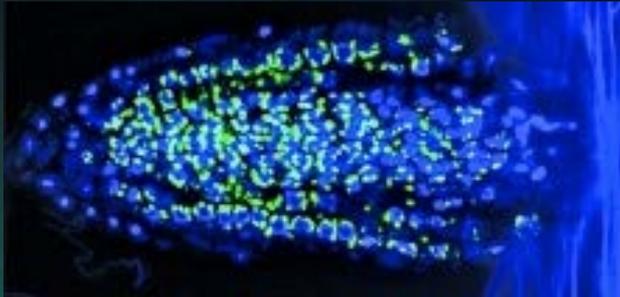# Biological Sciences (BIO)

Priorities

Investigator-driven projects in all areas of Biological Research

Brain Research through Advancing Innovative Neurotechnologies (BRAIN)

National Ecological Observatory Network (NEON)

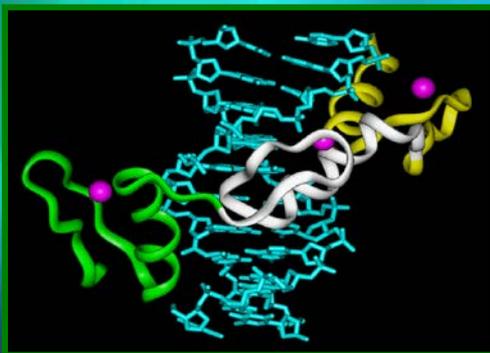Plant Genome Research Program (PGRP)

Dimensions of Biodiversity

Projects at interface of biology, mathematics, and engineering (BIOMAPS)

NEW: Enabling Discovery through Genomic Tools (EDGE)

Crosscutting: Innovations at the Nexus of Food , Energy, and Water Systems (INFEWS)

Computer & Information Science & Engineering (CISE)

Directorate Priorities

- Core research programs across computer science (CS)
- Cross-directorate and cross-NSF programs (e.g., BRAIN, Cyberlearning, Secure and Trustworthy Cyberspace, Cyber-Physical Systems, NRI, BIG DATA, Smart and Connected Health)
- CS education – STEM+C
- Building cyber infrastructure for science and engineering

Education & Human Resources (EHR)

Learning and learning environments

Cognitive and non-cognitive foundations of STEM

Creative uses of formal and informal STEM learning

Broadening participation in STEM

Access to and success in high-quality
STEM education for underrepresented groups

STEM professional workforce development

Capitalize on scientific advances

Address not yet imagined global, social & econ challenges

ENG Initiatives and Priorities Address National Interests

- **INFEWS**
- **Risk and Resilience: CRISP**
- **Urban Science**
- **Clean Energy Technology***
- **Cyber-Enabled Materials, Manufacturing, and Smart Systems - Advanced Manufacturing***

- **Optics and Photonics**
- **Understanding the Brain**
- **Education and Broadening Participation: INCLUDES**
- **Innovation Corps**
- **Emerging Frontiers in Research and Innovation**
- **Research Centers**
- **National Nanotechnology Initiative***
- **Communications and Cyberinfrastructure**

* National Initiatives

Geosciences (GEO)

Directorate Priorities

- Support basic research in atmosphere, earth, ocean sciences, and polar studies

- Support research facilities and infrastructure (NCAR, research vessels, Antarctic base, Geochronology, EarthScope)

- Develop community-driven cyber-infrastructure

- Promote education and diversity in geosciences

- Initiatives in hazards and resilience and the water cycle (PREevents, INFEWS)

Mathematical & Physical Sciences (MPS)
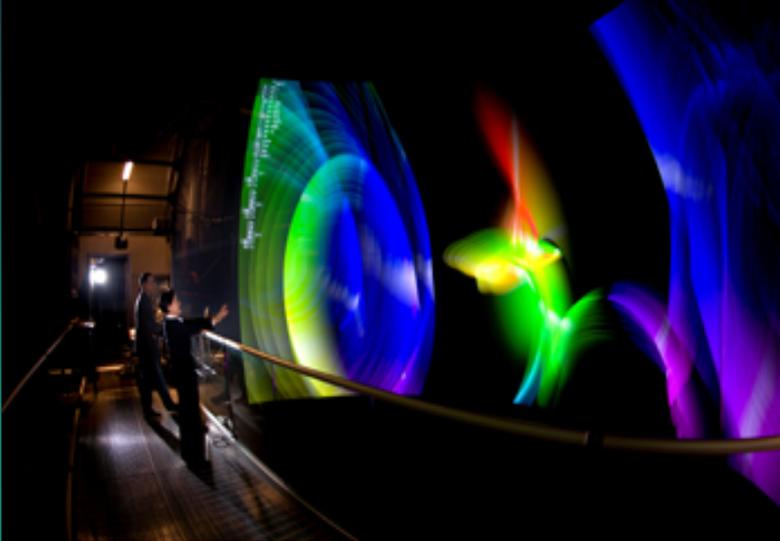
Emphasis Areas

- Physical sciences at the nanoscale
- Advances in optics and photonics
- Materials by design
- Physics of the universe
- World-class, shared-use Facilities
- Quantum information science
- Complex systems (multi-scale, emergent phenomena)
- Innovations at the Nexus of Food, Energy and Water Systems
- Sustainability (energy, environment, climate)
- Interfaces between the mathematical, physical, & life sciences

SBE-Related
Cross-Directorate Initiatives

Science of Broadening Participation & INCLUDES
Understanding the Brain
Forensic Sciences
Big Data
Coupled Natural and Human Systems
Interdependent Infrastructure Systems and Processes
Food, Energy, and Water Systems

Navigating www.NSF.gov

Navigating www.NSF.gov

Navigating www.NSF.gov

Proposal Development Strategies:

Who Should You Talk To?

NSF Program Officer

- Your proposed project
- Clarifications on specific program requirements/limitations
- Current program patterns

Your Organization's Sponsored Projects Office

- University guidelines for applications
- Institutional Review Board "IRB" Approvals

  e.g. institutional Animal Care and Use Committee (IACUC) approvals

What to Look for in a Program Announcement or Solicitation

- **Goals**

- **Eligibility Requirements**

- **Special proposal preparation and/or award requirements**

- **Review Criteria**

S-STEM

Two Program Tracks

Institutional Capacity Building (Strand 1)

Up to $650k
Up to 5 yrs

For institutions with limited experience in implementing effective curricular and co-curricular activities

**Deadlines (All Proposals):
16 May 2016
September 2016 (?)**

Design and Development (Strand 2)

Two Types

Single Institution (Type 1)

Up to $1M
Up to 5 yrs

Multi-institutional Consortia (Type 2)

Up to $5M
Up to 5 yrs

Seeks to leverage S-STEM funds with institutional efforts and infrastructure to increase and understand impacts

Research Coordination Networks in Undergraduate Biology Education (RCN-UBE)

- Goal: "focus on any topic likely to lead to improved participation, learning, or assessment in undergraduate biology curricula"
  - active and inquiry-based learning
  - engage faculty in professional development
  - incorporate new fields into the biology curriculum
  - improve assessment of student learning
  - **improve transition from 2-year to 4 year institutions**
  - incorporate authentic research experiences into undergraduate laboratory courses
- Incubator awards ($50 K) and Full awards (up to $500K for five years)

  Current solicitation is NSF 15-527.

LSAMP
Louis Stokes Alliance for Minority Participation

Four Award Types

Alliances

**Multi-institutional
5-year projects focused
on undergraduate
recruitment and retention.**
Up to $1M per year for 5 yrs

Pre-Alliance
Planning Grants

**18-month projects for new
alliances, regional
outreach, or centers.**
Up to $125k for 18 months

Bridge to Baccalaureate (B2B)

**Community College Led
3-year projects focused
on educational preparation and
transfer of community college students.**
Up to $500k per year for 3 yrs

Bridge to Doctorate (BD)

**Selective Eligibility
2-year projects focused
on post-baccalaureate success.**
Up to $1.075M for 2 yrs

**Deadlines
B2D and Planning: 14 October 2016
B2B and Alliances: 4 November 2016**

ATE

Three Program Tracks

ATE Projects
Up to $900K, Up to 3 yrs
except
Small/New to ATE:
Up to $200k for 4 yrs
Coordination Networks:
Up to $800k for 4 yrs

ATE Centers

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

Three Types

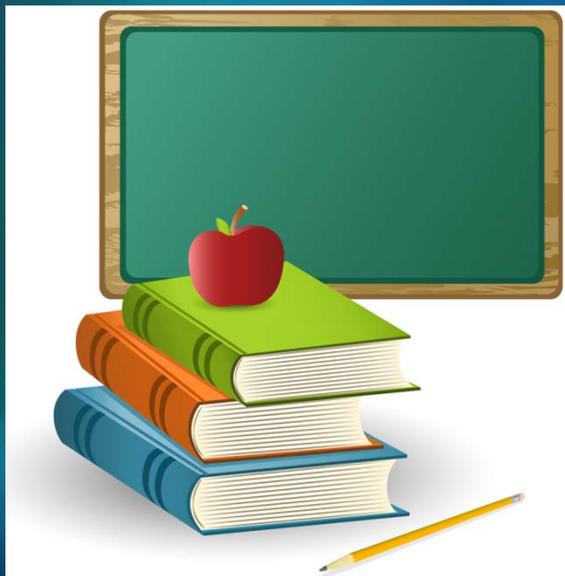| National	Regional	Support Centers
Up to $4M 5 yrs	Up to $3M 4 yrs	Up to $1.6M 4 yrs

Deadlines (All Proposals):
6 October 2016

Research Experiences for Teachers

RET Goals:

Enable K-12 teachers and community college faculty
to engage in STEM research and then
adapt knowledge into their teaching

- RET Sites and Supplements
- May be included in REU proposals
- Check Directorates for specific mechanisms