Science, STEM Education, and Social, Behavioral & Cognitive Research Funding

National Science Foundation – Crosscutting Programs
Major Foundations
About NSF Funding

- Only federal agency that funds basic *non-biomedical* research and education across all fields of science at all levels of education
- In many fields, NSF is the primary source of federal academic research support
  - Computer Science – 87% of total federal support
  - Biology – 66%
  - Environmental Sciences – 60%
  - Mathematics – 59%
  - Social Sciences – 55%
- 77% of NSF funding goes to colleges and universities – the highest proportion of any federal agency
- FY2015 NSF Budget Request - $7.3 billion
You need to find your “home”

- (7) Directorates with funding programs
- Core programs are the major part of the budget in most Directorates
NSF Days
A good way to meet program officers

Event
NSF Day in Baltimore, MD

Learn how to submit fundable proposals for science, engineering and education research

December 8, 2014 7:30 AM to December 8, 2014 5:30 PM
Maryland Science Center

NSF annually receives 50,000+ competitive funding requests and makes some 11,500 new funding awards.
Credit: Jeff Fitlow, Rice University

The National Science Foundation (NSF) and the Maryland Science Center are pleased to invite you to participate in our upcoming NSF Day to be held on Dec. 8, 2014, at Baltimore’s Inner Harbor.
NSF Directorates & Divisions

Biological Sciences
• Molecular & cellular, integrative organismal systems, environmental biology

Geosciences
• Atmospheric & Geospace, earth science, ocean science, polar programs

Mathematical & Physical Sciences
• Mathematical, astronomical, physics, chemistry, materials research

Computer & Information Science & Engineering
• Advanced cyberinfrastructure, computing & communication foundations, computer & network systems, information & intelligent systems

Engineering

Education & Human Resources
• Learning in formal & informal settings, human resource development, graduate education, undergraduate education

Social, Behavioral & Economic Sciences
• Social and economic sciences, behavioral & cognitive sciences
Example - EHR Core Research

EHR Core Research (ECR)
Fundamental Research in Science, Technology, Engineering and Mathematics (STEM) Education

PROGRAM ANNOUNCEMENT
NSF 15-509

REPLACES DOCUMENT(S):
NSF 13-555, NSF 13-604

Full Proposal Deadline(s) (due by 5 p.m. proposer’s local time):
February 03, 2015
September 10, 2015
Second Thursday in September, Annually Thereafter

• Anticipated funding: $61,500,000
• Anticipated awards - 64
Example - EHR Core Research

- **STEM Learning & STEM Learning Environments**
  - Core STEM competencies (rational numbers, ratios, proportional reasoning, algebraic reasoning, computational thinking)
  - Personalized learning environments, virtual, on-line, blended environments, formal and informal settings

- **Broadening Participation & Institutional Capacity**
  - Research on positive and negative factors that impact participation, retention, and success of individuals from underrepresented groups in STEM including girls and women (motivation, engagement, mindset and productive persistence)

- **STEM Professional Workforce Development**
  - Align investments in preK-16 education to changing STEM workforce needs
  - University-Industry Partnerships

*New targeted solicitation for 2015 – combines Math & Science Partnership and Computing Education for 21st Century programs*
Finding NSF Funding Opportunities

- A-Z Index of funding opportunities
- Recent Funding Opportunities – sorted by published date
- Upcoming Due Dates - sorted by due dates
- Advanced Funding Search
  - By directorate or division
  - By funding type (grant, fellowship, supplement)
Major NSF Crosscutting Programs included in FY2015 Budget Request

- ADVANCE
- CAREER
- IUSE
- Research Coordination Networks (RCN)
- Research in Undergraduate Institutions (RUI)
- Research Experiences for Undergraduates (REU)
- Major Research Instrumentation (MRI)
- NSF Research Traineeship (NRT)
ADVANCE
INCREASING THE PARTICIPATION AND ADVANCEMENT OF WOMEN IN ACADEMIC SCIENCE AND ENGINEERING CAREERS

Goal

• To increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce. ADVANCE encourages institutions of higher education ... to address various aspects of STEM academic culture and institutional structure that may differentially affect women faculty and academic administrators.
ADVANCE
INCREASING THE PARTICIPATION AND ADVANCEMENT OF WOMEN IN ACADEMIC SCIENCE AND ENGINEERING CAREERS

Institutional Transformation (IT) and IT-Catalyst Tracks

• Eligibility
  • Department of Education Title III and V status (HSIs and MSI-designated)
  • Community colleges

• Deadlines
  • Varies by track; LOI in Oct/Nov and Full proposal Nov/Jan

• Structure
  • IT grants – 5 years; various award sizes
  • IT-Catalyst - 3 year self-assessment ; $250,000 budget

Announcement link:
CAREER
FACULTY EARLY CAREER DEVELOPMENT PROGRAM

• Offers the National Science Foundation's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations.

• $220,000 per year

Announcement link:
IMPROVING UNDERGRADUATE STEM EDUCATION (IUSE)

• New in 2014; $100 million in FY-15 Budget request

• Invites proposals that address immediate challenges and opportunities that are facing undergraduate STEM education, as well as those that anticipate new structures (e.g. organizational changes, new methods for certification or credentialing, course re-conception, cyberlearning, etc.) and new functions of the undergraduate learning and teaching enterprise.

• Two tracks:
  • Engaged student learning
    • ≤ $250,000 – exploration
    • $600,000 - $2,000,000 – design & development, level I and level II
  • Institutional and community transformation
    • ≤ $250,000 – exploration
    • $600,000 - $3,000,000 – design & development, level I and level II

• Next deadline: January 13, 2015

Research Coordination Networks (RCN)

Goal of the RCN program is to advance a field or create new directions in research or education by supporting groups of investigators across disciplinary, organizational, geographic and international boundaries

- Does not support primary research; supports:
  - Travel for U.S. scientists and students
  - Travel for international partners
  - Networking activities
- $500,000 - $700,000 total over 5 years
- Accepted anytime – based on program submission dates
RUI
RESEARCH IN UNDERGRADUATE INSTITUTIONS

“One of the most confusing and misunderstood of NSF’s offerings.” (NSF Program Director, CISE/CNS)

- There is no program called RUI that you can submit to
  - Opportunity to submit proposals to NSF’s standard research programs and include the RUI designation in the title of proposal
- There is no special pot of funds for RUI funding
  - The RUI designation may give the proposal a little extra consideration in funding decisions
- To submit a proposal under the RUI umbrella:
  - Identify a research program/solicitation that your project fits under
  - You may want to talk over your project with the program directors managing the solicitation to be sure of fit and get advice.
Benefits of RUI submission

- RUI proposals support primarily undergraduate institution faculty in research that engages them in their professional field(s)
- RUIs strengthen the research capacity at an institution
- Supports the integration of research and undergraduate education
- May provide funding for instrumentation and other research tools
- Provides support for collaborative research
- Will provide salary support for faculty
REU
RESEARCH EXPERIENCES FOR UNDERGRADUATES

• Supports active research participation by undergraduate students in any of the areas of research funded by NSF

• REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program.

• REU Sites are based on independent proposals to initiate and conduct projects that engage a number of students in research. REU Sites may be based in a single discipline or academic department, or on interdisciplinary or multi-department research opportunities with a coherent intellectual theme

• Up to $500,000

Kean’s REU Site: Ecosystem Studies in the Maquenque National Wildlife Refuge of Costa Rica
Daniela Shebitz, PI

- 8 students in a trans-disciplinary team with 8 mentors
- 10 weeks
  - 6 weeks in Costa Rica; 4 weeks in NJ
- Students receive $5,000 for the 10 weeks and have all travel and living expenses paid in Costa Rica and New Jersey
- Enhancement activities include research methods, data analysis, publishing work in journals
MRI

MAJOR RESEARCH INSTRUMENTATION PROGRAM

• Serves to increase access to shared scientific and engineering instruments for research and research training

• Seeks to improve the quality and expand the scope of research and research training in science and engineering, by providing shared instrumentation that fosters the integration of research and education in research-intensive learning environments.

• Development and acquisition of research instrumentation for shared inter- and/or intra-organizational use are encouraged

• $100,000 to $4 million

• Proposals for less than $100,000 are accepted from math and social sciences

• Kean can submit two instrument acquisition proposals and one instrument development proposal

NSF Research Traineeship (NRT)

Designed to encourage the development of bold, new, potentially transformative, and scalable models for STEM graduate training that ensure that graduate students develop the skills, knowledge, and competencies needed to pursue a range of careers in the sciences

- One priority research theme - Data-Enabled Science and Engineering
  However, proposals are encouraged on any other crosscutting, interdisciplinary theme

- Proposals must identify the alignment of project research themes with national research priorities

- NRT projects should develop evidence-based, sustainable approaches and practices

Announcement link:
Major Private Funders
Alfred P. Sloan Foundation

Supports original research and education in science, technology, engineering, math and economic performance.

Seven Focus Areas:
✓ Basic Research
✓ STEM Higher Education
✓ Public Understanding of Science, Technology and Economics
✓ Digital Information Technology
✓ Economic Performance and the Quality of Life
✓ Select National Issues
✓ Civic Initiatives

• Grant amounts vary

• Also offers Sloan Research Fellowships

www.sloan.org
The David and Lucile Packard Foundation

Focuses on

• Conservation and Science
  • Ocean and land conservation
  • Climate change mitigation
  • Scientific research
• Population and Reproductive Health
• Children, Families and Communities

Funding amounts vary

www.packard.org
IBM International Foundation

Funding Priorities:
• Science
• Mathematics
• Physics
• Applying Technology and Expertise to Societal Problems
• Education to Work Programs

Grant Awards: $10,000 to $1 million

www.ibm.com
Verizon Foundation

- Supports programs designed to use technology to solve critical social issues in the areas of education, healthcare, and energy management
- Develops research partnerships designed to give communities more control over their energy use through technology, particularly advanced technology in underserved communities

Average grant is $5,000 - $10,000

www.verizonfoundation.org
Questions?

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