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

Stephanie E. August, Ph.D.
Program Director
NSF Division of Undergraduate Education
Directorate for Education & Human Resources
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S-STEM PROGRAM OVERVIEW
S-STEM Program Goals

Increase

- recruitment, retention, student success, and graduation (and transfer) of low-income academically talented students in STEM

Implement and study

- models, effective practices, and/or strategies that contribute to success in STEM

Contribute

- to the implementation and sustainability of effective curricular and co-curricular activities in STEM education
Core Purpose

Provide Scholarships

- At least 60% of project budget
- Maximum $10,000 per year per student

Inform STEM Community

Improve STEM Workforce
National Science Foundation
Division of Undergraduate Education (DUE)

S-STEM Tracks

Institutional Capacity Building
(Track 1)

Up to $650K
Up to 5 yrs

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

Design and Development
(Track 2)

Single Institution

Up to $1M
Up to 5 yrs

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

Multi-institutional Consortia
(Track 3)

Up to $5M
Up to 5 yrs

Deadlines (All Proposals):
March 29, 2017
Last Wednesday in March, annually thereafter
ANATOMY OF AN S-STEM PROPOSAL
Project Description

- Results from Prior NSF Support
- Project Objectives and Plans
- Significance of the Project and Rationale
- Activities on which the Current Project Builds
- S-STEM Project Management Plan

- Student Selection Process and Criteria
- S-STEM Student Support Services and Programs
- Quality Educational Programs
- Generation of Knowledge
- Assessment and Evaluation
- Dissemination
Results from Prior NSF Support

- Award Information
  - Award Number, Amount, Dates
  - Project Title, Program
  - PIs
- Intellectual Merit
- Broader Impacts
- Publications/Products

**Required**
- All S-STEM and STEP awards *at the institution*
- Current and prior awards *to PI team*

**Impact**
- Provide *details* about impact

**Lessons Learned**
- Use to *inform* current proposal

See PAPPG (NSF 17-1)
Project Objectives and Plans

• What are the specific, measurable objectives?
  – How do they align with S-STEM program goals?
  – How do they reflect program (institutional) and local needs?

• What are the questions that will guide your investigation? How will they be answered?

• How will students be selected and supported to:
  – Achieve their best academic performance?
  – Enter the STEM workforce or continue studies?
Project Objectives and Plans

• What evidence-based practices will you implement and investigate?

• What workforce preparation and academic support activities will you implement and investigate?

• How will your project contribute to the knowledge base about what works for retention, success, graduation/transfer, and workforce development for low-income students in STEM disciplines?
Significance of the Project and Rationale

Scholarships
- Number
- Amount
- Rationale

Connection to Goals
- Problem
- Baseline Data

Expected Outcomes
- Demographics
- Retention & Graduation Rate
- Overcoming Attrition Point
Activities on which the Project Builds

• Project should build on:
  – Research literature (issues, gaps, strategies)
  – Existing support structures

• Only describe relevant supports/activities

• Describe and justify adoption/adaptations

• If the institution has received S-STEM and/or STEP funding, the proposal must build on lessons learned
Project Management Plan: Team

• **PI**
  – Faculty member currently teaching in S-STEM discipline
  – **Exception: Track 3**

• **Co-PIs/Sr. Personnel**
  – STEM administrator
  – **Institutional, educational, or social science researcher**

• **Other team members**
  – Faculty mentors
  – Student services staff
  – Financial aid office staff
  – Admissions staff
  – Industry and other partners

Evaluator – external to the project team, but not necessarily to the institution.

What are the roles and responsibilities? How will the project be managed from day to day? Year to year?
Project Management Plan: Tasks and Timeline

• What activities will be undertaken?
  – Recruitment
  – Selection
  – Student support
  – Academic and professional development
  – Data collection and analysis
  – Studies to determine effectiveness of activities
  – Others
• Who will take leadership of each? Who else will be involved?
• What will be the process for replacing students who lose S-STEM eligibility?
• What is the timeline for all of the above? What are the milestones?
Selection Process and Criteria: Requirements

• S-STEM Program Requirements
  – U.S. citizens, nationals, permanent residents, or other eligible aliens
  – Full-time enrollment in S-STEM discipline
    • Biological sciences (except medicine and other clinical fields)
    • Physical sciences, including physics, chemistry, astronomy, and materials science
    • Mathematical sciences
    • Computer and information sciences
    • Geosciences
    • Engineering
    • Technology areas associated with the preceding fields
  – Demonstrate academic ability or potential
  – Be low-income and demonstrate financial need
    • Undergraduates - Free Application for Federal Student Aid (FAFSA)
    • Graduates - Graduate Assistance in Areas of National Need (GAANN)

• Project-specific Requirements
Selection Process and Criteria: Considerations

• Criteria should consider:
  – Indicators of academic merit/potential
    • GPA
    • Placement test results
  – Indicators of likely professional success
    • Motivation
    • Time and other resource management
    • Communication skills

• Accommodate diverse applicants
  – Geographic diversity
  – Diverse career goals
  – Underrepresented groups (minorities, females, people with disabilities, first generation college students, veterans)
Diversity in Recruitment and Selection

The program encourages projects to recruit a diverse applicant pool that is inclusive of, but not limited to, members of underrepresented groups in STEM ... with the broad aim of supporting low-income academically talented students with demonstrated financial need to obtain degrees and enter into the STEM workforce or graduate studies.
Questions to Consider

- How will eligibility be determined?
- How will scholarships be administered?
- What are the requirements for scholarship retention?
- What actions will be taken if students do not meet requirements?
- How will issues related to loss of eligibility be handled?
Student Support Services and Programs

• **Make connections** between proposed activities and the need/problem to be solved.
• Implement and **test** the strategies.
• Two **required** support structures:
  – Cohorts
  – Faculty mentoring
• Other support:
  – Peer mentoring
  – Community building activities
  – Tutoring, study groups
  – Supplemental instruction
  – Internships
  – Research experiences
  – Career counseling, job placement
  – Conferences, professional meetings
Generation of Knowledge

• How will your project **advance understanding** about:
  – Retention and student success?
  – Transfer?
  – Academic and career pathways?
  – Degree attainment?

• **Knowledge generation** based on:
  – Needs of the institution
  – Research literature/evidence-based practices

• What are the **questions** that guide the investigation?
• How will the questions be answered?
ASSESSMENT, EVALUATION, AND DISSEMINATION
FORMATIVE SUMMATIVE

WHEN THE CHEF TASTES THE SOUP

WHEN THE GUESTS TASTE THE SOUP

FROM STEVE WHEELER’S BLOG “THE AFL TRUTH ABOUT ASSESSMENT”

Elements of an Assessment and Evaluation Plan
Dissemination

Audiences
- What audiences would be interested in the results of your work?
- How will you reach them?

Outlets
- What are the specific outlets you will target for dissemination?
  - Websites – How will they be marketed?
  - Journals – Which ones? What are the possible paper topics?
  - Conferences - Which ones? What are the possible paper topics?
  - Media – How can the public be informed?
LAST, BUT NOT LEAST...
Sustainability

Question 1
What elements of the project may be institutionalized after the funding period?

Question 2
What evidence of institutional commitment to sustainability can you provide?
Broader Impacts

Enhanced Partnerships & Infrastructure

Competitive Workforce & Economy

Societal Impacts

Improved Education

Increased Public Literacy & Interest

Public Welfare & National Security

Broadening Participation

Improved Education

Increased Public Literacy & Interest

Public Welfare & National Security

Competitive Workforce & Economy

Enhanced Partnerships & Infrastructure

Broader Impacts
General inquiries regarding this program should be made to:

- Ron Buckmire: (703) 292-4630, rbuckmir@nsf.gov
- Connie K. Della-Piana: (703) 292-5309, c dellapi@nsf.gov
- Kevin Lee: (703) 292-4639, kelee@nsf.gov
Resources

• S-STEM Solicitation (NSF 17-527)

• S-STEM Recorded Webinar for PIs
  • https://www.nsf.gov/events/event_summ.jsp?cntn_id=135181&org=DUE

• S-STEM FAQs (NSF 15-100)

• Common Guidelines for Education Research and Design