An Overview of NSF Funding Opportunities to Support STEM Teacher Preparation

Sandra Richardson, Noyce Program Lead
srichard@nsf.gov

Robert Noyce Teacher Scholarship Program (Noyce)
NSF 21-578

Improving Undergraduate STEM Education (IUSE) Program
NSF 21-579
General Info on NSF 21-578 (Noyce)
- Grantee Eligibility
- Program Overview
- Descriptions of Program Pathways (e.g., Tracks 1, 2, & 3 and CB)

General Info on NSF 21-579 (IUSE)
- Grantee Eligibility
- Program Background and Overview
- Descriptions of Levels and Tracks (e.g., ICT, ESL, Level 1, Level 2, Level 3)

Additional Conversation
Proposal Deadline for

**NSF 21-578**

Tuesday, August 31, 2021

Last Tuesday of August, Thereafter

See the [Noyce Program webpage](#) for additional program information.
Noyce Program Goals

Address the critical need for recruiting, preparing, and retaining K-12 STEM teachers and teacher leaders in high-need school districts

Support talented STEM undergraduate majors and professionals to become K-12 STEM teachers in high-need school districts

Support experienced, exemplary K-12 STEM teachers to become teacher leaders in high-need school districts

Support research on the effectiveness and retention of K-12 STEM teachers in high-need school districts
To qualify as a High-Need School District, the school district must have at least one school that:

1. Serves at least 20% students are from low-income families;
2. Serves at least 10,000 students from low-income families; OR
3. Qualifies for funding under the *Small, Rural School Achievement Program* or the *Rural and Low-Income School Program*

AND

1. Has at least 34% of teachers not teaching in the academic subject area or grade level for which they were trained to teach;
2. Has a teacher attrition rate of at least 15% over the last three school years; OR
3. Has at least 34% of teachers teaching with emergency, provisional, or temporary certification/licensure
Noyce Tracks

**Track 1: Scholarships and Stipends (S&S)**
- Noyce-eligible undergraduate STEM majors and/or STEM professionals
- Up to $1.2M with a project duration of up to 5 years*

**Track 2: NSF Teaching Fellowships (TF)**
- STEM professionals
- Up to $3M with a project duration of up to 6 years*

**Track 3: NSF Master Teaching Fellowships (MTF)**
- Exemplary, experienced STEM teachers
- Up to $3M with a project duration of up to 6 years*

**Track 4: Noyce Research**
- Research on STEM teacher effectiveness and retention in high-need school districts
- Up to $1M with a project duration of up to 5 years*

**Capacity Building (CB)**
- Team building, need analysis, & other activities required to develop and submit a proposal to any other track
- Up to $75K with a project duration of up to 1 year*

*Awards may exceed the budget maximums through Collaboration Incentives for engagement of community colleges in Capacity Building or Track 1 projects, engagement with Noyce awards in Track 4 projects, or engagement with minority-serving institutions in any Noyce submission.*
Scholarships for Undergraduate STEM Majors

- Supports undergraduate Noyce-eligible STEM majors
- $10,000+ per year (not to exceed cost of attendance) for up to 3 years (NEW), beginning in junior year

Stipends for STEM Professionals

- STEM professionals (with Noyce-eligible STEM baccalaureate degree) enrolled in a teacher certification/licensure program
- $10,000+ per year (not to exceed cost of attendance) for 1 year
Fellowship and Salary Supplement

- Supports STEM professional enrolled in a master’s degree leading to teacher certification (no requirement on length of degree program but support can only be in final year of degree) --- NEW

- $10,000+ (not to exceed cost of attendance) while enrolled in the final year of the master’s degree program

- $10,000+/yr for 4 yrs while teaching in a high-need district

- Take on leadership role(s) within the school or district
  - ✓ Participation in preservice teacher education
  - ✓ Develop curriculum
  - ✓ Plan or implement professional development

Track 2: NSF Teaching Fellowships (TF)
Fellowship and Salary Supplement

- Supports exemplary K-12 STEM teachers with a bachelor’s or master’s degree in their field to become teacher leaders within school or district.

- $10,000+ per year for 5 years while teaching in a high-need school district.
  - for teachers without a master’s degree, first yr of support will be for cost of attendance to complete master’s degree.
  - no requirement on length of master’s degree program but support can only be in final year of degree --- NEW.
Project Features

- Support preparation of future Noyce submission in any track.
- Develop strategies, models, infrastructure, etc.
- Use evidence-based innovative models and strategies.
- Collect data to determine need, interest, or capacity.
Examples of CB Project Activities

• Identify or develop models, research designs, or collaborative partnerships to study STEM teacher effectiveness and retention.

• Conduct needs assessments to determine areas of teacher shortages and interest among STEM professionals.

• Re-imagine teacher preparation, education, and retention efforts to reflect current school needs.

• Establish partnerships or methods for recruiting a diverse pool of Noyce recipients, including those from talent pools that have not yet been fully tapped (e.g., African Americans, Alaska Natives, American Indians, Hispanics, Native Hawaiians, Native Pacific Islanders, and persons with disabilities).

See solicitation NSF 21-578 for other examples of possible project activities.
# Partnership, Cost Sharing, and PI Requirements

<table>
<thead>
<tr>
<th></th>
<th>Track 1 (S&amp;S)</th>
<th>Track 2 (TF)</th>
<th>Track 3 (MTF)</th>
<th>Capacity Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Need District Partner</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>Institution of Higher Education Partner</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>Nonprofit Partner</td>
<td>NOT REQUIRED</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>Cost Sharing</td>
<td>NOT ALLOWED</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
<td>NOT ALLOWED</td>
</tr>
<tr>
<td>PI Team Requirements</td>
<td>STEM Faculty and Education Faculty</td>
<td></td>
<td></td>
<td>No Requirements</td>
</tr>
</tbody>
</table>
IUSE  Tracks and Levels
Proposal Deadline for

NSF 21-579

Wednesday, July 21, 2021
For Level 1, 2, 3, & CB Proposals
Third Wednesday in July, Thereafter

Wednesday, January 19, 2022
For Level 1 & CB Proposals
Third Wednesday in January, Thereafter

See the IUSE Program webpage for additional program information.
Examples of CB Project Activities

- Making changes at your institution to improve preservice teachers’ STEM learning and engagement?
- Using assessment to enhance what is known about effective STEM teaching and learning practices?
- Considering the implications of these factors for pre-service STEM teacher preparation?

Stay tuned to learn more about the IUSE: EHR program ...
Introduce recent advances in STEM disciplinary and interdisciplinary knowledge into undergraduate education

Add to the body of knowledge about what works in undergraduate STEM education

Adapt, improve, and incorporate evidence-based practices into STEM teaching and learning

Lay the groundwork for institutional improvement
IUSE Program Structure

**Engaged Student Learning**
Focus on designing, developing, and implementing research on STEM learning models, approaches & tools

- **Level 1**
  - Up to $300,000
  - Up to 3 yrs
  - Deadlines: 1st Tuesday in Feb & Aug

- **Level 2**
  - $300,001 to $600,000
  - Up to 3 yrs
  - Deadlines: 1st Tuesday in Dec

- **Level 3**
  - $600,001 to $2M
  - Up to 5 yrs
  - Deadlines: 1st Tuesday in Dec

**Institutional and Community Transformation**
Focus on increasing the propagation of highly effective methods of STEM teaching and learning

- **Capacity Building**
  - Up to $150k/$300k
  - 1/2+ institutions
  - Up to 2 yrs
  - Deadlines: 1st Tuesday in Feb & Aug

- **Level 1**
  - Up to $300,000
  - Up to 3 yrs
  - Deadlines: 1st Tuesday in Feb & Aug

- **Level 2**
  - $300,001 to $3M
  - Up to 5 yrs
  - Deadlines: 1st Tuesday in Dec

**Two Tracks**

**Capacity Building**
- Up to $150k/$300k
- 1/2+ institutions
- Up to 2 yrs
- Deadlines: 1st Tuesday in Feb & Aug
Levels: Scope, Scale & Funding

• **Scale** = number of students, faculty, departments, institutions, or other groups that the work engages

• **Scope** = range of project components involved. Inclusion of investigators and/or institutions new to NSF as project team members or collaborative partners is encouraged as a mechanism for expanding project impact and for building capacity in STEM disciplinary, interdisciplinary, or multi-disciplinary engaged student learning.
Sample ESL Project Themes

- Assessment/metrics of learning and practice (in STEM or pedagogy courses for teachers)
- Educational Research (of best practices in STEM teacher preparation)
- Conducting undergraduate disciplinary research (for pre-service teachers)
- Developing the STEM and STEM-related workforce (including teachers; not scholarships)
- Educating a STEM-literate population (including STEM teachers)
- Broadening participation in STEM (including STEM teachers)
- Exploring co-curricular activities to increase student motivation and persistence (in STEM teaching)
- STEM faculty professional development (including PD for STEM faculty teaching pre-service STEM teachers)

Note: While these are some examples of ESL project themes, other themes are appropriate and many other applications to preservice STEM teacher preparation are possible.
Sample ICT Project Themes

• Technology and distance education methods (in STEM or pedagogy courses for teachers)

• Institutional STEM planning efforts and investigation of evidence-based practices in institutional strategic planning and faculty rewards

• STEM faculty professional development (including PD for STEM faculty teaching pre-service STEM teachers)

• Development of instruments and metrics to assess institutional shifts towards evidence-based teaching practices (in STEM or pedagogy courses for teachers)

• Research studies on approaches for advancing change in the STEM undergraduate community (including STEM teacher preparation programs)

Note: While these are some examples of ESL project themes, other themes are appropriate and many other applications to preservice STEM teacher preparation are possible.
Additional Conversation
Solicitation NSF 21-578 and Solicitation NSF 21-579

www.nsfnoyce.org

https://aaas-arise.org/ and https://www.aaas-iuse.org/

EHR DU(E-News)

NSF Proposal and Award Policies and Procedures Guide (PAPPG), NSF 20-1
Other EHR Programs of Possible Interest

**Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HIS Program):** [NSF 20-599](#)

Seeks to improve the quality and effectiveness of the education of undergraduates, including preservice teachers, at Hispanic-Serving Institutions.

**Scholarships in STEM (S-STEM):** [NSF 21-550](#)

Seeks to increase the number of low-income academically talented students with demonstrated financial need obtaining degrees in S-STEM eligible disciplines and entering the US workforce or graduate programs in STEM.

**Discovery Research PreK-12 (DRK12):** [NSF 20-572](#)

Seeks to enhance the learning and teaching of STEM by PreK-12 students and teachers through research and development of STEM education innovations and approaches.
Upcoming Noyce Events

• Live Q & A Sessions with Noyce Program Directors
  • May 11th (2 – 3:30 pm ET)
  • May 12th (4 – 5:30 pm ET)
  • May 17th (10 – 11:30 am ET)
  • May 21st (12 – 1:30 pm ET)

• Visit the Noyce Program webpage and www.nsfnoyce.org for additional updates and upcoming events