

Federal Cyber Service: Scholarship for Service (SFS)

PROGRAM SOLICITATION

NSF 11-506

REPLACES DOCUMENT(S):

NSF 10-505



National Science Foundation

Directorate for Education & Human Resources
Division of Undergraduate Education

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

February 11, 2011

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), [NSF 11-1](#), was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in [NSF 11-1](#) apply to proposals submitted in response to this funding opportunity.

Cost Sharing: The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the PAPP Guide Part I: *Grant Proposal Guide (GPG)* [Chapter II.C.2.g\(xi\)](#) for further information about the implementation of these recommendations.

Data Management Plan: The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/dmp.jsp>. See [Chapter II.C.2.j](#) of the GPG for further information about the implementation of this requirement.

Postdoctoral Researcher Mentoring Plan: As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See [Chapter II.C.2.j](#) of the GPG for further information about the implementation of this requirement.

REVISION SUMMARY

Changes in the SFS program solicitation for FY2011 include:

In the Scholarship Track, the budget for academic-year stipends has increased to \$10,000 for undergraduate students and \$15,000 for graduate students.

The Capacity Building Track has an expanded set of opportunities to improve the quality and increase the production of information assurance and computer security professionals.

In the Capacity Building Track, the amount of additional funding available to partnerships that include minority institutions has decreased to \$50,000 per year for two years.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Federal Cyber Service: Scholarship for Service (SFS)
A Federal Cyber Service Training and Education Initiative

Synopsis of Program:

The Federal Cyber Service: Scholarship for Service (SFS) program seeks to increase the number of qualified students entering the fields of information assurance and computer security and to increase the capacity of the United States higher education enterprise to continue to produce professionals in these fields to meet the needs of our increasingly technological society. The SFS program is composed of two tracks:

- The *Scholarship Track* provides funding to colleges and universities to award scholarships to students in the information assurance and computer security fields. Scholarship recipients shall pursue academic programs in information assurance for the final two years of undergraduate study, or for two years of master's-level study, or for the final two years of Ph.D.-level study. These students will participate as a cohort during their two years of study and activities, including a summer internship in the Federal Government. The recipients of the scholarships will become part of the Federal Cyber Service of Information Technology Specialists whose responsibility is to ensure the protection of the United States Government's information infrastructure. Upon graduation, after their two-year scholarships, recipients will be required to work for two years in the Federal Government. A limited number of students may be placed in National Laboratories and Federally Funded Research and Development Centers (FFRDCs). This number shall be set by the program office each year. (See <http://www.firstgov.gov/Agencies.shtml> for a list of Federal organizations, see http://www.science.doe.gov/National_Laboratories/ for a list of National Laboratories, see <http://www.nsf.gov/statistics/ffrdc/> for a list of FFRDCs.)
- The *Capacity Building Track* provides funds to colleges and universities to improve the quality and increase the production of information assurance and computer security professionals. Professional development of information assurance faculty and development of academic programs can be funded under this track, as well as projects to increase interest in information assurance and accelerate the integration of information assurance, computer security or cyber security knowledge across the STEM disciplines.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Victor P. Piotrowski, Lead Program Director, 865.01, telephone: (703) 292-5141, email: vpotrow@nsf.gov
- Sue C. Fitzgerald, Co-Lead Program Director, 855, telephone: (703) 292-4641, email: scfitzge@nsf.gov
- Susan Finger, Program Director, 855, telephone: (703) 292-4639, email: sfinger@nsf.gov
- Corby Hovis, Program Director, 835, telephone: (703) 292-4625, email: chovis@nsf.gov
- Guy-Alain Amoussou, 835 N, telephone: (703) 292-8670, email: gamousso@nsf.gov
- Erin E. McDougal, Science Assistant, 840, telephone: (703) 292-7891, email: emcdouga@nsf.gov

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

- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 13 to 17 consisting of 6-8 Scholarship Track awards and 7-9 Capacity Building Track awards

Anticipated Funding Amount: \$12,500,000 in FY 2011, pending availability of funds, for new awards under this program solicitation. Scholarship awards are usually funded as continuing grants over a four-year period.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- For the Scholarship Track, the proposing organization must be an accredited U.S. university or college that either (1) has been designated by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Information Assurance Education (CAE/IAE or CAE-R) or (2) has an information assurance program that meets criteria similar to those necessary for CAE/IAE designation. (See http://www.nsa.gov/ia/academic_outreach/nat_cae/cae_iae_program_criteria.shtml for CAE/IAE criteria.)

For the Capacity Building Track, the proposing organization may be either an accredited U.S. university or college or a consortium. Proposing organizations must demonstrate expertise in information assurance or cyber security curriculum development and/or research. An institutional CAE/IAE designation or information assurance program that meets criteria similar to those necessary for CAE/IAE designation is preferred. (See http://www.nsa.gov/ia/academic_outreach/nat_cae/cae_iae_program_criteria.shtml for CAE/IAE criteria.)

PI Limit:

None Specified

Limit on Number of Proposals per Organization: 2

An organization may submit one Scholarship Track proposal and one Capacity Building Track proposal in response to this program solicitation.

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
 - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. 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.
 - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **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(s)** (due by 5 p.m. proposer's local time):
February 11, 2011

Proposal Review Information Criteria

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

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

Reporting Requirements: Standard NSF reporting requirements apply.

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I. INTRODUCTION

The Federal Cyber Service: Scholarship for Service (SFS) program provides funding to colleges and universities for scholarships and capacity building in the information assurance and computer security fields. A typical grant for scholarships will provide four years of funding to enable the institution to cover as many as three cohorts of up to 10, two-year full scholarships (30 two-year scholarships total during the grant period) for study leading to baccalaureate, master's, or Ph.D. degrees providing technical competence in the area of information assurance and security. A typical grant for capacity building will provide funds to support curriculum, outreach, faculty, institutional, and/or partnership development in the area of information assurance and computer security. The program was established by the National Science Foundation (NSF) in accordance with the Federal Cyber Service Training and Education Initiative as described in President Clinton's *National Plan for Information Systems Protection*. This initiative reflects the critical need for Information Technology (IT) professionals specializing in information assurance and security. The expected outcomes of this program include:

- new entrants to the federal, state government, local government and tribal workforce with the education and training that will enhance the security of critical information infrastructure,
- an increased national capability for the education of IT professionals in critical information infrastructure protection disciplines,
- increased national research and development capabilities in critical information infrastructure protection, and
- strengthened partnerships between institutions of higher education and relevant employment sectors.

The scholarship program provides funding for two-year full scholarships plus stipends for students to pursue academic programs in information assurance for the final two years of undergraduate study, or for two years of master's-level study, or for the final two years of Ph.D.-level study. Students receive both scholarship and stipend support. Upon graduation, the recipients of the scholarships will become part of the Federal Cyber Service of information technology specialists whose responsibility is to ensure the protection of the United States Government's information infrastructure. After their two-year scholarships, the recipients will be required to work for two years in the Federal Government. A limited number of students may be placed in National Laboratories and Federally Funded Research and Development Centers (FFRDCs). This number shall be set by the NSF program office each year. (See <http://www.firstgov.gov/Agencies.shtml> for a list of Federal organizations, see http://www.science.doe.gov/National_Laboratories/ for a list of National Laboratories, see <http://www.nsf.gov/statistics/ffrdc/> for a list of FFRDCs.)

The capacity building component of the SFS program provides funds to colleges and universities to improve the quality and increase the production of information assurance and computer security professionals through the integration of security-related topics across the STEM disciplines and by increasing the number of faculty with expertise in information assurance.

II. PROGRAM DESCRIPTION

The primary objective of the SFS program is to build information assurance capacity and to provide an educated cadre of information technology professionals who can help ensure the protection of the United States Government information infrastructure. The two tracks in this program are described below.

In order to increase information security expertise and capacity at institutions serving underrepresented populations, application by and partnerships with minority institutions, as recognized by the U.S. Department of Education's list is encouraged (See <http://www.ed.gov/about/offices/list/ocr/edite-minorityinst.html> for a list of qualifying institutions.)

In accordance with the Cyber Security Research and Development Act (P. L. #107-305), the grantee is responsible for ensuring that no grant funds are provided directly or indirectly to:

(a) any individual who is in violation of the terms of his or her status as a non-immigrant under section 101(a)(15)(F), (M), or (J) of the Immigration and Nationality Act (8 U.S.C. 1101(a)(15)(F), (M), or (J)).

(b) any alien from a country that is a state sponsor of international terrorism, as defined under section 306(b) of the Enhanced Border Security and VISA Entry Reform Act (8 U.S.C. 1735(b)), unless the Secretary of State determines, in consultation with the Attorney General and the heads of other appropriate agencies, that such alien does not pose a threat to the safety or national security of the United States.

(c) any institution of higher education or non-profit institution (or consortia thereof) that has:

(1) materially failed to comply with the recordkeeping and reporting requirements to receive nonimmigrant students or exchange visitor program participants under section 101(a)(15)(F), (M), or (J) of the Immigration and Nationality Act (8 U.S.C. 1101(a)(15)(F), (M), or (J)), or section 641 of the Illegal Immigration Reform and Responsibility Act of 1996 (8 U.S.C. 1372), as required by section 502 of the Enhanced Border Security and VISA Entry Reform Act (8 U.S.C. 1762); or

(2) been suspended or terminated pursuant to section 502(c) of the Enhanced Border Security and VISA Entry Reform Act (8 U.S.C. 1762(c)).

Scholarship Track

The SFS program provides funds to colleges and universities for student scholarships in support of education in information technology areas relevant to information assurance and computer security. In return for their scholarship and stipend, scholarship recipients must agree to work after graduation for two years as an information assurance specialist in the Federal Government. A limited number of students may be placed in National Laboratories and Federally Funded Research and Development Centers (FFRDCs). This number shall be set by the program office each year. (See <http://www.firstgov.gov/Agencies.shtml> for a list of Federal organizations, see http://www.science.doe.gov/National_Laboratories/ for a list of National Laboratories, see <http://www.nsf.gov/statistics/ffrdc/> for a list of FFRDCs.)

SFS student participants are responsible for their own job search. The SFS program office, through the U.S. Office of Personnel Management (OPM), provides several tools to aid in this job search. PIs and SFS scholarship students are expected to actively

participate with OPM to secure both a summer internship and permanent placement in the Federal Government, at a National Laboratory or FFRDC. The program has a (as near as possible to) 100% placement goal, which can only be reached through active cooperation between all parties involved. Materials to assist PIs and student participants with the placement process are available through the SFS website: <http://www.sfs.opm.gov>.

During the scholarship period, the students will participate in internships in the Federal Government. A limited number of students may be placed in National Laboratories and Federally Funded Research and Development Centers (FFRDCs). This number shall be set by the program office each year. Students also will participate in other SFS activities such as conferences, workshops, and seminars. These activities are aimed at developing a community of practice that will enhance their individual and collective skills in an area increasingly important to the health and safety of the United States. OPM partners with NSF in this program by providing internship and placement assistance to SFS students. However, SFS student participants are ultimately responsible for their own job search. The OPM/SFS Program Office is responsible for managing student compliance with program requirements. OPM also is responsible for coordinating student transition into Federal employment, for ensuring that contractual obligations are met by the students during their scholarship period and after graduation, and for assessing whether the program helps meet the personnel needs of the federal government for information infrastructure protection.

Grantee institutions will provide scholarship support to students who compete successfully in a selection process developed by the institution, who meet the SFS eligibility criteria, and who are confirmed as qualified for employment in the Federal Cyber Service by OPM. It is expected that scholarship participants will receive their degree (undergraduate, master's, or Ph.D.) within two years of the beginning of their scholarships. Each proposing institution must provide a description of its selection criteria and process, and explain and justify the proposed distribution of scholarship recipients. In particular, institutions must ensure that groups underrepresented in Information Technology have fair access to scholarships.

To be eligible for consideration for an SFS scholarship, a student must be

- a United States citizen and
- a full-time student within two years of graduation in a coherent formal program that is focused on computer security or information assurance at an awardee institution.

Students identified by their institutions for scholarships must meet selection criteria for Federal employment. In addition, internship placements and final job placements may require security clearances. Scholarship recipients may be required to undergo the background investigation required to obtain such clearances.

The selection process for scholarship recipients should include indicators of academic merit and other indicators of future professional success. Multiple indicators may be appropriate in gauging both academic merit (e.g., grade point average, class rank) and professionalism (e.g., motivation, ability to manage time and resources, communication skills). Selection criteria should be flexible enough to accommodate applicants who have diverse backgrounds and with diverse career goals. Federal Cyber Service scholars must continue to demonstrate their eligibility in each semester/quarter of SFS support.

Awardee institutions must submit their lists of candidates for SFS scholarships to OPM for final eligibility confirmation. OPM will manage compliance with the mandatory employment component of this program.

It is expected that grantee institutions will provide the infrastructure to recruit and support students, so that a sufficient number of scholarship recipients will graduate. Such an infrastructure might include, for example:

- recruitment of students, with special consideration to groups underrepresented in SFS fields (i.e., women, racial and ethnic minorities, and persons with disabilities);
- academic support and mentoring to support students in making progress toward the degree and to prepare students for the workplace;
- application-oriented experiences to increase the students' understanding of information assurance needs and their relationship to educational preparation and to build their leadership skills; and
- mechanisms to ensure retention of scholarship recipients to degree completion.

Institutions with existing SFS scholarship programs that are applying for a new award should provide:

- specific evidence of their current SFS program achievements. Indicators of program success include, but are not limited to, placement statistics, faculty development activities, and curricular innovations.
- a plan for program sustainability once NSF funding has ended.

Grantee institutions are also expected to have clearly articulated management and administrative plans for the following program elements:

- Verification of scholarship candidates' eligibility, including the recipients' academic merit, appropriate affective skills, and enrollment in a designated or equivalent information assurance program.
- Provision of scholarship amounts to be used for expenses normally incurred by full-time students in the institution, including tuition and typically room and board allowance. These shall be included in Participant Support costs.
- Provision of academic-year stipends of \$10,000 per year for undergraduate students and \$15,000 per year for graduate students. These charges shall be included in Participant Support costs.
- Provision for coordination with OPM for summer intern and permanent job placements for each student. Students are expected to take Federal internship positions in the summer between their first and second year of scholarship study. The payments for summer internships will take place outside the university grant structure and are not to be included in the budget.
- Provision for registration fees for students to attend the annual SFS Symposium/Job Fair.
- Provisions for tracking the academic progress of students to determine their continued eligibility throughout the academic part of the program. Subsequent tracking of students to verify that they meet the service obligation will be done by OPM.
- Evaluation of program outcomes.
- Demonstration of ability to partner with the OPM in student hiring and agency placement.

The above items must be clearly detailed in the Budget Justification section, or another appropriate section, of the proposal.

Scholarship funds awarded to students for tuition, fees, lodging, travel and other miscellaneous expenses must be listed as Participant Support Costs on lines F1-F4 in the NSF proposal budget. Additional funds up to 15% of the total Participant Support Costs listed on line F may be requested for activities in other cost categories (e.g., salaries, travel, materials, supplies and applicable indirect costs) that contribute to the effectiveness of the Scholarship program; any such costs must be listed under the appropriate NSF budget categories and must be explained in the Budget Justification.

Collaborations with industry, non-profit, or state organizations are strongly encouraged to allow students not chosen for scholarships to participate in student internships and in Federal Cyber Service activities.

The Principal Investigator (PI) will have overall responsibility for the administration of the institution's award, the management of the project, and interactions with NSF and OPM. The PI and the grantee institution are expected to have or to develop an administrative structure that enables faculty, academic administrators, scholarship recipients, and others involved in the project to interact productively during the award period. The PI is expected to be an integral participant in the educational activities of the SFS project. The management plan will be an integral part of the proposal evaluation.

Within the grantee institution, the entities making up the Center of Academic Excellence in Information Assurance Education are expected to collaborate in implementing the project plan. To broaden the support of their activities, proposers are encouraged to establish collaborative arrangements with other organizations.

A proposing institution must have a strong program of activity in information assurance with Center of Academic Excellence in Information Assurance Education (CAEIAE or CAE-R) designation by the National Security Agency and the Department of Homeland Security or equivalent. Additionally, the institution must demonstrate its continuing commitment to both faculty development and curriculum excellence in information assurance. Proposals should contain documentation of CAEIAE or CAE-R designation or equivalent.

Proposals should clearly describe the activities to be undertaken, the processes through which the program elements will be implemented, and plans for documentation. Proposals should also clearly describe the student support structure, plans to manage and administer the program, and evidence of the quality of the institution's educational program in information assurance.

Capacity Building Track

The SFS program provides for capacity building in information assurance and computer security fields by providing funds to support curriculum, outreach, faculty, institutional, and/or partnership development.

The intent of the Capacity Building Track is to increase the production of high quality information assurance and computer security professionals by providing support for efforts within the higher education system as well as outreach to K-12 students with related interests. These efforts may take many forms, but must be designed to:

- increase national capacity for the high-quality education of information technology professionals in critical information infrastructure protection disciplines,
- increase the number of IT professionals in critical information infrastructure protection disciplines,
- increase interest in information assurance and/or computer security careers,
- accelerate the integration of information assurance, computer security or cyber security knowledge in curricula across the STEM disciplines, or
- strengthen partnerships between institutions of higher education, government, and relevant employment sectors leading to improved educational opportunities in information assurance studies.

Examples of projects which will be considered include:

- developing faculty expertise in information assurance and cyber security,
- creating learning materials and strategies,
- outreach activities, or
- other innovative and creative projects which lead to an increase in the national cyber security workforce.

Funding for up to \$150,000 per year for two years is available. Additional funding of up to \$50,000 per year for two years is available to partnerships that include minority institutions as recognized by the U.S. Department of Education's list (See <http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>.)

Capacity building proposals that address other areas of need (e.g., adaptation and implementation, laboratory development, and technical experiences for students) will be considered on a limited basis.

Projects which increase the number of students preparing to enter the information assurance and computer security workforce are of particular interest in this competition.

Although projects may vary considerably in the approaches they take, the number of academic institutions involved, the number of faculty and students that participate, and in their stage of development, all promising projects share certain characteristics.

Quality, Relevance, and Impact: Projects should address a recognized need or opportunity, clearly indicate how they will meet this need, and be innovative in their production and use of new materials, processes, and ideas, or in their implementation of tested ones.

Student Focused Projects: Projects involving students should show a clear relation to student learning, with definite links between project activities and improvements in information assurance and cyber security recruiting, retention and/or learning. Moreover, they should involve approaches that are consistent with the nature of today's students, reflect the student's perspective and, when appropriate, solicit student input in the design of the project.

Use of and Contribution to Knowledge about Cyber Security: Projects should reflect high quality approaches to information assurance and cyber security. They should have a clear and compelling rationale, use methods derived from existing knowledge concerning information assurance and cyber security, build on existing projects of a similar nature, and present evidence supporting the approach or present supporting evidence for the likely success of innovative ideas. They also should have an effective approach for disseminating their results.

Community-Building: Investigators should expect to interact with others in the information assurance and cyber security community to enable sharing of knowledge and experience in developing and evaluating innovations. These interactions may range from informal contacts with a few colleagues to the establishment of formal collaborations or communities.

Sustainability: Proposals should address sustainability and should demonstrate that there is a reasonable expectation of persistent effects of the grant funded work consistent with the aims of the project. Projects are expected to bring about lasting improvements.

Expected Measurable Outcomes: Projects should have goals that have been translated into a set of expected measurable outcomes that can be monitored using quantitative or qualitative approaches or both. These outcomes should be used to track progress, guide the project, and evaluate its impact. Expected measurable outcomes should pay particular attention to student recruiting, retention and/or learning, contributions to our understanding of information assurance and cyber security learning, community building and/or increases in the cyber security workforce.

Project Evaluation: All projects, regardless of the scope, should have an evaluation plan that includes both a strategy for monitoring the project as it evolves to provide feedback to guide these efforts (formative evaluation) and a strategy for evaluating the

effectiveness of the project in achieving its goals and for identifying positive and negative findings when the project is completed (summative evaluation). The complexity of the evaluation will depend on the project, and these efforts should be led by knowledgeable individuals who look objectively at the project's progress and outcomes.

A focus on underrepresented populations and institutions serving underrepresented populations is strongly encouraged.

Proposals must clearly explain how their project will address the previously stated objectives of the program.

Proposals must describe impact on the production of qualified students, plans to evaluate the success of the project, and plans to provide effective dissemination of results.

Proposals must demonstrate impact beyond the institution(s) involved in the project.

Program Evaluation

The Division of Undergraduate Education (DUE) conducts an on-going program evaluation to determine how effectively the SFS program is achieving its goal to increase the quantity of new entrants to the federal workforce with the education and training that will enhance the security of critical federal information infrastructure, to increase the national capacity for the education of IT professionals in critical information infrastructure protection disciplines, to increase national research and development capabilities in critical information infrastructure protection, and to strengthen partnerships between institutions of higher education and relevant employment sectors. In addition to project-specific evaluations, all projects are expected to cooperate with this third party program evaluation and respond to all inquiries, including requests to participate in surveys, interviews and other approaches for collecting evaluation data. Project-specific evaluations should provide indicators of program achievement including, but not limited to, the areas of placement, student achievement, faculty development, curriculum and institutional partnerships.

III. AWARD INFORMATION

The SFS Scholarship Track supports a university- or college-based scholarship program that supports two years of tuition, stipends, and typically room and board allowance, for students in the general area of information assurance and security. The scholarships provide academic year stipends of \$10,000 per year for undergraduate students and \$15,000 per year for graduate students. The program contains an internship component intended to support hands-on training in the Federal Government that is supported through the award for the internships and other training. A typical award might be approximately \$2.7 million for four years supporting three cohort classes of 10 first-year students (year 1), 10 first-year and 10 second-year students (year 2), 10 first-year and 10 second-year students (year 3), and 10 second-year students (year 4). The total award sizes will depend upon the tuition amount, room and board allowance costs, and on the cost of management and development.

The SFS Capacity Building Track supports a university or college or partnership in efforts to increase the numbers of highly qualified degree graduates with emphasis in information assurance and/or computer security. Awards provide up to \$150,000 per year for up to two years. Additional funding of up to \$50,000 per year for two years is available to partnerships that include minority institutions as recognized by the U.S. Department of Education (See <http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html> for a list of institutions.)

NSF anticipates that approximately \$12.5 million will be available for new standard and continuing awards under this program solicitation in FY 2011, pending availability of funds. Scholarship awards are usually funded as continuing grants over a four-year period. The program expects to make 6-8 awards in the Scholarship Track and 7-9 awards in the Capacity Building Track, depending on the quality of proposals received and the availability of funds.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- For the Scholarship Track, the proposing organization must be an accredited U.S. university or college that either (1) has been designated by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Information Assurance Education (CAE/IAE or CAE-R) or (2) has an information assurance program that meets criteria similar to those necessary for CAE/IAE designation. (See http://www.nsa.gov/ia/academic_outreach/nat_cae/cae_iae_program_criteria.shtml for CAE/IAE criteria.)

For the Capacity Building Track, the proposing organization may be either an accredited U.S. university or college or a consortium. Proposing organizations must demonstrate expertise in information assurance or cyber security curriculum development and/or research. An institutional CAE/IAE designation or information assurance program that meets criteria similar to those necessary for CAE/IAE designation is preferred. (See http://www.nsa.gov/ia/academic_outreach/nat_cae/cae_iae_program_criteria.shtml for CAE/IAE criteria.)

PI Limit:

None Specified

Limit on Number of Proposals per Organization: 2

An organization may submit one Scholarship Track proposal and one Capacity Building Track proposal in response to this program solicitation.

Limit on Number of Proposals per PI:

None Specified

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program 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. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

A Project Data Form must be submitted as part of all proposals. The information on this form is used to direct proposals to appropriate reviewers and to determine the characteristics of projects supported by the Division of Undergraduate Education. After you have selected the correct Solicitation No., the Project Data Form will appear in the list of required forms for your proposal.

A Budget Justification of up to a total of three pages must accompany the budget forms and provide details about line items. Proposals that involve subawards should include the justification for the subawards in the three-page total.

Organizations intending to submit simultaneous Collaborative Proposals must carefully follow the instructions for electronic submission specified in the GPG (Chapter II, Section D.4.b). The titles of the related proposals must be identical and must begin with the words "Collaborative Project," and the *combined* budgets of the related proposals should conform to the anticipated individual award sizes specified in Section III ("AWARD INFORMATION") above. These simultaneous Collaborative Proposals will be treated as a single proposal (with a single Project Summary, Project Description, and References Cited) during the review process.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Other Budgetary Limitations:

The Scholarship Track provides academic year stipends of \$10,000 per year for undergraduate students and \$15,000 per year for graduate students. The Capacity Building Track provides funding of up to \$150,000 per year for two years; additional funding of up to \$50,000 per year for two years is available to partnerships that include minority institutions as recognized by the U.S. Department of Education.

In the Scholarship Track, funds awarded to students for tuition, fees, lodging, travel and other miscellaneous expenses must be listed as Participant Support Costs on lines F1-F4 in the NSF proposal budget. Additional funds up to 15% of the total Participant Support Costs listed on line F may be requested for activities in other cost categories (e.g., salaries, travel, materials, supplies and applicable indirect costs) that contribute to the effectiveness of the Scholarship program; any such costs must be listed under the appropriate NSF budget categories and must be explained in the Budget Justification.

Funds requested for equipment and instrumentation (computers, computer-related hardware, software, laboratory or field instrumentation, and scientific or industrial machinery) normally may not exceed \$200,000 for the duration of the grant. NSF funds may not be used to support expenditures that would normally be made in the absence of an award, such as costs for routine teaching activities and laboratory upgrades (supplies and computers).

NSF project funds may not be used for:

- equipment or instrumentation that is not mainly for use in the project;
- replacement equipment or instrumentation that does not significantly improve instructional capability;
- vehicles, laboratory furnishings, or general utility items such as office equipment (including word-processing equipment), benches, tables, desks, chairs, storage cases, and routine supplies;
- maintenance equipment and maintenance or service contracts;
- the modification, construction, or furnishing of laboratories or other buildings;
- the installation of equipment or instrumentation (as distinct from the on-site assembly of multi-component instruments-- which is an allowable charge).

C. Due Dates

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

February 11, 2011

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

Detailed technical instructions regarding the technical aspects of 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. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: <https://www.fastlane.nsf.gov/fastlane.jsp>.

- **For Proposals Submitted Via Grants.gov:**

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

What is the intellectual merit of the proposed activity?

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

What are the broader impacts of the proposed activity?

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

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

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

Additional Solicitation Specific Review Criteria

Reviewers will be asked to consider the merit review criteria with respect to the SFS program description (see Section II ["PROGRAM DESCRIPTION"]). These include:

- the quality and completeness of the management and administrative plan--the plan must address all elements expressed in the program solicitation;
- the quality of education and research in information assurance at the institution and the extent to which education and research are integrated;
- the quality of application-oriented experiences to increase the student's understanding of information assurance needs and their relationship to educational practices, governmental and industrial partnerships, and outreach;
- the extent of the participation of faculty members with specific expertise in information assurance and security, as well as professional development for other faculty;
- the extent to which discipline faculty members are integrally involved with the scholarship students and working with the students as a cohort; and
- for the Scholarship Track, reviewers may also consider the provision for appropriate student support infrastructure for the successful graduation of scholarship recipients, as expressed in the program solicitation.

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

Integration of Research and Education

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

Integrating Diversity into NSF Programs, Projects, and Activities

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

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Panel Review.

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

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

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

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

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

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

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational), publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Victor P. Piotrowski, Lead Program Director, 865.01, telephone: (703) 292-5141, email: vpiotrow@nsf.gov
- Sue C. Fitzgerald, Co-Lead Program Director, 855, telephone: (703) 292-4641, email: scfitzge@nsf.gov
- Susan Finger, Program Director, 855, telephone: (703) 292-4639, email: sfinger@nsf.gov
- Corby Hovis, Program Director, 835, telephone: (703) 292-4625, email: chovis@nsf.gov
- Guy-Alain Amoussou, 835 N, telephone: (703) 292-8670, email: gamousso@nsf.gov
- Erin E. McDougal, Science Assistant, 840, telephone: (703) 292-7891, email: emcdouga@nsf.gov

For questions related to the use of FastLane, contact:

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

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the [NSF web site](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at

<http://www.grants.gov>.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

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

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

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information**
(NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
Send an e-mail to: nsfpubs@nsf.gov
or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, [NSF-50](#), "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and [NSF-51](#), "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton

Reports Clearance Officer
Division of Administrative Services
National Science Foundation
Arlington, VA 22230

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