

# **Selected NSF Programs in Undergraduate STEM Education**

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# National Science Foundation



“NSF invests in the best ideas generated by scientists, engineers and educators working at the frontiers of knowledge, and across all fields of research and education. Our mission, vision and goals are designed to maintain and strengthen the vitality of the U.S. science and engineering.”

	Program Name	Publication No.	Directorate	Division
<b>Broadening Participation Focused Programs</b>				
1	ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers	<a href="#">10-593</a>	All	All
2	Alliances for Broadening Participation in STEM (ABP)	<a href="#">10-522</a>	EHR	HRD
3	Broadening Participation Research Initiation Grants in Engineering 2012	<a href="#">11-576</a>	ENG	CBET, CMMI, ECCS, EEC, IIP
4	Centers of Research Excellence in Science and Technology (CREST) and HBCU Research Infrastructure for Science and Engineering (RISE)	<a href="#">11-520</a>	EHR	HRD
5	Computing Education for the 21st Century	<a href="#">10-619</a>	CISE, EHR, OCI	CCF, CNS, IIS
6	EPSCoR Research Infrastructure Improvement Program: Inter-Campus and Intra-Campus Cyber Connectivity	<a href="#">10-598</a>	All	All
7	Experimental Program to Stimulate Competitive Research: Workshop Opportunities (EPS)	<a href="#">06-613</a>	All	All
8	Facilitation Awards for Scientists and Engineers with Disabilities	<a href="#">02-115</a>	BIO, CISE, EHR, ENG, GEO, MPS, OIA, OPP, SBE	
9	Geoscience Education	<a href="#">10-512</a>	GEO	AGS, EAR, OCE
10	Louis Stokes Alliances for Minority Participation (LSAMP)	<a href="#">11-543</a>	EHR	HRD
11	NSF Scholarships in Science, Technology, Engineering, and Mathematics	<a href="#">09-567</a>	EHR	DUE
12	Opportunities for Enhancing Diversity in the Geosciences (OEDG)	<a href="#">10-599</a>	GEO	AGS, EAR, OCE
13	Partnerships for Research and Education in Materials	<a href="#">11-562</a>	MPS	DMR
14	Partnerships in Astronomy & Astrophysics Research and Education	<a href="#">08-562</a>	MPS	AST
15	Postdoctoral Research Fellowships in Biology	<a href="#">11-499</a>	BIO	
16	Research in Disabilities Education	<a href="#">09-508</a>	EHR	HRD
17	Research Initiation Grants to Broaden Participation in Biology	<a href="#">09-501</a>	BIO	
18	Research on Gender in Science and Engineering	<a href="#">10-516</a>	EHR	HRD
19	SBE Minority Postdoctoral Research Fellowships and Follow-up Research Starter Grants	<a href="#">09-595</a>	SBE	SMA

# Selected Programs at NSF

- Transforming Undergraduate Education in STEM TUES: NSF 10-544
- Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring PAESMEM: NSF 11-563
- STEM Talent Expansion Program- STEP: NSF 11-550
- Scholarships in STEM S-STEM: NSF 09-567

# TUES

Transforming Undergraduate Ed in STEM  
Translating Learning Theory into Practice

**Our broadest, most innovative program  
(formerly called CCLI)**

## *Vision*

Excellent STEM education for all undergraduate students.

## *Goal*

Stimulate, disseminate, and institutionalize **innovative** developments in STEM education through the production of knowledge and the improvement of practice.

# TUES: Four Project Types

## Maximum Award Sizes

➤ ***Type 1***

\$200,000      duration: 1 to 3 years  
(+ \$50,000 with community college partner)

➤ ***Type 2***

\$600,000      duration: 2 to 4 years

➤ ***Type 3***

\$5,000,000      duration: 3 to 5 yrs (5 if max reqst)

➤ Central Resource Projects: 3 - 5 yrs leadership & implementation work to increase impact of TUES

# **Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring**

## **A White House Initiative on behalf of President of the United States**

- Identify outstanding mentoring efforts that enhance participation of groups (women, minorities, disabled) that are underrepresented in STEM
- Awardees serve as leaders in national effort to develop fully nation's human resources in STEM
- Must have demonstrated outstanding and sustained mentoring and effective guidance to a significant number underrepresented students at K-12, undergraduate, graduate, postdoctoral levels for minimum of five years.

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

- **Awardee may be**
  - **an individual or organization**
  - **From academia, industry, government**
- **Awardee**
  - **\$10,000 Honorarium**
  - **Invited to Washington for**
    - **Awards Ceremony with the President of USA**
    - **Recognition Events**
    - **Meetings with Leaders in Federal Sector education and research**
    - **Focused workshops addressing effective mentoring**



**STEP**

**STEM Talent Expansion Program**

[STEM = Science, Technology,  
Engineering, and Mathematics]

## **STEP** Basic Goals

- Increase the number of students (U.S. citizens or permanent residents) in STEM
- Increase associate's / bachelor's degs → (established or emerging STEM fields)
- Community colleges get credit for transfers to 4-year STEM programs

# STEP

## ***Maximum Support Levels – Enrollment based***

- \$500 K for 5 years for 1- 5,000 FTE undergrads
- \$1.0 M for 5 years for 5,001-15,000 undergrads
- \$2.0 M for 5 years for >15,000 undergrads

- ***One proposal per institution***  
(can be a partner on only **one** proposal)

## STEP Some features of good proposals

- Focus on Recruitment and Retention
  - Set up numerical targets for each; pipeline model
- Usually more than one STEM discipline included
  - avoid reducing majors in other STEM majors
- STEM Faculty are PIs
- Strong administrative support **plus** buy-in from key departments.

# S-STEM NSF Scholarships in Science, Technology, Engineering, & Math

- **Goal:** Provides funds to institutions to provide scholarships to academically talented, but financially needy, students
- Students can be pursuing associate, baccalaureate, or graduate degrees
- Scholarships can be up to \$10,000/yr - up to 4 yrs within the limits of students official level of need. (They can be less than \$10K and less than 4 yrs)

# S-STEM Major Features of Program

- Most STEM disciplines are eligible - except Social & Behavioral sciences
- Grant size - max \$600,000 (4 s-ship yrs), (up to 7% can be spent for admin costs and up to 8% for student support services)
- One proposal per constituent school or college that awards STEM degrees (e.g. school of eng, college of arts & sciences)
- Est: \$50 to \$70 million available in FY'09

## **S-STEM** Special program features

- PI must be member of STEM faculty
- S-ships to “natural” cohorts of students
- S-STEM students are full time & are US Citizens, Residents, Nationals, or refugees
- Institution must provide some student support structures
- Optional enhancements: research opportunities, tutoring, internships, etc.