National Science Foundation Funding Opportunities

Broadening Participation in STEM

Directorate for Education and Human Resources

June 14 | 1 pm ET
Webinar Goals

• Highlight EHR/NSF funding opportunities, especially those aimed at broadening participation in STEM

• Provide a forum for the field to ask Program Officers inquiries regarding funding opportunities

• Share other capacity building and professional development opportunities within EHR and across NSF
Webinar Schedule

• Overview & Introduction to NSF, EHR, & Broadening Participation
• Division of Human Resource Development (HRD)
• Division of Research on Learning in Formal & Informal Settings (DRL)
• Division of Undergraduate Education (DUE)
• Division of Graduate Education (DGE)
• Capacity Building & Professional Development
Welcome to the National Science Foundation

- Established by the National Science Foundation Act of 1950 (Public Law 81-507).
- FY18 Annual Budget: $7.8 Billion
- NSF funds approximately 27% of all federally supported basic research conducted by colleges and universities.
- NSF supported researchers have won 217 Nobel prizes and other awards
- NSF Workforce: ~2,100

Mission: Promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes.

Vision: A Nation that is the global leader in research and innovation
IV. CORE VALUES

NSF’s core values are essential and enduring tenets that guide everyone in the organization as we support the agency’s mission. They have been developed with the active engagement of NSF’s staff and the National Science Board. These values identify who we are and what is important to us. They guide how we make decisions, set priorities, address challenges, manage tradeoffs, recruit and develop personnel, and work together with our awardees.

NSF’s core values are ExPLICIT in what we do every day:

**Excellence** – We maintain the highest standards in merit review, financial management, and award administration. We use rigorous review by experts to ensure that only the best ideas are funded and that our investments further the national interest.

**Public Service** – We proudly value our role as public servants, enabling the research community to blaze new paths for expanding knowledge and addressing societal challenges.

**Learning** – We take advantage of opportunities to improve our skills and we provide all staff members with opportunities to develop. We question our assumptions; we evaluate our activities; we learn what is effective and what can be improved.

**Inclusion** – We strive to maintain a staff that is representative of the broader national community. We endeavor to support outstanding researchers and innovative thinkers from across our Nation’s diversity of regions, types of organizations, and demographic groups.

**Collaboration** – We work in a collaborative enterprise in which teamwork is essential. We value the perspectives and values of our fellow team members and recognize that combining our knowledge enables us to find more robust solutions; we acknowledge the contributions that we each make to our shared success; we are committed to listening, communicating effectively, and working collegially.

**Integrity** – We hold each other and our awardees to the highest standards of ethical behavior. We strive to ensure the trustworthiness of the results of NSF-funded research by promoting the responsible conduct of research.

**Transparency** – We operate with transparency and openness.

Released February 12, 2018
VI. STRATEGIC GOALS AND OBJECTIVES

**STRATEGIC GOAL 1**
Expand knowledge in science, engineering, and learning.

**STRATEGIC GOAL 2**
Advance the capability of the Nation to meet current and future challenges.

**STRATEGIC GOAL 3**
Enhance NSF's performance of its mission.

VII. AGENCY PRIORITY GOAL

A Performance Plan for FY 2019 has been developed in concert with this Strategic Plan. It includes the following Agency Priority Goal.

Expand public and private partnerships to enhance the impact of NSF's investments and contribute to American economic competitiveness and security.

By September 30, 2019, NSF's number of partnerships and/or award actions with other federal agencies, private industry, and foundations/philanthropies will grow by 5 percent, relative to the FY 2017 baseline, to make available infrastructure, expertise, and financial resources to the US scientific and engineering research and education enterprise.
INVESTMENT AREAS

Potential investment areas are evaluated against considerations that include the following:

• **Alignment with NSF’s Mission.** Does the investment area further NSF’s mission, vision, goals, and objectives as established by the NSF Strategic Plan, without duplicating the efforts of other agencies or funding organizations?

• **Budget.** Factors include whether the proposed level of investment is consistent with the opportunity, level of risk, relevance, and potential impact.

• **Potential for impact.** Examples of important factors include the extent to which investments may transform a field of science or engineering; are broadly significant or of great interest to the community; position the U.S. at the forefront of an emerging field; promote teaching, learning, mentoring, training and outreach; contribute to national research and development priorities; sustain economic competitiveness; support the national defense; or enable other socially important outcomes.

• **Urgency and readiness.** Important factors include whether timing is critical to achieve optimum results, or investment is necessary to maintain long-term stability and progress in critical areas.

• **Integration of research with education and strengthening the connections between learning and inquiry.** Significant factors include whether investment areas present a rich environment for encouraging future scientists, engineers, and educators, and whether they provide opportunities for teachers and students to participate in research activities at the K-12, undergraduate, graduate, and postdoctoral levels.

• **Broadening participation.** Important factors include whether the investment area contributes to increasing the diversity of the U.S. population that participates in research and research training.

• **Collaborations.** Important factors include whether investments create opportunities for national and international partnerships, or augment other NSF activities, or leverage other community, industry, federal agency or international investments in research, education, and infrastructure. By using such partnerships, NSF avoids duplication and increases the efficiency of its investments.
The Broadening Participation portfolio is divided into three categories:

1. programs that are primarily \textit{focused} on broadening participation,

2. programs that have broadening participation as one of several \textit{emphases}, and

3. Dear Colleague Letters expressing interest in specific aspects of broadening participation.
#1 – Go to www.nsf.gov

#2 – Click on About NSF

#3 – Click on Broadening Participation/Diversity

Broadening Participation Portfolio

Background

NSF has taken a variety of approaches to broaden participation across its many programs. While broadening participation is included in the NSF review criteria, some program announcements and solicitations go beyond the standard criteria. They range from encouraging language to specific requirements. Investments range from capacity building, research centers, partnerships, and alliances to the use of co-funding or supplements to existing awards in the core research programs.

The portfolio represented below is divided into three categories: (1) programs that are primarily focused on broadening participation, (2) programs that have broadening participation as one of several emphases, and (3) Dear Colleague Letters expressing interest in specific aspects of broadening participation.

Focused Programs

Programs with an explicit broadening participation program goal. The majority of each award’s budget goes to broadening participation activities, and could involve research on the topic.

<table>
<thead>
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<th>PROGRAM NAME</th>
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<th>Directorate</th>
<th>Division</th>
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<tr>
<td>Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)</td>
<td>17-522</td>
<td>All</td>
<td>All</td>
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<td>ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers</td>
<td>16-594</td>
<td>All</td>
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<td>Broadening Participation in Engineering</td>
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<td>ENG</td>
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<td>Centers of Research Excellence in Science and Technology (CREST) and HBCU Research Infrastructure for Science and Engineering (RISE)</td>
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<td>Disability and Rehabilitation Engineering</td>
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<td>EPSCoR Research Infrastructure Improvement Program Track 3: Building Diverse Communities</td>
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<td>Experimental Program to Stimulate Competitive Research: Workshop Opportunities (EPS-WO)</td>
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<td>Historically Black Colleges and Universities Undergraduate Program</td>
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Directorate for Education and Human Resources (EHR)

Mission: To achieve excellence in U.S. science, technology, engineering and mathematics (STEM) education at all levels and in all settings (both formal and informal) in order to support the development of a diverse and well-prepared workforce of scientists, technicians, engineers, mathematicians and educators and a well-informed citizenry that have access to the ideas and tools of science and engineering.
Office of the Assistant Director – Directorate for Education and Human Resources (EHR)

**Division of Research on Learning in Formal and Informal Settings (DRL)**
- EHR Core Research (ECR)*
  - Advancing Informal STEM Learning (AISL)
  - Computer Science for All (CS for All: RPP)
  - Discovery Research K-12 (DRK-12)
  - STEM-C Partnerships (STEM+C)
  - Innovative Technology Experiences for Students and Teachers (ITEST)
  - Faculty Early Career Development Program (CAREER)*
  - Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)*

**Division of Undergraduate Education (DUE)**
- EHR Core Research (ECR)*
  - Advanced Technological Education (ATE)
  - Robert Noyce Scholarship Program (NOYCE)
  - Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR)
  - NSF Scholarships in STEM (S-STEM)

**Division of Graduate Education (DGE)**
- EHR Core Research (ECR)*
  - Graduate Research Fellowship (GRF)
  - NSF Research Traineeship Program (NRT)
  - CyberCorps: Scholarships for Service (SFS)
  - Project and Program Evaluation (PPE)

**Division of Human Resource Development (HRD)**
- EHR Core Research (ECR)*
  - Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers (ADVANCE)
  - Alliances for Graduate Education and the Professorate (AGEP)
  - Centers of Research Excellence in Science and Technology (CREST)
  - Excellence Awards for Science and Engineering (EASE)
  - Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)
  - Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)*
  - Tribal Colleges and Universities Program (TCUP)
  - Louis Stokes Alliances for Minority Participation (LSAMP)

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**EHR Assistant Director (Acting AD):** William J. (Jim) Lewis  
**EHR Deputy Assistant Director (Acting DAD):** Sylvia M. James

**EHR Division Directors (DD) and Deputy Division Directors (DDD)**

- DUE: Zimba Ewur & Aisha Williams (DDD)
- DGE: Dean M. Evasius (DD), Nirmala Kannakudity (DDD)
- HRD: Lura (Jody) Chase (Acting DD), Tasha Inniss (Acting DDD)

*Cross-Directorate funded*
“Recognizing the opportunity for significant impact, NSF INCLUDES is situated as one of NSF’s Ten Big Ideas for Future NSF Investments at the frontiers of science and engineering. As a Big Idea, NSF INCLUDES is investing in pilot projects, and will soon be funding alliances and partnerships that use research-based, collaborative change strategies meant to unite a wide variety of partners to solve a common broadening participation problem.”
NSF INCLUDES National Network Infrastructure is designed to foster collaboration by emphasizing Five design elements: Vision, Partnerships, Goals and Metrics, Leadership and Communication and Expansion, Sustainability and Scale.
design and development launch pilots awarded grants in FY2016 and FY2017 to address broadening participation challenges such as...

- 70 projects
- ...provide STEM engagement for students and communities to promote STEM studies and careers
- ...strengthen institutional capacity
- ...prepare STEM educators
- ...address students’ STEM identity, attitudes, motivation
- ...address career needs of STEM professionals
- ...expand access to quality STEM education
- ...address students’ STEM identity, attitudes, motivation
- ...prepare STEM educators
- ...address career needs of STEM professionals
- ...expand access to quality STEM education
- ...enhance support systems for undergraduate and graduate STEM students
- ...prepare STEM educators
- ...address career needs of STEM professionals
- ...expand access to quality STEM education

Note: Some individual projects have goals and objectives that fall into more than one category.
PARTNERSHIPS

758 partner organizations working to broaden participation in STEM through collaborative change, including...

- 4 local libraries and library systems
- 10 private foundations
- 49 professional and higher education organizations and their affiliates
- 62 corporations and corporate affiliates
- 94 K-12 schools and local or state school districts
- 107 non-profit and community organizations
- 13 federal/national labs and federally funded research and development centers
- 58 government agencies and their affiliates (local, state, federal)
- 313 colleges, universities, community college systems, and university affiliates

...and many more.
Ultimately, NSF INCLUDES is prompting new thinking about expansion, sustainability and scale. Rather than funding isolated efforts, NSF INCLUDES is building the collaborative infrastructure for individuals and organizations to share information, resources and other assets across broader networks that will reach more people across the country. Already, each NSF INCLUDES Design and Development Launch Pilot has been solidifying its networks and partnering with new organizations and with each other.
NSF INCLUDES National Network
• The **HSI Program** seeks to enhance the quality of undergraduate STEM education at HSIs and to build capacity at HSIs that typically do not receive high levels of NSF grant funding.

• Projects supported by the HSI Program are expected to **generate new knowledge** about **how** to enhance undergraduate STEM education that results in an increase in retention and graduation rates of undergraduate students pursuing STEM degrees at HSIs.
Faculty Early CAREER Development Program

• CAREER is a Foundation-wide activity that offers the National Science Foundation’s most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education, and to lead advances in the missions of their departments or organizations.

• EHR encourages eligible faculty to submit CAREER proposals in STEM education research.

• EHR will hold a webinar for EHR CAREER proposers on June 19, 2018 at 2 pm; details are to be found in the Events Calendar on the NSF homepage at www.nsf.gov.
HRD is a focal point for NSF's agency-wide commitment to enhancing the quality and excellence of STEM education and research through broadening participation by historically underrepresented groups - minorities, women, and persons with disabilities.
Division of Human Resource Development

The mission of HRD is to grow the innovative and competitive U.S. STEM workforce that is vital for sustaining and advancing the Nation's prosperity by supporting the broader participation and success of individuals currently underrepresented in STEM and the institutions that serve them.
The **ADVANCE** program is designed to foster gender equity through a focus on the identification and elimination of organizational barriers that impede the full participation and advancement of all women faculty in academic institutions. Organizational barriers that inhibit equity may exist in policy, practice, culture, and organizational climate.

Program Solicitation – NSF #16-594; multiple funding opportunities, proposal deadlines every other year
Alliances for Graduate Education and the Professoriate (AGEP)

AGEP seeks to advance knowledge about models to improve pathways to the professoriate for historically underrepresented minority doctoral students (including those with disabilities), postdoctoral fellows and faculty in specific STEM disciplines and/or STEM education research fields.

New and innovative models are encouraged, as are models that reproduce and/or replicate existing evidence-based alliances in significantly different disciplines, institutions, and participant cohorts.

Program Solicitation – NSF #16-552; annual proposal deadline in December each year
Centers of Research Excellence in Science and Technology (CREST)

• The **CREST** program provides support to enhance the research capabilities of minority-serving institutions through the establishment of centers with collaborating partners that effectively integrate education and research.

• Projects must demonstrate a compelling vision for research infrastructure improvement, and a comprehensive to achieve and sustain national competitiveness in a clearly defined area of national significance in science or engineering research.

Program Solicitation – NSF #18-509; multiple funding opportunities, proposal deadlines throughout the year

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6668
HBCU-UP provides support for the development, implementation, and the study of evidence-based, innovative models and approaches to nourish substantial improvements in the preparation and STEM workforce career success of HBCU undergraduates. HBCU-UP also funds research in broadening participation, as well as all NSF supported disciplines.

Program Solicitation – NSF #16-538; multiple funding opportunities, proposal deadlines throughout the year
LSAMP was authorized by Congress and established in 1991. The LSAMP program provides funding to alliances that implement comprehensive, evidence-based, innovative, and sustained strategies that ultimately result in the graduation of well-prepared, highly-qualified students from underrepresented groups who pursue graduate studies or careers in STEM.

Program Solicitation – NSF #17-579; multiple funding opportunities, annual deadlines in January and November each year.

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13646
Tribal Colleges and Universities Program (TCUP)

TCUP provides awards to Tribal Colleges and Universities, Alaska Native-serving institutions, and Native Hawaiian-serving institutions to promote high quality STEM education and research in order to support the preparation of a science and engineering workforce that is broadly inclusive and capable of performing in an international research and development environment in order for the U.S. to remain at the forefront of world science and technology.

Program Solicitation – NSF #18-546; multiple funding tracks, proposal deadlines throughout the year.

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5483
NSF Excellence Awards in Science & Engineering

Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST)

Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM)
DRL invests in projects to improve the effectiveness of STEM learning for people of all ages. Its mission includes promoting innovative research, development, and evaluation of learning and teaching across all STEM disciplines by advancing cutting-edge knowledge and practices in both formal and informal learning settings.

Division of Research on Learning in Formal and Informal Settings (DRL)

Presenters: Drs. Ellen McCallie and Bob Russell
Innovative Technology Experiences for Students and Teachers (ITEST) 15-599

Photo Source: High Adventure Science, Concord Consortium, #1220756
ITEST Program Overview

• ITEST promotes PreK-12 student interest and involvement in STEM and related careers

• ITEST supports innovative strategies that:
  • Increase student awareness of STEM and ICT careers.
  • Motivate students to pursue the education necessary to participate in those careers.
  • Provide students with technology-rich experiences that develop their knowledge of related content and skills needed

• Broaden participation
Solicitation-Specific Review Criteria: Broadening Participation

Proposals should describe:

• Explicit strategies for recruiting and selecting participants from identified groups currently underrepresented in STEM occupations or education pathways to those occupations

• Explicit strategies for identifying the specific needs of the underrepresented groups to be served, and plans or strategies for addressing or accommodating the particular needs of participants of the identified underrepresented groups

• Explicit attention to strategies appropriate to participants' age and experience for promoting awareness, interest, or capacities to participate in STEM careers or STEM education pathways
• Three project types: Exploratory, Strategies, & SPREAD

• Funded through H1-B Work Visa Revenue

• **Additional Solicitation Specific Criteria related to broadening participation for all ITEST proposals.**

• **Proposal Deadline: August 8, 2018**

• Resource Center: STELAR, www.stelar.edu.org

Advancing Informal STEM Learning

Photo Credits: Discover Tech Exhibit – Huntsville, AL. Credit: NCIL/SSI (NSF #1421427)
AISL Program Overview

• Advances new *approaches to and understanding of* the design and development of STEM learning in informal environments for public and professional audiences.

• Investments should be of interest and utility to public audiences, informal STEM researchers, developers and practitioners, and decision-makers.

• Priorities: (1) strategic impact, (2) knowledge-building, (3) innovation, (4) collaboration, (5) infrastructure/capacity building and (6) *broadening participation.*
AISL Solicitation-Specific Review Criteria:  
**Broadening Participation**

• Does the proposal identify the characteristics and needs of the targeted underrepresented groups (public or professional) to be served?

• Does the proposal include explicit plans or strategies for addressing or accommodating the specific interests, community or cultural perspectives, and educational needs of participants of the identified underrepresented groups?
AISL Solicitation (17-573)

• **Proposal Deadline: Nov. 7, 2018**

• Resource Center:
  Center for Advancement of Informal Science Education (CAISE): [www.informalscience.org](http://www.informalscience.org)

• Solicitation:
  https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504793
Discovery Research PreK-12 (DRK-12) Program Overview

• DRK-12 supports integrated Research and Development of Resources, Models, and Tools in the service of STEM learning and learning environments

• Goals: enhanced student achievement in STEM, preparation for the scientific workforce, and improved science literacy

• Focus: learning that takes place during the 12-14 years students are enrolled in the formal classroom learning environments
• DRK-12 has three major research and development strands: Assessment; Learning; Teaching

• Proposal Deadline: Nov. 14, 2018

• Resource Center: www.cadrek12.org

• Solicitation: https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=500047
STEM + Computing Partnerships (STEM+C)
STEM + Computing (STEM + C)
Program Overview

• Focuses on research and development of interdisciplinary and transdisciplinary approaches to the integration of computing within STEM teaching and learning.

• Targets students in the age range of preK-12 students in both formal and informal settings.

• Supports research on how students learn to think computationally to solve interdisciplinary problems in science and mathematics.

STEM+C Application Information

• Target date: July 2, 2018

• Proposals received after July 2, 2018 may also be considered for 2018 or 2019 funds as funds are available

• Funding categories: There are no specific strands, themes, funding categories or restrictions on project duration or funding limit

• Frequently Asked Questions (FAQs) for submitting proposals to the STEM+C Program Description (18-005Y):

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505006
Contact Program Officers About Your Project

• Examine the websites of the relevant programs
• Prepare a 1-2-page summary of your project
  - Address the merit review criteria
• Contact one of the listed Program Directors with questions about relevance of your project
• Not required but program officers can give you excellent feedback
Division of Undergraduate Education (DUE)

Presenters: Drs. Ellen Carpenter and Abby Ilumoka

DUE invests in efforts aimed at strengthening STEM education at two- and four-year colleges and universities by improving curricula, instruction, laboratories, infrastructure, assessment, diversity of students and faculty, and collaborations.
Division of Undergraduate Education (DUE)

IUSE: EHR
Improving Undergraduate STEM Education

S-STEM
NSF Scholarships in STEM

ATE
Advanced Technological Education

Noyce
Robert Noyce Teacher Scholarships
Competitive proposals should build on available evidence and theory, generate evidence, and build knowledge.

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<th>Program Goals</th>
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<td>Improve STEM Learning &amp; Learning Environments:</td>
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<tr>
<td>Increase the number and diversity of undergraduate students recruited and retained in STEM education and career pathways through improving the evidence base for successful strategies to broaden participation and implementation of the results of this research</td>
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NSF 17-590
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505082
Improving Undergraduate STEM Education (IUSE: EHR)

Two Program Tracks

Engaged Student Learning
Focus on designing, developing, and implementing research on STEM learning models, approaches, and tools

Two Tiers
- Exploration & Design (smaller scale)
  - Up to $300K
  - Up to 3 yrs

- Development & Implementation (larger scale)
  - Level I: Up to $600K, Up to 3 yrs
  - Level II: $601K to $2M, Up to 5 yrs

Institutional and Community Transformation
Focus on increasing the propagation of highly effective methods of STEM teaching and learning

Two Tiers
- Exploration & Design (smaller scale)
  - Up to $300K
  - Up to 3 yrs

- Development & Implementation (larger scale)
  - Up to $3M
  - Up to 5 yrs

Deadlines:
- Exploration and Design: No Deadlines
- Development and Implementation: December 11, 2018
The Bowman Creek Educational Ecosystem

(DUE 1612021, ICT, E&D)

• IUSE ICT E&D project in South Bend, Indiana
• Collaboration between University of Notre Dame, Indiana University South Bend, Ivy Tech Community College, K-12 schools, city government and community organizations
• Name of project refers to Bowman Creek, a badly polluted tributary of St. Joseph River in South bend, IN
• Impaired waterway is focus of project’s activities
• Project built upon "multidimensional diversity" where interns represent a very broad range of schools, ages, majors, and ethnic and racial backgrounds
• Participants identify computer-based projects that will have real community impact, and then work in interdisciplinary teams to implement them
• Project generates knowledge through investigation of research questions that explore how perceptions of identity and possibility together with life experiences shape student choices with regard to STEM as a career
NSF Scholarships in STEM (S-STEM) Program

S-STEM Goal: To increase recruitment and retention of full-time **academically-talented STEM students with demonstrated financial need through institutional scholarship programs.**

- Scholarship Amount: Up to $10,000 per student per year (depending on **financial need**)
- 60% of Budget to Scholarships – 40% to Student Support, Admin., Research, Evaluation

**Curricular & Co-Curricular Activities**
- Curriculum
- Development
  - Professional
  - Workforce
  - Cohorts
  - Mentoring, etc.

**Study & Understand**
- Models
- Effective practices
- Strategies

**Increase**
- Recruitment
- Retention
- Student success
- Academic/career pathways
- Student transfer
- Degree attainment

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**Multi-Institutional Academic Redshirt Program (U of Washington)**
6 institution-partnership on a “redshirt” program to provide pre-engineering students with extra year of preparation for rigors of engineering curricula
(DUE 1564656, ICT, E&D)

**NSF Scholarships in STEM (S-STEM) Program**

**NSF 17-527**

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5257
S-STEM Program
Three Program Tracks

Track 1: Institutional Capacity Building
For institutions without prior funding from S-STEM or STEP programs

Up to $650K
Up to 5 yrs

Track 2: Design and Development:
Single Institution

Tracks 2 & 3 seek to leverage S-STEM funds with institutional efforts and infrastructure to increase and understand impacts

Up to $1M
Up to 5 yrs

Track 3: Design and Development:
Multi-Institution Consortia

Up to $5M
Up to 5 yrs

Deadline (All Strands and Types):
Last Wednesday in March, Annually Thereafter
Example of S-STEM Project

Multi-Institutional Academic Redshirt Program (DUE 1564656)

• Six-institution partnership to adapt, implement and test a model of engineering student success originally developed at the University of Colorado, Boulder

• Idea borrowed from redshirt programs in athletics, in which a freshman athlete is given a year to prepare to compete in a sport at university level

• Here, “redshirt” refers to the idea of providing pre-engineering students with an extra year of preparation for rigors of engineering curricula

• Project awards scholarships and embeds students in an ecosystem of evidence-based academic and student support activities

• Activities include intrusive academic advising, an innovative first-year academic curriculum, community building and career awareness

• Knowledge generation through educational research study to answer research questions:

  1. How do the curricular elements of the redshirt program impact the students’ retention to the sophomore year at the university and in engineering?

  2. How does the cohort model impact the participants’ sense of identity as engineering students?
1) ATE Focuses on the education of technicians to meet workforce demands in existing and emerging advanced technological fields.

2) Colleges that award two-year degrees and their faculty must play leadership role on all projects.

3) Requires partnerships between two-year colleges and business and industry, along with secondary schools, four-year colleges and universities, and government, as appropriate.

4) Must respond to the hiring needs of for highly-skills technical workforce in the service area of the proposing institution(s).

5) Must address sustainability.

6) Read the program solicitation for more detailed information.
ATE Program

Three Program Tracks

ATE Projects
Up to $600k, up to 3 yrs
except Small/New to ATE:
Up to $225k

ATE Centers
Two Types

Centers
Up to $5M
5 yrs

Resource Centers
Up to $600k
3 yrs

Targeted Research in Technician Education
From $150k, up to 2 yrs
to $800k, up to 3 yrs

Deadlines (All Tracks):
FY 19: October 4, 2018
FY 20: October 3, 2019
Robert Noyce Teacher Scholarship Program

**Act of Congress (2002)**

**GOAL:** to encourage talented STEM majors and STEM professionals to become K-12 STEM teachers

Scholarship, stipend, and fellowship recipients must teach in a high-need school district for a specified number of years

**Track 1 (S&S) Scholarships & Stipends**
Undergraduate STEM majors and/or STEM career changers

**Track 2 (TF) NSF Teaching Fellowships**
STEM career changers

**Track 3 (MTF) NSF Master Teaching Fellowships**
Exemplary, experienced STEM teachers

**Track 4 (Noyce Research) Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers**

**Deadline (All Tracks):**
Last Tuesday in August, Annually Thereafter

NSF 17-541
https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5733
Division of Graduate Education (DGE)

Presenters: Drs. Sarah Flores and Tyrone Mitchell
Division of Graduate Education

Solicitations and Program Descriptions:

• NSF Graduate Research Fellowship Program (GRFP)
• CyberCorps(R) Scholarship for Service (SFS)
• Community College Cyber Pilot Program (C3P)
• Innovations in Graduate Education (IGE) Program
• National Science Foundation Research Traineeship (NRT) Program
• EHR Core Research (ECR)

Dear Colleague Letters (DCLs)

• Graduate Research Internship Program (GRIP)
• Non-Academic Research Internships for Graduate students (INTERN)

MORE INFO ON ALL  https://www.nsf.gov/funding/programs.jsp?org=DGE
Division of Graduate Education

Solicitations and Program Descriptions:
- NSF Graduate Research Fellowship Program (GRFP)
- CyberCorps(R) Scholarship for Service (SFS)
- Community College Cyber Pilot Program (C3P)
  - Innovations in Graduate Education (IGE) Program
  - National Science Foundation Research Traineeship (NRT) Program
  - EHR Core Research (ECR)

Dear Colleague Letters (DCLs)
- Graduate Research Internship Program (GRIP)
- Non-Academic Research Internships for Graduate students (INTERN)

More info on all: https://www.nsf.gov/funding/programs.jsp?org=DGE
Broadening Participation Opportunities
with the NSF Graduate Research Fellowship Program
Graduate Research Fellowship Program

DESCRIPTION
**NSF Graduate Research Fellowships**

**Five Year Awards – $138,000**

- Three years of financial support
  - $34,000 Stipend per year
  - $12,000 Educational allowance to institution
- Professional Development Opportunities:
  - International Research
  - Internships
- Career-Life Balance Initiative (family leave)
- FASED Individuals with Disabilities
- Supercomputer access: XSEDE
National Science Foundation

Graduate Research Fellowship Program

Who is eligible?
New Eligibility Rules (NSF 16-050)

**Level 1:** Seniors/baccalaureates: no graduate study

**Level 2:** First-year graduate students

**Level 3:** Second-year graduate students

≤ 12 months of graduate study by August 1, 2018

Only once in grad school

**Level 4:** >12 months graduate study

with an interruption in graduate study of 2+ years

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Eligibility

- U.S. citizens and permanent residents
- Early-career: undergraduate & graduate students
- Pursuing research-based MS or PhD degrees
- Science, Technology, Engineering and Mathematics fields (STEM)
- Enrolled in an accredited U.S. institution by Fall after award
National Science Foundation

Graduate Research Fellowship Program

Application Package

GRFP

NOVA
Complete Application Package:

1) **Personal, Relevant Background and Future Goals Statement** (3 pages)

2) Graduate **Research Statement** (2 pages)

3) Transcripts (uploaded electronically)

4) **Three letters of reference**

**DEADLINES: October 2018**

Refer to Solicitation NSF 16-588
Graduate Research Fellowship Program

Personal & Research Statements
Two Statements

Statement 1:
Personal, relevant Background and Future Goals (3 pages)

Describe your personal, educational and/or professional experiences that motivate your decision to pursue advanced study. Include examples of research and/or professional activities in which you have participated. Describe the contributions to advancing knowledge in STEM fields and the potential for broader societal impacts. Include future plans to contribute to broader impact.

Statement 2:
Graduate Research Plan (2 pages)

Present an original research topic that you would like to pursue in graduate school. Describe the research idea, your general approach. Address the potential of the research to advance knowledge and understanding within science as well as the potential for broader impacts on society.
Graduate Research Fellowship Program

Panel Review Criteria
Intellectual Merit Assessment

• Academic performance: grades, courses, awards, etc.
• Graduate Research plan
• Research/professional experience
• Reference letters

Broader Impacts Assessment

• Prior accomplishments and future plans
• Individual experiences
• Potential benefit(s) to society
• Community outreach
• Reference letters

Solicitation NSF GRFP: NSF 16-588
Graduate Research Fellowship Program

Other Funding Opportunities for All Students
Portals for federally-sponsored opportunities in STEM for students

stemundergrads.science.gov

stemgradstudents.science.gov
The STEMUndergrads.science.gov site was established to be the primary source for searching Federally-sponsored opportunities for undergraduate students and undergraduate programs in science, technology, engineering, and mathematics (STEM) areas. These opportunities range from scholarships and research internships that undergraduate students can apply to directly for funding to allow academic institutions to establish innovative undergraduate training programs.

Users of the site may search for program opportunities using a set of standardized categories - such as STEM discipline, institutional location where the undergraduate opportunity takes place, and Federal agency sponsor - as well as through using a keyword search. Each search result provides a brief program description and a direct link to the sponsoring agency's program website. Interested applicants should follow the sponsoring agency's procedures for applying.
The STEMGradStudents.science.gov site was established to be the primary source for searching Federally-sponsored opportunities for graduate students and graduate study programs in science, technology, engineering, or mathematics (STEM) areas. These advanced degree opportunities range from graduate fellowships and research internships that graduate students can apply to directly for funding to allow academic institutions to establish innovative graduate training programs.

Users of the site may search for program opportunities using a number of standardized categories - such as by STEM discipline or institutional location where the graduate opportunity takes place - as well as through using a keyword search. Each search result provides a brief program description and a direct link to the sponsoring agency's program website. Interested applicants should follow the sponsoring agency's procedures for applying.

These sites were developed through collaborations between the participating agencies of the White House National Science and Technology Council's Committee on STEM Education (CoSTEM) and the Science.gov Alliance, and is updated on a regular basis.
The 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.

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504991
Cybersecurity Education and Workforce Development

- Increasing the number of female students and under-represented minorities (URMs) in cybersecurity and computing disciplines
- Diversifying the types of institutions with strong cybersecurity programs
- Diversifying the geographic distribution of institutions with strong cybersecurity programs
**Scholarship Track**

- **Scholarships**: Provides funds to colleges and universities for student scholarships in support of education in areas relevant to cybersecurity ($3-5 million for five years).

- **Student service obligation**: In return for their scholarships, recipients must agree to work after graduation for the government in a position related to cybersecurity for a period equal to the length of the scholarship.

**Capacity Track**

- Seeks innovative proposals that are likely to lead to an increase in the ability of the US higher education enterprise to produce cybersecurity professionals: *provides funds to support curriculum, outreach, faculty, institutional, and/or partnership development* (up to $500,000 for 5 years).

Scholarship Track

SCHOLARSHIP TRACK AWARDS
Typical Award: $3-5 million for five years

INSTITUTION ELIGIBILITY
• Evidence of strong program in cybersecurity: National Centers of Academic Excellence (CAE) or equivalent designation (e.g., DC3 Forensics, NSA CAE -Cyber Ops, or alternative evidence)
• Offer formal cybersecurity educational program
• Community colleges eligible as sub-awardees of a partnering 4-year institution

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504991
Scholarship Track

STUDENT ELIGIBILITY

- U.S. Citizen or Permanent Resident
- Full-time enrollment in Cybersecurity program
- Eligible for government employment (must be able to acquire security clearance)
- Awardee institutions set additional selection criteria

SCHOLARSHIP COMPONENTS

- Up to 3 years of support for undergraduate and graduate (MS or PhD) education
- Full tuition, stipends ($22,500 for undergrad and $34,000 annually for graduate students) and other allowances (up to $9,000 per year)
- in-person job fair participation in Washington, D.C.
- Post-graduation government service requirement for a period equivalent to the length of scholarship
Capacity Track

Capacity Track Awards
Up to $500,000 for 5 years

Institution Eligibility
The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the NSF Proposal & Award Policies & Procedures Guide (PAPPG), Chapter I.E.

What can be funded?
Provides funds to support curriculum, outreach, faculty, institutional, and/or partnership development

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504991
Community College Cyber Pilot Program (C3P)

• *Per the 2018 National Defense Authorization Act (NDAA18)*

• “...develop and implement a pilot program at not more than 10, but at least 5, community colleges to provide scholarships to eligible students who—

• (1) are pursuing associate degrees or specialized program certifications in the field of cybersecurity; and

• (2)(A) have bachelor's degrees; or (B) are veterans of the Armed Forces.

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505573
In response to the NDAA18, NSF will accept proposals to **develop, implement, support, and evaluate C3P projects** in this pilot effort. This new category of CyberCorps® SFS scholars will satisfy criteria and receive the benefits consistent with the CyberCorps® SFS program requirements ([https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504991](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504991)) and must work after graduation for a Federal, State, Local, or Tribal Government organization in a position related to cybersecurity for a period equal to the length of the scholarship.

**WILL THERE BE ANY INFORMATION ON ANY BUDGET LIMITS?**
The Program Description does not include any budget limits.

**INSTITUTION ELLIGIBILITY**
The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), Chapter I.E


*The next C3P Webinar will be scheduled in September 2018.*
Questions?
EHR Education Core Research

Solicitation 15-509
ECR Program Features

- Fundamental research in STEM education about critical areas that are essential, broad and enduring.
- Synthesis or expansion of research foundations in the focal areas.
- Contribution to the accumulation of robust evidence to guide interventions and innovations.
- Focus on persistent challenges in STEM education and workforce development.
- Development of foundational knowledge in STEM formal and informal learning and learning contexts for all groups and stages of development.

Proposal Deadline: September every year.
Proposal Types and Funding

Three Funding levels

• Level I - $500,000 – maximum of three years
• Level II - $1,500,000 – maximum of three years
• Level III - $2,500,000 – maximum of five years

Synthesis and conference/workshop proposals

Deadline: September 13, 2018
Capacity Building and Professional Development
Capacity Building & Professional Development

• NSF Summer Scholars Internship Program (HACU, QEM)
• Attend NSF Days Events, Workshops, and Webinars
• Serve as a proposal reviewer (ad hoc) and panelist (in-person, virtual), Link sent following the webinar (2 weeks to sign up)
• Get Connected (social media, Science360, Science Nation, Discovery Files Podcast)
• Consider joining NSF as a Rotator!
• Contact NSF Program Officers if you have questions about a program
• Submit Proposals!