraged to propose to cover them as cost share under this program. Any indirect costs proposed in an application under this program must not exceed the indirect cost rate negotiated with the applicant's cognizant or oversight Federal agency prior to the proposed effective date of the award.

d. Application and Submission Information

1. Address to Request Application Package

Users of Grants.gov (www.grants.gov) will be able to download a copy of the application package, complete it off line, and then upload and submit the application package and associated proposal information via the Grants.gov website.

For electronic submission – Applicants should follow the application Instructions provided at Grants.gov when submitting a response to this funding opportunity. Applicants are encouraged to start early and not wait to the approaching due date before logging on and reviewing the instructions for submitting an application through Grants.gov.

For paper submission – Applicants are required to submit one (1) signed original and (2) two copies of the full application. An application kit, containing all required standard forms, may be obtained by accessing the following website:

http://www.grants.gov/agencies/aapproved_standard_forms.jsp

To download the CD-511, Certification Regarding Lobbying you may access the following website:

http://ocio.os.doc.gov/s/groups/public/@doc/@os/@ocio/@oitpp/documents/content/dev01_002530.pdf

An application kit may be obtained by contacting Ms. Rosemary O'Connor, Administrative Coordinator for PREP, National Institute of Standards and Technology, Division 104.01, 325 Broadway, Boulder, CO 80305-3328; Tel.: (303) 497-5238; e-mail: rosemary.oconnor@boulder.nist.gov.

2. Content and Form of Application Submission

a. All PREP proposals are to be submitted to Ms. Rosemary O'Connor, Administrative Coordinator for PREP, National Institute of Standards and Technology, Division 104.01, 325 Broadway, Boulder, CO 80305-3328.

Applicants must submit the Application for Federal Assistance (SF-424), Budget Information, Non-construction Programs (SF-424A), and the Assurances, Non-Construction Programs (SF-424B), Disclosure of Lobbying Activities SF-LLL (if applicable) during the initial submission of the application, and the Department of Commerce Form, CD-511, Certifications Regarding Lobbying.

b. Required Elements

Proposals may be structured in any way that the applicant believes will best present the proposed project. A format that NIST offers for consideration by the applicant is as follows:

(a) Introduction: Describe the institution's qualifications for conducting the proposed project. Applicant institutions must ensure the availability of students for on-site work experiences in Boulder, Colorado, concurrent with their university classroom studies.

(b) Needs Assessment: Document and explain the needs to be met by the proposed project or problems to be solved as a result of conducting the proposed project.

(c) Objectives: Provide detailed expected project outcomes and benefits to the college or university expressed in measurable terms.

(d) Evaluation: Delineate plans for measuring success or determining the degree to which the project objectives were met.

(e) Other: Applicants may provide additional information, which is not required to conform to a prescribed format. For example, applicants may wish to describe any plans for continuing the project with necessary funding beyond the Federal funding

currently requested. In addition, applicants may wish to describe the application criteria they plan to use in selecting undergraduate and graduate students and post-doctoral associates for the fellowship program.

(f) Proposal Budget: Applicants should use the SF-424A to complete the budget submission. In addition to the SF-424A, applicants must provide a detailed budget narrative to explain fully and justify all proposed project funding including each level of fellowship (undergraduate, graduate, and post-doctoral) and other resources. Applications must include a budget for each funding period (budget year) based on the following assumptions:

Undergraduate Fellowship Program: 10 fellows, working 200 hours per semester during the academic year (9 months) and 400 hours during the summer (3 months).

Cost elements to include in the annual budget:

- Stipend or wage (Freshman @ \$8.00, Sophomores @ \$9.00, Juniors @ \$10.00, and Seniors @ \$11.00 per hour) Undergraduate pay rates may be raised during the term of this award if the recipient and NIST agree on the amount and timing of any increases.
- Full tuition assistance at the in-state rate,
- Fringe benefits, and
- Indirect costs.

Graduate Fellowship Program: 20 fellows, working 20 hours per week during the academic year and 40 hours per week in the summer (3 months).

Cost elements to include in annual budget:

- Stipend or wage (equivalent to what a research assistant in the student's given department would receive),
- Full tuition assistance at the in-state rate,
- Fringe benefits (which may include fees and health insurance), and
- Indirect costs.

Post-Doctorate Fellowship Program: 15 fellows, working 40 hours per week year-round.

Cost elements to include in annual budget:

- Stipend or wage,
- Relocation expenses, (optional and usually limited to \$5,000 per fellow),
- Other miscellaneous expenses (travel, conferences, training),
- Fringe benefits (including health insurance), and
- Indirect costs.

Each proposal should include necessary costs to provide oversight of the program. All successful applicants will be required to have a PREP coordinator. Responsibilities of the successful applicant's PREP coordinator include: serving as a single point of contact for University staff, PREP applicants and participants, and NIST research scientists and engineers; assisting students, University sponsors, and NIST advisors in implementing the program and resolving any difficulties that may arise, and serving as the signatory on all agreements between NIST, the University, and each fellow. The number of fellows and number of hours worked per semester are purely illustrative and do not reflect any commitment as to the number of fellowships that may be approved under any resulting cooperative agreement.

3. Submission Dates and Times

All PREP applications, paper and electronic, must be received no later than 5:00 pm Mountain Daylight Time (MDT) on May 28, 2009. Applications received after this deadline will be returned with no further consideration.

Important: All applicants, both electronic and paper, should be aware that adequate time must be factored into applicants' schedules for delivery of the proposal. Electronic applicants are advised that volume on Grants.gov is currently extremely heavy, and if Grants.gov is unable to accept proposals electronically in a timely fashion, applicants are encouraged to exercise their option to submit proposals in paper format. Paper applicants should allow adequate time to ensure a paper proposal will be received on time, taking into account that guaranteed overnight carriers are not always able to fulfill their guarantees.

4. Intergovernmental Review

Executive Order 12372: Applications under this program are not subject to Executive Order 12372, "Intergovernmental Review of Federal Programs."

5. Funding Restrictions

No special restrictions apply.

6. Other Submission Requirements

Applications that are sent via surface mail should be sent to Ms. Rosemary O'Connor, Administrative Coordinator for PREP, National Institute of Standards and Technology, Division 104.01, 325 Broadway, Boulder, CO 80305-3328.

Instructions for Applying Electronically for the NIST Announcement 2009-PREP:

The following forms are available as part of the Grants.gov application kit and can be completed through the download application process.

- SF-424, Application for Federal Assistance
- SF-424A, Budget Information – Nonconstruction Programs
- SF-424B, Assurances – Nonconstruction Programs
- CD-511, Certification Regarding Lobbying
- SF-LLL, Disclosure of Lobbying Activities (if applicable)

The list of certifications and assurances referenced in item number 21 of the SF-424 is contained in the SF-424B.

In order for an application to be considered complete, it must meet all the application documentation requirements stated in the Federal Funding Opportunity notice.

Applicants may choose to scan or create the necessary documents and then attach them to the application in Grants.gov.

For further information or questions regarding applying electronically for the 2009-PREP announcement, please contact Christopher Hunton at 301-975-5718, e-mail address Christopher.Hunton@nist.gov or Sue Li at 301-975-8817.

Please refer to important information in the Submission Dates and Times above to help ensure your proposal is received on time.

Applicants are strongly encouraged to start early and not to wait until the approaching due date before logging on and reviewing the instructions for submitting an application through Grants.gov. The Grants.gov registration process must be completed before a new registrant can apply electronically. If all goes well, the registration process takes from 3 to 5 business days. If problems are encountered, the registration process can take up to 2 weeks or more. Applicants must have a Dun and Bradstreet Data Universal Numbering System (DUNS) number and must be registered with the Federal Central Contractor Registry and with a Credential Provider, as explained on the Grants.gov web site. After registering, it may take several days or longer from the initial log-on before a new Grants.gov system user can submit an application. Only authorized individual(s) will be able to submit the application, and the system may need time to process a submitted application. Applicants should save and print the proof of submission they receive from Grants.gov. If problems occur while using Grants.gov, the applicant is advised to (a) print any error message received, and (b) call Grants.gov directly at 800-518-4726 for immediate assistance. Grants.gov hours of operation are Monday-Friday, 7:00 a.m. to 9:00 p.m. Eastern Daylight Time (EDT) (except for Federal holidays). For assistance with using the Grants.gov, you may also contact support@grants.gov. Users are advised that volume on Grants.gov is currently extremely heavy.

e. Application Review Information

1. Evaluation Criteria

The applications will be evaluated and scored on the basis of the following evaluation criteria:

(A) Soundness of the applicant's academic program, proposed project objectives, and appropriateness of proposed student work assignments in light of ongoing research at NIST/Boulder and the students' academic programs. (30 points)

(B) Experience in providing students pursuing degrees in physics, chemistry, mathematics, computer science, or engineering with work experiences in laboratories or other settings consistent with furthering the students' education. (30 points)

(C) Adequacy and reasonableness of plans for administering the project and coordinating with the NIST PREP Administrative Coordinator in Boulder. (20 points)

(D) Costs of the proposed project budget (proposed fellowships and other proposed costs) in light of the activities proposed and the objectives of the sponsoring institution and NIST. Voluntary cost sharing may include, but is not limited to, cash contributions for direct costs, contributions of indirect costs, or in-kind contributions. While cost sharing is not required, any cost share contribution will be taken into consideration in reviewing the competitiveness of the proposed project budget. (20 points)

2. Review and Selection Process

Screening of Applications: All PREP proposals must be submitted to the NIST PREP Administrative Coordinator. Each proposal is examined for completeness and responsiveness to the scope of the stated objectives of the PREP (see a. Funding Opportunity Description). Substantially incomplete or non-responsive proposals will not be reviewed for technical merit nor considered for funding, and the applicant will be notified. The NIST PREP Administrative Coordinator will retain one copy of each non-responsive application for three years for record-keeping purposes. The remaining copies will be destroyed.

Each complete and responsive PREP application packet will be reviewed by at least three independent, objective NIST scientists, all of whom are NIST employees, who are knowledgeable in the subject matter of this announcement and its objectives and who are able to conduct a review based on the Evaluation Criteria for the PREP as described in this notice.

The merit review ratings shall provide a rank order to a Selecting Official for final funding recommendations. The Selecting Official will be the Director of the NIST Laboratories in Boulder, Colorado. A Federal Program Officer may first make recommendations to the Selecting Official, applying the selection factors below. The Selecting Official shall award in the rank order unless the proposal is justified to be selected out of rank order. Justification for award order different from the rank order shall be based upon one or more of the following factors:

1. Availability of funds.
2. Ability to ensure that undergraduate and graduate students are available for on-site collaborative research experiences at the NIST Boulder, CO, laboratories concurrent with their full-time University studies.
3. Ability to ensure post-doctoral associates are available for full time on-site collaborative research experiences at the NIST Boulder, CO, laboratories.
4. Applicant's prior award performance.

The final selection of institutions and award of cooperative agreements will be made by the NIST Grants Officer in Gaithersburg, Maryland, based on compliance with application requirements as published in this notice, compliance with applicable legal and regulatory requirements, and whether the recommended applicants appear to be

responsible. Unsatisfactory performance on any previous Federal award may result in an application not being considered for funding. Applicants may be asked to modify objectives, work plans, or budgets, and provide supplemental information required by the agency prior to award. The decision of the Grants Officer is final. Applicants should allow up to 90 days processing time.

f. Award Administration Information

1. Award Notices

Successful finalists will receive a cooperative agreement award document from the Grants Officer. The document will be mailed via surface mail in triplicate. The recipient should have an authorized official at the organization sign and return two copies to the address listed in the award document. The award document will also include the standard terms and conditions, general terms and conditions, and special award conditions that are applicable.

2. Administrative and National Policy Requirements

The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements: The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements are contained in, 73 Fed. Reg. 7696 (February 11, 2008), apply to this notice. On the form SF-424, the applicant's 9-digit Dun and Bradstreet Data Universal Numbering System (DUNS) number must be entered in item 8.c. Organizational DUNS. The DUNS number provided **MUST** be the DUNS number for the entity within the applying institution that will be responsible for drawing down funds from the Automated Standard Application for Payment System (ASAP). Institutions that provide incorrect DUNS numbers may experience significant delays in receiving funds.

Collaborations with NIST Employees:

Collaboration with NIST is presumed in PREP. If any applicant proposes any activities involving specific NIST employees, the statement of work should include a statement of this intention, a description of the collaboration, and prominently identify the NIST employee(s) involved. Any collaboration by a NIST employee must be approved by appropriate NIST management and is at the sole discretion of NIST. Prior to beginning the merit review process, NIST will verify the approval of the proposed collaboration. Any unapproved collaboration will be stricken from the proposal prior to the merit review.

Use of NIST Intellectual Property: If the applicant anticipates using any NIST-owned intellectual property to carry out the work proposed, the applicant should identify such intellectual property. This information will be used to ensure that no NIST employee involved in the development of the intellectual property will participate in the review process for that competition. In addition, if the applicant intends to use NIST-owned

intellectual property, the applicant must comply with all statutes and regulations governing the licensing of Federal government patents and inventions, described at 35 U.S.C. §§ 200-212, 37 C.F.R. Part 401, 15 C.F.R. Part 14.36, and in Section B.21 of the Department of Commerce Pre-Award Notification Requirements, 73 Fed. Reg. 7696 (February 11, 2008). Questions about these requirements may be directed to the Counsel for NIST, 301-975-2803.

Any use of NIST-owned intellectual property by a proposer is at the sole discretion of NIST and will be negotiated on a case-by-case basis if a project is deemed meritorious. The applicant should indicate within the statement of work whether it already has a license to use such intellectual property or whether it intends to seek one.

If any inventions made in whole or in part by a NIST employee arise in the course of an award made pursuant to this notice, the United States government may retain its ownership rights in any such invention. Disposition of NIST's retained rights in such inventions will be determined solely by NIST, and may include, but is not limited to, the grant of a license(s) to parties other than the applicant to practice such invention, or placing NIST's retained rights into the public domain.

Research Projects Involving Human Subjects, Human Tissue, Data or Recordings

Involving Human Subjects: Any proposal that includes research involving human subjects, human tissue, data or recordings involving human subjects must meet the requirements of the Common Rule for the Protection of Human Subjects, codified for the Department of Commerce at 15 C.F.R. Part 27. In addition, any proposal that includes research on these topics must be in compliance with any statutory requirements imposed upon the Department of Health and Human Services (DHHS) and other federal agencies regarding these topics, all regulatory policies and guidance adopted by DHHS, the Food and Drug Administration, and other Federal agencies on these topics, and all Presidential statements of policy on these topics.

NIST will accept the submission of proposals containing research activities involving human subjects. The human subjects research activities in a proposal will require approval by Institutional Review Boards (IRBs) possessing a current registration filed with DHHS and to be performed by institutions possessing a current, valid Federal-wide Assurance (FWA) from DHHS that is linked to the cognizant IRB. In addition, NIST as an institution requires that IRB approval documentation go through a NIST administrative review; therefore, research activities involving human subjects are not authorized to start within an award until approval for the activity is issued in writing from the NIST Grants Officer. NIST will not issue a single project assurance (SPA) for any IRB reviewing any human subjects protocol proposed to NIST.

President Obama has issued Exec. Order No. 13,505, 74 Fed. Reg. 10667 (March 9, 2009), revoking previous executive orders and Presidential statements regarding the use of human embryonic stem cells in research. NIST will follow any guidance issued

by the National Institutes of Health (NIH) pursuant to the executive order and will develop its own procedures based on the NIH guidance before funding research using human embryonic stem cells. NIST will follow any additional policies or guidance issued by the current Administration on this topic.

Research Projects Involving Vertebrate Animals: Any proposal that includes research involving vertebrate animals must be in compliance with the National Research Council's "Guide for the Care and Use of Laboratory Animals" which can be obtained from National Academy Press, 2101 Constitution Avenue, NW., Washington, DC 20055. In addition, such proposals must meet the requirements of the Animal Welfare Act (7 U.S.C. § 2131 et seq.), 9 C.F.R. Parts 1, 2, and 3, and if appropriate, 21 C.F.R. Part 58. These regulations do not apply to proposed research using pre-existing images of animals or to research plans that do not include live animals that are being cared for, euthanized, or used by the project participants to accomplish research goals, teaching, or testing. These regulations also do not apply to obtaining animal materials from commercial processors of animal products or to animal cell lines or tissues from tissue banks.

Limitation of Liability: NIST anticipates making awards for the program listed in this notice. In no event will NIST or the Department of Commerce be responsible for proposal preparation cost if these programs(s) fail to receive funding or are cancelled because of other agency priorities. Publication of this announcement does not obligate NIST or the Department of Commerce to award any specific project or to obligate any available funds.

3. Reporting

In addition to the Financial and Programmatic Reporting requirements described in the Department of Commerce Financial Assistance Standard Terms and Conditions dated March, 2008, which can be found on the Internet at:

<http://oamweb.osec.doc.gov/docs/GRANTS/DOC%20STCsMAR08Rev.pdf>, the following reporting requirements apply:

(a) Financial Requirements-Financial Reports

The references in Sections A.01 and B.01 of the Department of Commerce Financial Assistance Terms and Conditions, dated March 2008, to "Federal Financial Report (SF_269)" and "SF-269" are hereby replaced with "Federal Financial Report (SF-425)" and "SF-425," respectively, as required by the Office of Management and Budget (OMB) (73 FR 61175, October 15, 2008). As authorized under 15 CFR §§ 14.52 and 24.41, the OMB approved SF-425 shall be used in the place of the SF-269 and SF-272 under the uniform administrative requirements and elsewhere under awards in this program where such forms are referenced.

The Recipient shall submit a "Report" (SF-425) on a semi-annual basis for the periods ending March 31 and September 30, or any portion thereof, unless otherwise specified in a special award condition. Reports are due no later than 30 days following the end of each reporting period. A final SF-425 shall be submitted within 90 days after the expiration date of the award. All financial reports shall be submitted in triplicate (one original and two copies) to the Grants Officer.

(b) Programmatic Requirements-Performance (Technical) Reports

Unless otherwise specified in the award provisions, each PREP undergraduate student shall submit to his or her University and NIST a brief report on their experiences and accomplishments during the semester or quarter within 30 days after the end of the school term (semester or quarter). If undergraduate participants leave the program before the end of their school terms, they shall submit their reports within 30 days of leaving.

PREP graduate students and post-doctoral participants shall submit a brief annual report describing their experiences and accomplishments by each August 31st of their fellowship term. PREP participants who leave the program without completing their fellowship terms are required to submit their reports within 30 days of their departures.

g. Agency Contact(s):

Technical questions should be directed to Ms. Rosemary O'Connor, Administrative Coordinator, National Institute of Standards and Technology, Division 104.01, 325 Broadway, Boulder, CO 80305-3328; Tel: (303) 497-5238; E-mail: rosemary.oconnor@boulder.nist.gov. All grants-related administrative questions concerning this program should be directed to Hope Snowden, NIST Grants and Agreements Management Division at (301) 975-6002 or by e-mail at hope.snowden@nist.gov.