



# **Federal Funding Opportunities: A National Science Foundation Perspective**

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# NSF in a Nutshell

- **Independent federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense..."**
- **Annual budget ~ \$7.5 billion**
- **~11,000 new awards yearly, average duration of three years**



# NSF Funding Directorates

Social, Behavioral,  
& Economic  
Sciences

Computer &  
Info. Science  
& Engineering

Mathematical &  
Physical  
Sciences

Engineering

Biological  
Sciences

Geosciences

Education &  
Human  
Resources



# **Social, Behavioral, and Economic (SBE) Sciences Directorate**

**~\$272 million annual budget (FY 2016)**

**Directorate:**

**Social, Behavioral, &  
Economic Sciences (SBE)**

**Divisions:**

**Behavioral & Cognitive  
Sciences**

**Social & Economic  
Sciences**

**National Center for Science  
& Engineering Statistics**



# **Behavioral and Cognitive Sciences (BCS) Programs:**

- **Archaeology and Archaeometry**
- **Biological Anthropology**
- **Cultural Anthropology**
- **Cognitive Neuroscience**
- **Developmental Sciences**
- **Documenting Endangered Languages**
- **Geography and Spatial Sciences**
- **Linguistics**
- **Perception, Action, & Cognition**
- **Science of Learning**
- **Social Psychology**





# Social and Economic Sciences (SES)

- **Decision, Risk, and Management Sciences**
- **Economics**
- **Law and Social Sciences**
- **Methodology, Measurement, and Statistics**
- **Political Science**
- **Science of Organizations**
- **Science, Technology, and Society**
- **Sociology**



# Kinds of proposals (funding mechanisms)

- **Standard research grants**
- CAREER awards
- Time urgent, or high risk awards (RAPID, EAGER)
- Workshops
- Major Research Instrumentation (MRI) Awards
- Research Coordination Networks (RCNs)
- Special solicitations, Dear Colleague Letters
- Doctoral Dissertation Research Improvement grants
  - Not all programs
  - Faculty advisor is PI
- Training programs
  - Graduate Research Fellowships
  - Post-doctoral Fellowships
  - Research Experiences for Undergraduates (next slide)



# Facilitating Research Opportunities for Undergraduate Students

- Funded in SBE through regular programs, standard merit review process
- Research in Undergraduate Institutions Awards (**RUI**)
- Research Opportunity Awards (**ROA**): faculty work with an NSF-funded PI at another institution
- Research Experiences for Undergraduates (**REU**)
  - REU supplements
  - REU Sites





# Cross Directorate Initiatives

- Integrative Strategies for Understanding Neural and Cognitive Systems (**NCS**)
- Cyberlearning and Future Learning Technologies
- Innovations at the Nexus of Food, Water, and Energy (**INFEWS**)
- Dynamics of Coupled Natural and Human Systems (**CNH**)
- Cultivating Cultures of Ethical STEM (**CCE STEM**)
- Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers (**ADVANCE**)
- Historically Black Colleges and Universities Undergraduate Program (**HBCU-UP**)
- Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (**INCLUDES**)



# Looking Ahead: Ten Big Ideas



**Navigating the New Arctic**


FOUNDATIONS ACCESS WORKFORCE  
ANALYTICS DATA SCIENCE  
**HARNESSING THE DATA REVOLUTION**  
FUNDAMENTAL RESEARCH MACHINE

**Harnessing Data for 21st Century Science and Engineering**




**Work at the Human-Technology Frontier: Shaping the Future**

## RESEARCH IDEAS



**Understanding the Rules of Life: Predicting Phenotype**

**The Quantum Leap: Leading the Next Quantum Revolution**

**Windows on the Universe: The Era of Multi-messenger Astrophysics**

## PROCESS IDEAS



**Growing Convergent Research at NSF**



**NSF-INCLUDES: Enhancing Science and Engineering through Diversity**



**Mid-scale Research Infrastructure**



**NSF 2050: Seeding Innovation**



# Things You and PIs Should Know

- **Read carefully** - key aspects of the program announcement and solicitation requirements
- **Talk to a program director**
- Get feedback from colleagues or mentors
- Establish feasibility (often via pilot studies)
- Suggest reviewers
- Keep in mind that funding rates are ~ 20%
- **Remember the review criteria**
  - National **Science** Foundation





# Official NSF review criteria

## Intellectual Merit:

- Importance of topic
- Qualifications
- Creativity & originality
- Transformative?
- Conception & organization
- Access to resources

## Broader Impacts:

- Training
- Mentoring
- Diversity
- Infrastructure
- Dissemination/Public awareness
- Societal Benefits