# 2024 Webinar for Research Experience in STEM Settings and other Funding Opportunities in Noyce

# Robert Noyce Teacher Scholarship Program (Noyce)

## NSF 23-586

**Jennifer Ellis, Noyce Program Lead**

**Josephine Rodriguez, Noyce Program Director**

National Science Foundation
WHERE DISCOVERIES BEGIN

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# GREETINGS

The **National Science Foundation's Division of Undergraduate Education (DUE)**, housed within the **Directorate for STEM Education (EDU),** funds projects that strengthen STEM education at two- and four-year colleges and universities by improving curricula, instruction, laboratories, infrastructure, assessment, diversity of students and faculty, and collaborations.

DUE is home to ***five core programs:***

- Advanced Technological Education Program (ATE)
- Improving Undergraduate STEM Education Program (IUSE:EDU)
- Improving Undergraduate STEM Education: Hispanic Serving Institutions Program (IUSE:HSI)
- Robert Noyce Teacher Scholarship Program (Noyce)
- NSF Scholarships in STEM (S-STEM)

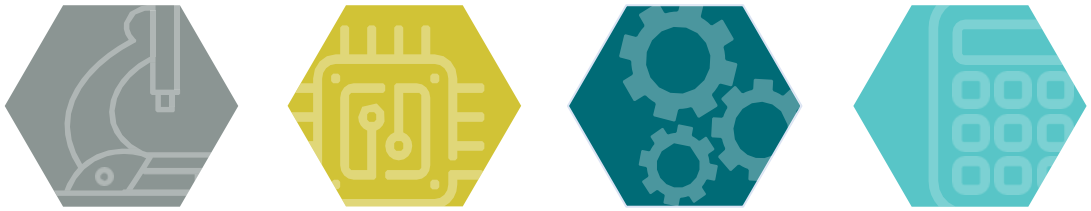
# **POLL** – Getting to Know You!

1. How familiar are you with the Noyce Research Experience in STEM Settings program?
   - Very familiar, Somewhat familiar, Not very familiar (only select one)
2. Have you ever applied for a conference or workshop proposal?
   - YES or NO (only select one)
3. Have you ever applied for supplemental funding?
   - YES or NO (only select one)
4. Do you currently serve on the leadership team for a Noyce funded project?
   - YES or NO (only select one)
5. Do you currently serve (or have served in the last 5 years) on the leadership team for a non-Noyce NSF funded project?
   - YES or NO (only select one)
6. What is your area of expertise?
   - STEM faculty member, Education faculty member, Researcher, Not at Institution of Higher Ed, Other (can select more than one)

# Proposal Deadline for NSF 23-586

**Tuesday, August 27, 2024**

Last Tuesday of August, Thereafter



See the Noyce Program webpage for additional program information.

# Noyce Program Director Team

Jennifer Ellis
Noyce Lead

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Jennifer Lewis


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AAAS Fellow

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Julio Soto

Lulu Sun

Kimberly Tanner

Patrice Waller

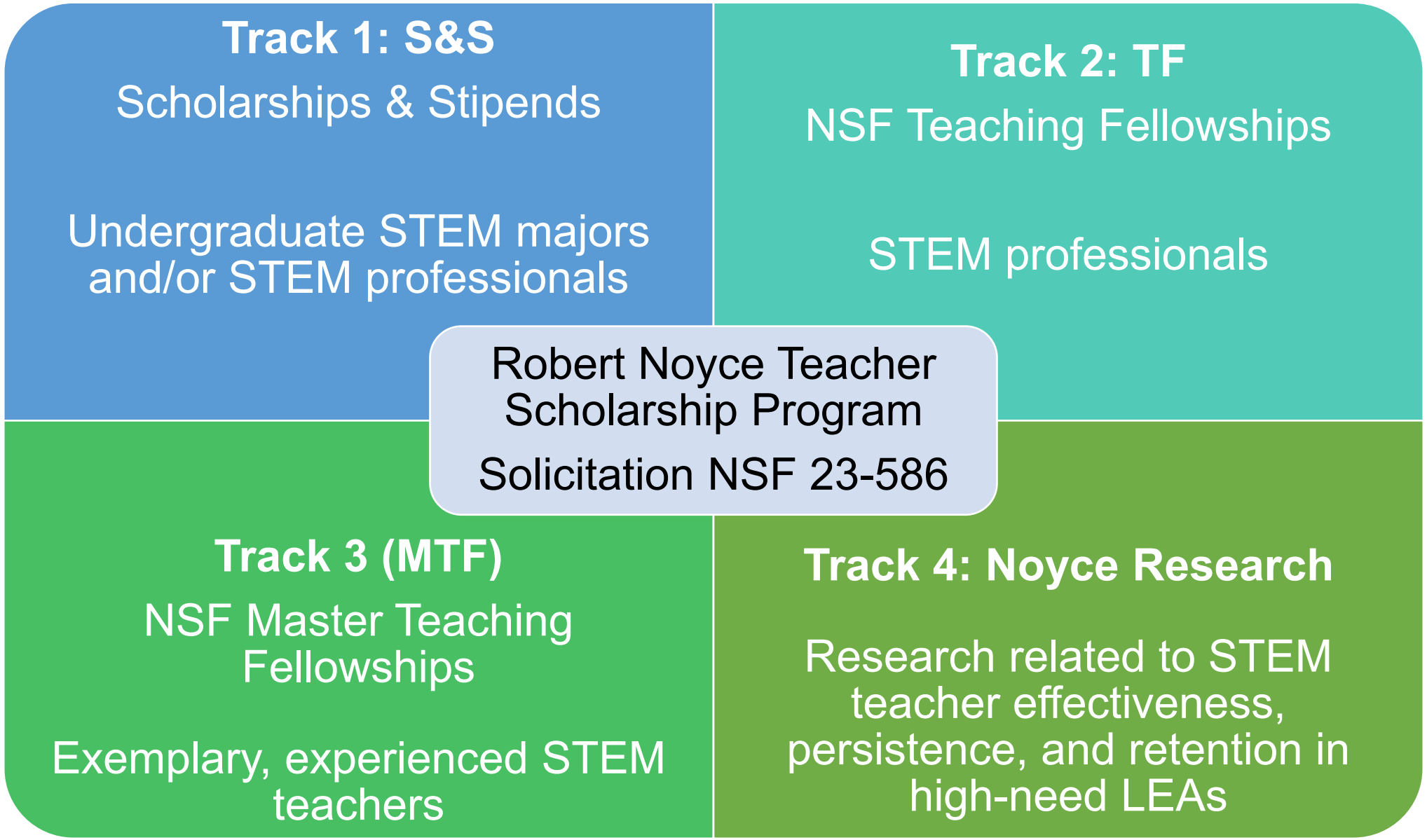
# Noyce Program Goals

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




*Capacity Building projects, which may lead to the development of full proposals for Tracks 1, 2, 3, or 4 are also supported.

Noyce

# Research Experiences in STEM Settings

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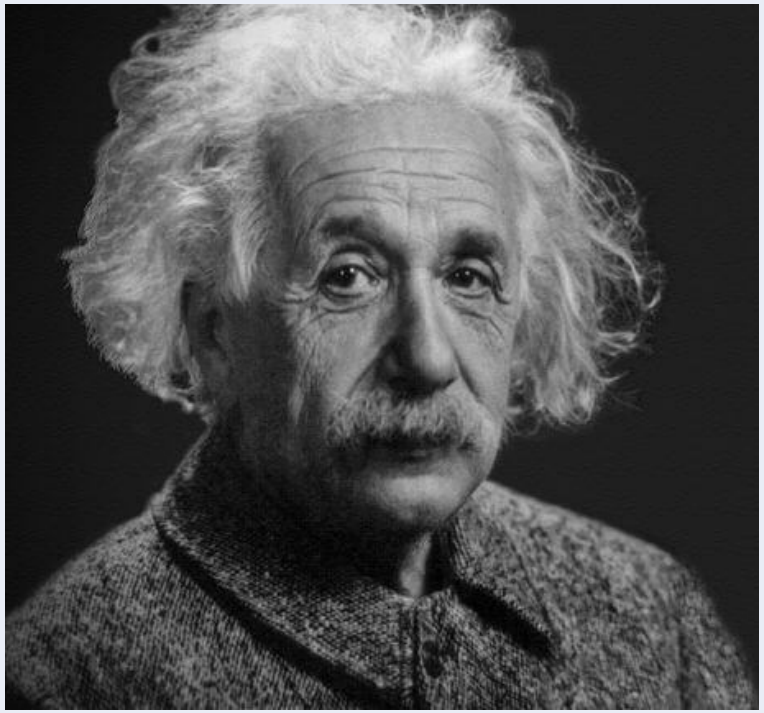
# STEM Teachers are STEM Professionals




# RESS Overview

## Research Experience in STEM Settings

- Providing authentic STEM research experiences and opportunities for pre-service and in-service Noyce **and non-Noyce STEM teachers**.
- Research settings may include but are not limited to national laboratories and NASA centers and in STEM disciplines identified as critical needs for the Nation.
  - The research should serve as a basis for teachers to create learning experiences that can be used in K-12 classrooms, thus bringing knowledge from their experience to the classroom to convey the excitement of scientific research to students and to improve their STEM learning experience.

# Research Settings and Critical Need

**Research STEM Settings**

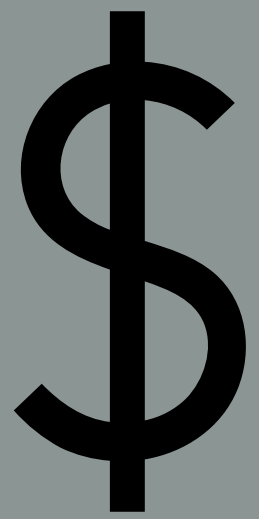
- Research settings
  - National laboratories and NASA centers and in STEM disciplines identified as critical needs for the Nation
  - Institutions of Higher Education
  - Corporate research settings
  - Non-profit partners
- Critical need disciplines include quantum computing and quantum science, robotics, artificial intelligence, microelectronics, and machine learning, computer science, data analytics, and possible other timely STEM areas in current need of domestic professionals.

# Teacher Requirements

**Pre-Service/ Teacher Candidates & In-Service Teachers**

- In-service teachers do not need to possess a STEM degree but must be certified to teach mathematics, science, engineering, or computer science.
- K-12 in-service teachers must be currently employed as teachers in a high-need school district.
- Pre-service teachers must possess or be pursuing a STEM disciplinary degree (not an education degree, unless a dual degree) as well as teacher certification.

# RESS Budget Implications



- The budgets for RESS proposals should be commensurate with the proposed work and must be discussed with a Noyce Program Officer prior to submission but will typically range between $350K and $750K for up to five years.

# Proposal Highlights

**Pre-Service/ Teacher Candidates & In-Service Teachers**

- Describe the following components
  - Pre-service student teacher population that will participate.
  - Recruitment and selection of both the pre-service and/or in-service STEM teachers.
  - Planned research and mentoring activities.
  - Planned professional development for both teaching and research.
  - Desired project outcomes.

# How and when should proposals for Research Experiences in STEM Settings (RESS) be submitted?

FAQs

- Proposals may be submitted to the Noyce program only after consultation with and consent of a Noyce Program Officer.
- Proposers should follow the guidance in PAPPG Chapter II for the preparation and submission of full research proposals to NSF.
- While proposals may be submitted any time, those submitted by the Noyce program's August submission deadline will be prioritized for support in the respective year.

FAQs

# What are acceptable STEM research areas or disciplines for research experiences?

- Submissions must align with Noyce-eligible STEM major(s). While research experiences are encouraged in disciplinary areas of critical need, including quantum computing and quantum science, robotics, artificial intelligence and machine learning, computer science, and data analytics, research experiences in other STEM areas are also appropriate.


# NOYCE Research Experience in STEM Settings

Noyce

# Additional Funding Opportunities in Noyce

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# Workshops and Conference Proposals

1. Address diversity, equity, and inclusion in STEM teaching and learning, including recruitment and retention efforts.
2. Explore strategies to empower faculty and other stakeholders to create systemic change that improves diversity, equity, and inclusion in undergraduate STEM teacher education.
3. Focus on ensuring K-12 STEM teaching reflects modern pedagogical teaching practices.
4. Involve substantive collaborations (e.g., with educational researchers, disciplinary scientists, leaders from K-12 schools).

# Conference Proposal and Budget

- Conference proposals should include a conceptual framework for the conference, draft agenda, possible participant list, the outcomes or products that will result from the conference, and how these products serve the goals of the Noyce Program.
- The budgets for conference proposals should be commensurate with the proposed work and must be discussed with a Noyce Program Officer prior to submission but will typically range between $25,000 and $100,000.
- See NSF PAPPG Chapter II.F.9 for guidance on the preparation and submission of conference proposals.

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# Supplement Awards

- "In unusual circumstances, small amounts of supplemental funding and up to six months of additional support may be requested to assure adequate completion of the original scope of work."
- Career-Life Balance (CLB) Supplemental Funding Requests

**Don'ts**

- Request funding if you plan of action goes beyond the scope of work of the original project
- Request funding to pilot for a new proposal/declined proposal

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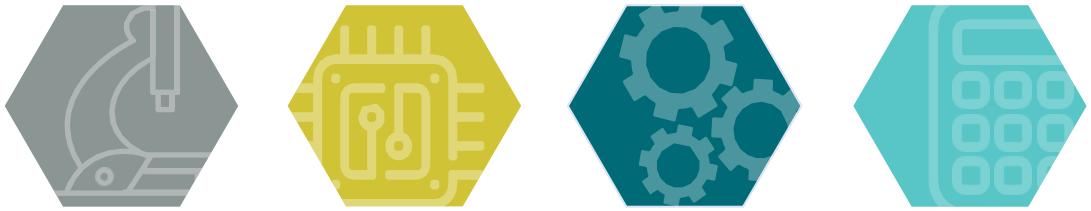
# Requesting a Supplement Award

Supplemental funding requests are prepared and submitted through **Research.gov**. A full demo of how to request supplemental funding can be found at **NSF Supplemental Request Preparation (research.gov)** or linked under "Awards & Reporting." If you wish to request more than one type of supplement, please submit each request separately. After you have prepared the request for supplemental funding, forward it to your organization's Sponsored Research Office for submission.

# Q & A #1



# Proposal Preparation

# Project Summary

**Must address in no more than 1 page:**

## Overview

**The first sentence MUST:**

- Indicate the specific Track of the proposal (i.e., Track 2 or 3)
- Name all institutions and partners, including high-need school districts and non-profit organizations, as appropriate, that are involved in the project.

## Intellectual Merit

How important is this work & how well designed is the project?

## Broader Impacts

What is the benefit of this work to STEM Education, to society?

# Project Description

See Section V of solicitation NSF 23-586 for supporting details.

**Must be clearly identified, in any order, in no more than 15 pages:**

- Broader Impacts
- Scope
- Recruitment & Selection
- Project Administration
- Teacher Induction & Development
- Degree, Preparation, or Leadership Program
- Cost Sharing (Only Involuntary Allowed)
- Project Activities & Supports
- Monitoring & Compliance
- Evaluation
- Dissemination
- Collaborations
- Results from Prior Support (if applicable)

Note: NSF no longer requires a section entitled

**Intellectual Merit**

However, Intellectual Merit remains one of NSF's two core merit review criteria and must be evident from the content of your proposal.

# Suggested Supplemental Documents

- Letters of Collaboration
  - Pre-service teacher inclusion:
    - Deans of **both** the participating STEM college/school and Education college/school,
  - Superintendent of partnering school district (or comparable school district administrator),
  - Research setting partners
- Supplementary Documents Section May only include:
  - letters of collaboration (if applicable), biosketch of the project's independent evaluator, postdoctoral research mentoring plan (if applicable), and data management plan

# Merit Review

# The NSF Merit Review Criteria

## Intellectual Merit

- What is the potential for the proposed activity to advance knowledge and understanding within its own field or across different fields?

## Broader Impacts

- What is the potential for the proposed activity to benefit society or advance specific, desired societal outcomes?

# The NSF Merit Review Criteria

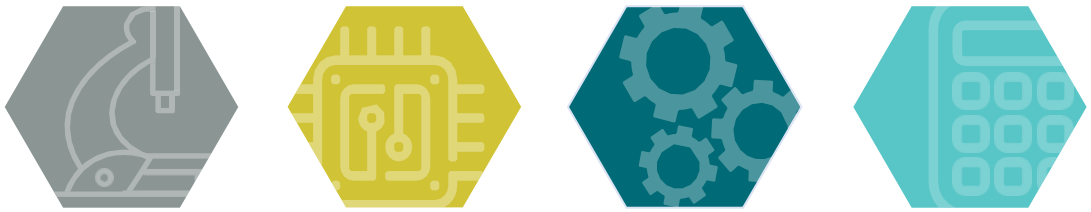
## Intellectual Merit and Broader Impacts

- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
  - Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale?
  - Does the plan incorporate a mechanism to assess success?
    - How well qualified is the individual, team, or organization to conduct the proposed activities?
      - Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

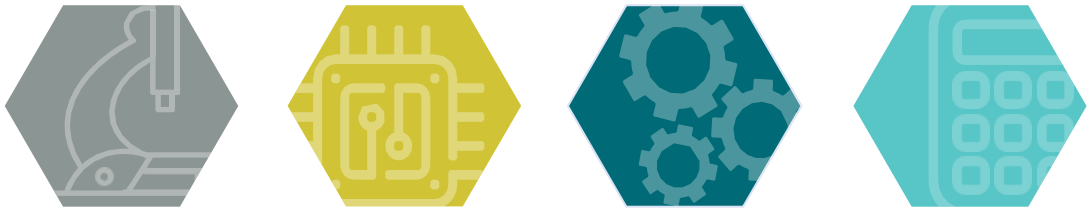
# General Tips for Success

1. Be aware of prior and ongoing projects and advances in the field (and discuss the results).
2. Cite the literature.
3. Include timelines and benchmarks in your plan for independent feedback.
4. Propose a cost-effective but high-impact project.
5. Make sure you have included all required details and sections.
6. If resubmitting a previously declined proposal, consider reviewers' feedback and do not resubmit the declined proposal without making substantive changes.
7. Put yourself in the reviewers' place. Have someone else read the proposal.
8. Provide supporting details to substantiate identified partnerships.
9. Align the requested budget with the scale and scope of work.
10. Call or email cognizant Noyce Program Officers.

# Q & A #2



# Additional Conversation



# Critical Resources

- Solicitation NSF 23-586
- Noyce Program webpage
- www.nsfnoyce.org
- *https://aaas-arise.org/*
- NSF Proposal and Award Policies and Procedures Guide (PAPPG), NSF 24-1

  *New version required for proposals submitted after May 20, 2024*

# Other EDU Programs of Possible Interest

## Improving Undergraduate STEM Education (IUSE: EHR): NSF 23-510

Seeks to improve the quality and effectiveness of the education of undergraduates in all STEM fields, including preservice teachers.

## Scholarships in STEM (S-STEM): NSF 23-527

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 23-596

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.

# Noyce Program Directors

| | |
|---|---|
| Dr. Jennifer T. Ellis (*Program Lead*) | jtellis@nsf.gov |
| Dr. Josephine Rodriguez, (*Program Director)* | jrodrigu@nsf.gov |

Contact Program Director in August of the submission year if you are not submitting a proposal and interested in serving as a program reviewer.

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# Thank you for all you do to advance STEM Teacher Preparation and Professional Development!

## *Q & A*

National Science Foundation
Directorate for STEM Education (EDU)

Preparing a diverse STEM workforce and a well-informed citizenry