

National Science Foundation



<http://www.nsf.gov>

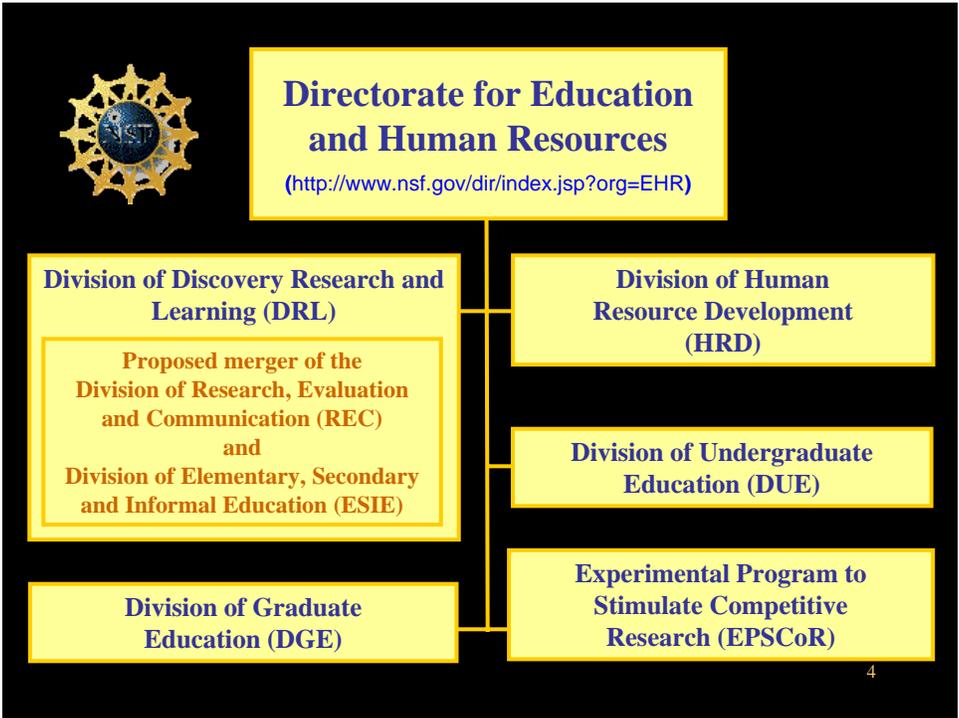
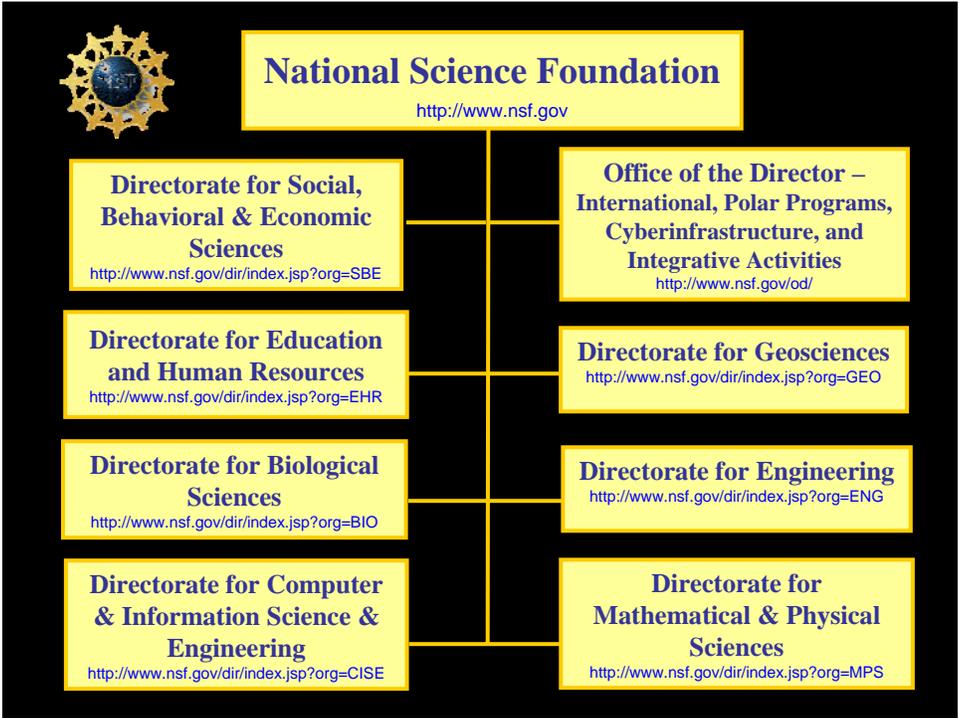
1

Outline



- I. NSF & EHR Organization**
- II. EHR Funding Opportunities**
- III. Crosscutting Programs**
- IV. Programs of Interest to Community Colleges**
- V. Emerging National Research Agenda - NSF Priority Areas**
- VI. Preparing and Submitting NSF Proposals**

2



Division of Elementary, Secondary and Informal Education (ESIE)

<http://www.nsf.gov/div/index.jsp?div=ESIE>

Institutional Grant Programs

- Centers for Learning and Teaching (CLT)
- Informal Science Education (ISE)
- Information Technology Experiences for Students and Teachers (ITEST)
- Instructional Materials Development (IMD)
- Nanoscale Science and Engineering Education (NSEE)
- Teacher Professional Continuum (TPC)
- Advanced Technological Education (ATE)

Recognition Award

- Presidential Awards for Excellence in Math & Science Teaching (PAEMST)

5

Centers for Learning and Teaching (CLT)

- The goal is to increase the number of K-12 STEM educators prepared in content, pedagogy, and assessment methodologies.
- Each Center merges:
 - education research
 - high-quality professional development
 - teaching of innovative instructional practices
- Partnership required:
 - A doctoral degree-awarding university and one or more school districts
- Five-year projects (*renewable for an additional five years*)

6

Informal Science Education (ISE)

- Promotes the public interest, understanding, and engagement in STEM informal opportunities.
 - Television, films, and radio shows
 - Exhibits and educational programs at museums, science and technology centers, etc.
 - Educational activities through community and youth-based programs
 - One-year to five-year projects
 - \$50,000 to \$3 M

7

Information Technology Experiences for Students and Teachers (ITEST)

- Provide opportunities for students and teachers to learn about, experience, and use information technologies related to STEM (includes Info Tech courses)
- ITEST has three components:
 - Youth-based projects with emphases on career and educational paths
 - 2 to 3 year project, \$300,000 per year
 - Comprehensive projects for students and teachers
 - 2 to 3 year project, \$400,000 per year
 - Research, technical support, and national dissemination related to ITEST projects
 - 4 year project, \$4 M total

8

Instructional Materials Development (IMD)

- **Development of materials:**
 - **Instructional materials**
 - enhance knowledge, thinking skills and problem-solving abilities
 - incorporate recent advances in content, research on teaching and learning, and instructional technologies
 - Two-year to five-year projects: \$300,000 to millions depending on scope
 - **Assessment materials**
 - Two-year to five-year projects: up to \$1 M depending on scope
 - **Materials are to be implemented nationwide and address learning in diverse settings.**
- **Applied research**
 - Supports the materials development projects
 - Two-year to five-year projects: up to \$500,000 per year

9

Communicating Research to Public Audiences

The purpose of these efforts is to disseminate research results, research in progress, or research methods.

- Projects must communicate to public audiences the process and results of current research that is being supported by any NSF directorate through informal science education activities, such as media presentations, exhibits, or youth-based activities.
- Requests for up to \$75,000 will be considered.
- No deadline – proposals must be received 6 months before planned start date.

10

Nanoscale Science and Engineering Education (NSEE)

- Enhance nanoscale science and engineering education through:
 - increase public awareness of advances in nanoscale (NISE)
 - Undergraduate programs in nanoscale science (NUE)
 - doctoral programs in science education and research on educational interventions(NCLT)
 - development of instructional materials and courses (NIMD)
- Nanoscale science and engineering emphasis within the traditional ESIE programs

11

Teacher Professional Continuum (TPC)

Recruitment, preparation, enhancement, and retention of science, technology, and mathematics K-12 teachers (*joint program in ESIE & DUE*)

- **Research Studies**
 - research teacher learning and its impact on teaching practice
 - Two to five year projects, \$1 M per year
- **Research and Development of Educational Models and Systems**
 - research and develop models that support the teacher professional continuum
 - Two to five year projects, \$1 M per year
- **Professional Resources Development**
 - develop innovative resources that prepare and support STM teachers and administrators
 - Two to five year projects, \$500,000 per year
- **Conferences and Symposia**
 - One to two year project, \$250,000 total

12

Advanced Technological Education (ATE)

Promotes improvement in undergraduate technological education (*joint program with ESIE & DUE*)

- The program emphasis is on two-year colleges
- Institutional Project areas (\$25 to \$300 K per year for 3 years):
 - Program Improvement
 - Professional Development for Educators
 - Curriculum and Educational Materials Development
 - Teacher Preparation
 - Research on Technician Education
 - Institution-Level Reform of Technician Education
- ATE Centers that provide models and leadership:
 - *National Centers of Excellence*: \$5 million over four years
 - *Regional Centers of Excellence*: \$3 million over four years
 - *Resource Centers*: \$1.5 million over four years
 - *Planning Grants for Centers*: \$70,000

13

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

- K-12 STEM teacher recognition program
- Nomination and application process via the web:
 - <http://www.paemst.org/>

14

Division of Research, Evaluation and Communication (REC)

<http://www.nsf.gov/div/index.jsp?div=REC>

Grant Programs

- Research and Evaluation on Education in Science and Engineering (REESE)
- Advanced Learning Technologies (ALT)

15

Advanced Learning Technologies (ALT)

- Projects are supported that:
 - Enable improvements in learning through innovative computer and information technologies; and
 - Advance research in computer science, information technology, learning, and cognitive science through the unique challenges posed by learning environments and learning technology platforms.
- Joint program with the Directorate for Computer and Information Science and EHR

16

Research and Evaluation on Education in Science and Engineering (REESE)

- Areas of interest: behavioral, cognitive, social, & technological aspects of learning & education; learning in formal & informal settings; diffusion, implementation; & theoretical, methodological, & statistical issues.
- **Types of proposals:**
 - **Synthesis Research and Evaluation Projects**
 - Identify areas that can support strong scientific claims and propose methods for synthesizing findings and drawing conclusions.
 - **Empirical Research and Evaluation Projects**
 - Identify areas that have the potential for advancing discovery and innovation at the frontiers of STEM learning.

17

Division of Undergraduate Education (DUE)

<http://www.nsf.gov/div/index.jsp?div=DUE>

Institutional Grant Programs

- Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)
- Federal Cyber Service: Scholarship for Service (SFS)
- Robert Noyce Scholarship Program
- STEM Talent Expansion Program (STEP)
- Teacher Professional Continuum (TPC)
- Course, Curriculum & Laboratory Improvement (CCLI)
- National STEM Education Digital Library (NSDL)

Recognition Award

- NSF Director's Award for Distinguished Teaching Scholars

18

Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)

- Institutional grant to support student scholarships for academically talented and financially needy students to complete an associate, baccalaureate, or graduate level degree in science and engineering disciplines.
 - Grantee institutions select scholarship recipients, report demographic information, and manage the S-STEM project.
- http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5257&org=DUE&from=home
- Letter of Intent (optional) – March 15, 2006
- Proposal due date – April 12, 2006

19

Federal Cyber Service: Scholarship for Service (SFS)

The goal is to increase the number of students in information assurance and computer security

- Scholarship Track:
 - Funds colleges and universities to award scholarships in information assurance and computer security fields
 - After a two-year scholarship, recipients are required to work for a federal agency for two years
- Capacity Building Track:
 - Funds colleges and universities to:
 - improve quality
 - increase the production of information assurance and computer security professionals

20

Robert Noyce Scholarship Program

The goal is to encourage science, technology, engineering, and mathematics majors and professionals to become K-12 mathematics and science teachers.

- Funds go to institutions of higher education to support scholarships, stipends, and programs for students who commit to teaching in high-need K-12 schools
 - Phase I proposals provide scholarships for juniors and seniors who are majoring in a science discipline. Up to \$500 K for 3 to 4 years.
 - Phase II for previously funded institutions: Expand on previous project and continue evaluation or conduct longitudinal studies. Up to \$500 K for 3 to 4 years.

21

STEM Talent Expansion Program (STEP)

The program goal is to increase the number of students receiving AA or BA degrees in STEM.

- Type 1 - Full implementation projects to increase the numbers of students receiving STEM degrees
 - Award size depends on total consortia enrollment: between \$500 K & \$2 M
- Type 2 - Educational research projects on associate or bachelor degree attainment in STEM
 - \$500 K per year for 1 to 3 years

22

Course, Curriculum & Laboratory Improvement (CCLI)

Projects should address one or more of the following five components :

- 1. Conducting research on undergraduate STEM teaching and learning**
- 2. Creating learning materials and teaching strategies**
- 3. Developing faculty expertise**
- 4. Implementing educational innovations**
- 5. Assessing learning and evaluating innovations**

Phase 1, Exploratory Projects total up to \$150 K for 1 - 3 yrs;

Phase 2, Expansion Projects total up to \$500 K for 2 - 4 yrs;

Phase 3, Comprehensive Projects total up to \$2 M for 3 - 5 yrs.

NOTE: The CCLI program solicitation changed substantially in FY 2006. 23

National STEM Education Digital Library (NSDL)

The goal is to establish a national digital library with an online network of learning environments and resources for STEM education.

- Pathways projects provide stewardship for the content and services needed by communities of learners.
- Services projects develop services which support users, collection providers, and the Core Integration effort and which enhance the impact, efficiency, and value of the library
- Targeted Research explore specific topics that have immediate applicability

24

NSF Director's Award for Distinguished Teaching Scholars (DTS)

Award to recognize individuals who have:

- Contributed to the scholarship of their discipline
- Contributed to the education of students in STEM
- Exemplified the ability to engage in both research and education

25

Division of Graduate Education (DGE)

<http://www.nsf.gov/div/index.jsp?div=DGE>

Institutional Grant Programs

- NSF Graduate Teaching Fellows in K-12 Education (GK-12)
- Integrative Graduate Education and Research Training (IGERT)

Direct Support to Individuals

- Graduate Research Fellowships (GRF)
- NSF-NATO Postdoctoral Fellowships in Science and Engineering
- Travel Grants for NATO Advanced Study Institutes

26

NSF Graduate Teaching Fellows in K-12 Education (GK-12)

Fellowships for graduate students and advanced undergraduates in the STEM to serve as resources in K-12 schools in order to:

- demonstrate key concepts
- provide role models
- enhance teachers' content knowledge and understanding
- assist in science and mathematics instruction
- Academic institutions apply for awards and select Fellows

27

Integrative Graduate Education and Research Training (IGERT)

The goal is to change graduate education at institutions by establishing innovative models for graduate education & training.

- **NSF-wide program**
- **Center like program for institutions with existing graduate programs in STEM**

IGERT National Recruitment Program

- Helps students find IGERT programs right for them
- <http://www.igert.org/index.asp>

28

NSF Graduate Research Fellowships

Individual Graduate Research Fellowships

- Three years of support for graduate study in a STEM area
- \$30,000 per year
- Students must apply on-line via FastLane
 - <https://www.fastlane.nsf.gov>

29

NSF-NATO Postdoctoral Fellowships in Science and Engineering

- NSF-NATO Postdoctoral Fellowship competition is only available to scientists from NATO Partner countries.
- U.S. citizens and U.S. permanent residents are not eligible.

30

Travel Grants for NATO Advanced Study Institutes

- Travel awards of \$1,000
- United States scientists to attend Advanced Study Institutes (ASI) sponsored by the North Atlantic Treaty Organization (NATO)

31

Division of Human Resource Development (HRD)

<http://www.nsf.gov/div/index.jsp?div=HRD>

Minority and Minority-Serving Institution Programs

- Alliances for Graduate Education and the Professoriate Program (AGEP)
- Centers of Research Excellence in Science and Technology (CREST)
- Historically Black Colleges and Universities (HBCU-UP)
- The Louis Stokes Alliance for Minority Participation Program (LSAMP)
- Tribal Colleges and Universities Program (TCUP)

32

Division of Human Resource Development (HRD)

<http://www.nsf.gov/div/index.jsp?div=HRD>

Women and Girls

- Research on Gender in Science and Engineering (GSE)

Persons with Disabilities

- Research in Disabilities Education (RDE)

Recognition Award

- Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM)
33

Alliances for Graduate Education and the Professoriate Program (AGEP)

- **The goal is to increase the number minority students receiving doctoral degrees in STEM**
 - develop and implement models for recruiting, mentoring, and retaining students
 - develop effective strategies for identifying and supporting students who want to pursue academic careers
- **Research on transitions from**
 - undergraduate through graduate study
 - course-taking to independent research
 - the academic environment to the workplace

34

Centers of Research Excellence in Science and Technology (CREST)

- Develops outstanding centers through the integration of education and research
 - Minority Serving Institutions are eligible
 - Promote the production of new knowledge
 - Increase the research productivity of faculty
 - Broaden student access to STEM research
 - Five-year projects, up to \$1 M per year
- Research Infrastructure for Science and Engineering (HBCU-RISE)
 - HBCUs with STEM doctoral programs only
 - Three-year projects, \$1 M total

35

Historically Black Colleges and Universities – Undergraduate Program

The goal is to enhance the quality of undergraduate STEM education at HBCUs.

- **Implementation Projects** – up to \$2.5 M for five years
 - Comprehensive projects to improve the quality of STEM programs
 - Course development & technology integration
 - Undergraduate research opportunities
 - Faculty development and training
 - Student support services: tutoring, mentoring
- **Targeted Infusion Projects** - \$75 to \$150 K for 1-2 yrs
 - Short term project with a well defined measurable goal
- **Education Research Projects** – up to \$325,000 per yr for 3 yrs
 - Education research to inform education programs at HBCUs₃₆
- Only HBCUs are eligible

The Louis Stokes Alliance for Minority Participation Program (LSAMP)

The goal is to develop the strategies to increase the number of minority students who complete BA degrees in STEM.

- Partnerships between institutions, government agencies and laboratories, industry and professional organizations are required.
- Activities include:
 - student enrichment
 - skill development and academic enrichment
 - mentoring
 - curricular and instructional improvement
 - direct student support

37

Tribal Colleges and Universities Program (TCUP)

The goal is to enhance the quality of STEM instructional and outreach programs at TCUs.

- Emphasis on the leveraged use of information technologies to address the digital divide
- Activities include:
 - Implementation of comprehensive institutional approaches to strengthen STEM teaching and learning
 - Improve access to, retention within and graduation from STEM programs
- Eligible institutions are Tribal Colleges and Universities, Alaskan Native and Native Hawaiian Serving Institutions

Research on Gender in Science and Engineering (GSE)

The goal is to broaden participation of girls and women in STEM.

Proposal types:

- Research informing educational practice
- Dissemination of research
- Integration of proven good practices in education

39

Research in Disabilities Education (RDE)

The goal is to increase the participation and achievement of persons with disabilities in STEM education and careers.

Proposal types:

- Research informing educational practice
- Dissemination of research
- Regional Alliances for persons with disabilities in STEM education

40

Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM)

The program seeks to identify outstanding mentoring efforts designed to enhance the participation of underrepresented groups in STEM.

- Awardees are leaders in the national effort to develop the Nation's human resources in STEM
 - Individuals, organizations, or programs can be nominated
- NSF administers the program on behalf of the White House
 - Awardees are recognized by the President and receive \$10 K to continue their mentoring activities

41

Experimental Program to Stimulate Competitive Research (EPSCoR)



42

Experimental Program to Stimulate Competitive Research (EPSCoR)

<http://www.nsf.gov/div/index.jsp?div=EPSCOR>

- The program develops science and technology resources within states that have historically received less Federal research and development funding.
- EPSCoR's goal is to maximize the potential inherent in a state's S&T resources and use those resources as a foundation for economic growth.
- Funding opportunities are on the ST EPSCoR websites:
<http://www.nsf.gov/ehr/epscor/statewebsites.jsp>

43

EPSCoR Research Infrastructure Improvement Grant Program (RII)

- Grants to support infrastructure improvements in research areas that have the best potential to improve the State's R&D competitiveness
 - Projects are ultimately selected by the EPSCoR governing committee
 - Up to a total of \$9 million per award
 - 36 or 48 month awards
 - http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5672&org=EPSCOR&from=home

44

National Science Foundation



Crosscutting Programs

http://www.nsf.gov/funding/pgm_list.jsp?type=xcut

Major Research Instrumentation Program (MRI)

Instrument Development and Acquisition

- \$100,000 to \$2 million for scientific instrumentation.
- Proposals requesting less than \$100,000 are considered only from either:
 - Non-Ph.D. granting organizations
 - The disciplines of mathematical science, or social, behavioral, and economic science at any eligible organization
- Proposal due date in January annually

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5260&from=fund

46

Faculty Early Career Development Program (CAREER)

- **Prestigious awards for new faculty members in STEM**
 - Recognizes and supports the early career-development activities
 - Selected on the basis of creative, career-development plans that effectively integrate research and education
 - NSF-wide program
 - Deadline is in the summer annually

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5262&from=fund⁴⁷

ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers

Institutional Transformation Awards

- Support innovative and comprehensive programs for institution-wide change.

Leadership Awards

- Support the efforts of individuals, small groups, or organizations to enable the full participation and advancement of women in academe.

Partnerships for Adaptation, Implementation, and Dissemination Awards

- Support the analysis, adaptation, dissemination of demonstrated materials and practices to increase the participation of women in academe.

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5383&from=fund⁴⁸

Student & Faculty Research Opportunities

- **Research Experiences for Undergraduates (REU)**
 - Information for students:
<http://www.nsf.gov/crssprgm/reu/index.jsp>
 - Information for faculty:
<http://www.nsf.gov/crssprgm/reu/faculty.jsp>
- **Research in Undergraduate Institutions (RUI)** - Faculty of predominantly undergraduate institutions can get support to:
 - Perform individual and collaborative research projects
 - Purchase shared-use research instrumentation
 - Work with NSF-supported investigators at other institutions through Research Opportunity Awards (ROA)
 - http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518&from=fund
- **Other Research Opportunities**
 - http://www.nsf.gov/funding/pgm_list.jsp?type=xcut

49

National Science Foundation



Programs of Interest to Community Colleges

Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)

- Institutional grant to support student scholarships for academically talented and financially needy students to complete an **associate**, baccalaureate, or graduate level degree in science and engineering disciplines.
 - Grantee institutions select scholarship recipients, report demographic information, and manage the S-STEM project.
- http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5257&org=DUE&from=home
- Letter of Intent (optional) – March 15, 2006
- Proposal due date – April 12, 2006

51

Advanced Technological Education (ATE)

Promotes improvement in undergraduate technological education (*joint program with ESIE & DUE*)

- The program emphasis is on two-year colleges
- Institutional Project areas (\$25 to \$300 K per year for 3 years):
 - Program Improvement
 - Professional Development for Educators
 - Curriculum and Educational Materials Development
 - Teacher Preparation
 - Research on Technician Education
 - Institution-Level Reform of Technician Education
- ATE Centers that provide models and leadership:
 - *National Centers of Excellence*: \$5 million over four years
 - *Regional Centers of Excellence*: \$3 million over four years
 - *Resource Centers*: \$1.5 million over four years
 - *Planning Grants for Centers*: \$70,000

52

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5464&org=DUE&from=home

STEM Talent Expansion Program (STEP)

Type 1 Projects - Full implementation projects to increase the number of students receiving AA or BA degrees

- Award size depends on total enrollment of all partner institutions: between \$500 K & \$2 M
- Associate degree-granting institutions with a record of articulation to STEM baccalaureate programs need not necessarily grant associate degrees in STEM fields in order to be eligible.
- Projects that improve the transition of students among the collaborating institutions, such as transfer between two- and four-year institutions are encouraged.

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5488&org=DUE&from=home ⁵³

Course, Curriculum & Laboratory Improvement (CCLI)

Projects should address one or more of the following five components :

1. Conducting research on undergraduate STEM teaching and learning
2. Creating learning materials and teaching strategies
3. Developing faculty expertise
4. Implementing educational innovations
5. Assessing learning and evaluating innovations

Phase 1, Exploratory Projects total up to \$150 K for 1 - 3 yrs (\$200 K for collaborations between 4-year institutions and 2-year institutions);

Phase 2, Expansion Projects total up to \$500 K for 2 - 4 yrs;

Phase 3, Comprehensive Projects total up to \$2 M for 3 - 5 yrs.

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5741&org=DUE&from=home ⁵⁴

Minority Serving Community College (MSCC) Research Teams

New program that supports research teams from MSCCs to do research at small business sites across the country.

- MSCCs include non-profit Historically Black Colleges, Hispanic-Serving Colleges, and Tribal Colleges whose highest degree awarded is the associate degree.
- MSCC Research Teams must consist of at least one faculty member and one student. (Teams with additional students or faculty are encouraged)
- The NSF Small Business Innovation Research and Small Business Technology Transfer Phase II grantee must request the supplemental funding to support the research team.
- Faculty at MSCCs can search for small business sites to contact at <http://www.nsf.gov/awardsearch/>

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf06008

55

Department of Energy - Community College Institutes (CCI)

- Paid internships in Science and Engineering and Technology for students from community colleges.
 - 10 week summer research with DOE laboratory scientists.
 - Career planning activities and numerous training and informational sessions.
 - Additional information is available at <http://www.scied.science.doe.gov/scied/CCI/about.html>.
- Current grantees of some NSF programs may request supplemental funds – refer to the Dear Colleague Letter: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5632.

56

National Science Foundation



2006 NSF-wide investment Areas

Note that eight areas are included in FY 2007 budget request:

- Biocomplexity in the Environment
- Climate Change Science Program
- Cyberinfrastructure
- Human and Social Dynamics
- International Polar Year
- Mathematical Sciences
- National Nanotechnology Initiative
- Networking Information Technology R&D

Biocomplexity in the Environment

http://www.nsf.gov/news/priority_areas/biocomplexity/index.jsp

Long-Term Goals

- Synthesize environmental knowledge across disciplines, systems, time & space
- Discover new methods, models and theories to understand complex systems
- Develop tools and technologies for interdisciplinary environmental research
- Integrate human, societal and ecological factors into investigations of the physical environment and environmental engineering
- Improve science-based forecasting capabilities and decision-making research
- Advance infrastructure to support interdisciplinary environmental activities

FY 2006 Areas of Emphasis

- Earth Systems, Cycles and Pathways
- Dynamics of Coupled Natural and Human Systems
- Materials Use: Science, Engineering and Society
- Microbial Genome Sequencing
- Ecology of Infectious Diseases

58

Cyberinfrastructure

http://www.nsf.gov/news/priority_areas/cyberinfrastructure/index.jsp

Long-Term Goal

Develop a powerful, stable, persistent and widely accessible cyberinfrastructure which will enable the work of researchers and educators across the nation and around the world.

FY 2006 Areas of Emphasis

- High-end computing architecture research
- Preparation of scientists and engineers to effectively use cyberinfrastructure
- The Protein Data Bank
- The National Radio Astronomy and National Optical Astronomy Observatories
- The National STEM Digital Library and Digital Library for Earth Science Ed.
- Social and behavioral science data collections & issues such as confidentiality and worldwide access
- Access to high-end computing and other cyberinfrastructure resources

59

Human and Social Dynamics

http://www.nsf.gov/news/priority_areas/humansocial/index.jsp

Long-Term Goals

- Improve decision-making through research that focuses on cognitive and social processes
- Explore causes and consequences of large-scale social transformations
- Advance understanding of human behavior and performance
- Encourage integrated research questions through substantial grants
- Support enhancements to methods and tools

FY 2006 Areas of Emphasis

- Agents of Change--large-scale change in humanity and society
- Dynamics of Human Behavior--better understand the dynamics that influence human behavior and action
- Decision-Making, Risk and Uncertainty--improve decision-making by studying risk perception and response to stimuli such as hazards and extreme events and the role of educational systems in that response

Mathematical Sciences

http://www.nsf.gov/news/priority_areas/mathematics/index.jsp

Long-Term Goals

- Foster significant advances in fundamental mathematics and statistics
- Interdisciplinary research between mathematics, science & engineering
- Integrate the state-of-the-art statistical principles and mathematical tools
- Train a new generation of researchers in interdisciplinary approaches
- Increase the number and diversity of U.S. students trained in the mathematical and statistical sciences
- Improve the image and understanding of mathematics

FY 2006 Areas of Emphasis

- Fundamental Mathematical and Statistical Sciences
- Advancing Interdisciplinary Science and Engineering
- Mathematical and Statistical Challenges Posed by Large Data Sets
- Managing and Modeling Uncertainty
- Modeling Complex Nonlinear Systems
- Advancing Mathematical Sciences Education

61

Nanoscale Science and Engineering

http://www.nsf.gov/news/priority_areas/nano/index.jsp

Long-Term Goals

- Build a foundation of fundamental research on nanoscale manufacturing
- Ensure U.S. institutions access to a full range of nano-facilities
- Inform the public about nanotechnology through informal education
- Provide U.S. students access to nanotechnology education
- Catalyze the creation of new commercial markets

FY 2006 Areas of Emphases:

- Manufacturing and fabrication of nanostructured materials
- Nanobiotechnology and nanobiomedicine
- Nanotechnology solutions for explosives detection and protection
- Application of quantum effects and other nanoscale phenomena
- New instrumentation and standards development
- Education and training regarding nanotechnology

62

National Science Foundation



Preparing and Submitting Proposals

Automatic Email Notice of New Funding Opportunities

- Sign up for “MyNSF” to get:
 - Weekly email notifications of new funding opportunities
 - NSF news items
 - Other NSF publication information – National data and trends

<http://www.nsf.gov/mynsf/>

Finding Funding Opportunities by Discipline Area

- Go to the relevant program area
- Search the programs listed for a match



Finding Funding Opportunities

NSF's Guide to Programs

Refer to the "Guide to Programs" for a complete list of grant opportunities.

http://www.nsf.gov/funding/browse_all_funding.jsp

Proposal Submission - Important Notice

All NSF proposals must address both merit review selection criteria separately in the one-page project summary.

- What is the intellectual merit of the proposed activity?

AND

- What are the broader impacts of the proposed activity?

NSF will return proposals that do not address both criteria.

67

Proposals Submission - Recommendations

- Talk to a Program Director before submitting the proposal – discuss your ideas.
- Volunteer to be a peer reviewer for the program - the best way to learn:
 - About the peer review process
 - What makes a competitive proposal
 - The common problems in unsuccessful proposals
- Follow the guidelines in the solicitation AND the Grant Proposal Guide (http://www.nsf.gov/pubs/gpg/nsf04_23/)

68

Proposal Submission

- **FastLane** - the main way to submit proposals to NSF.
 - <https://www.fastlane.nsf.gov/>
 - Your institution must register with FastLane before you can submit proposals.
- **Grants.gov** – 75% of NSF programs will accept proposals through Grants.gov in addition to FastLane in FY 2006.
 - You must register with Grants.gov – it takes five or more days so start early!
 - Proposals submitted through Grants.gov can then be updated and modified in FastLane.

69

FastLane System

- **FastLane functions**
 - Submit proposals and supplement requests
 - Request changes to grant
 - Submit annual and final reports
 - Financial systems
- **Help Desk**
 - FastLane user support: 1-800-673-6188
 - 8 A.M. to 8 P.M. EST Monday - Friday
 - Email user support: fastlane@nsf.gov

70

National Science Foundation

<http://www.nsf.gov>



Education and Human Resources

Jessie DeAro, Ph.D.

Program Director

Historically Black Colleges and Universities-Undergraduate Program

703-292-5350

jdearo@nsf.gov

updated May 2006

71