

2021 Webinar for Track 4: Noyce Research

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Teacher
Scholarship
Program (Noyce)
[NSF 21-578](#)

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National Science Foundation
WHERE DISCOVERIES BEGIN

Track 4:

Noyce Research

General Info on NSF 21-578

- Program Background and Overview of Track 4: Noyce Research
- Grantee Eligibility
- Required Elements and Project Examples

Q & A #1

Preparing the Proposal

Merit Review

Proposal Writing Tips

Q & A #2

NSF CAREER Program

Additional Conversation

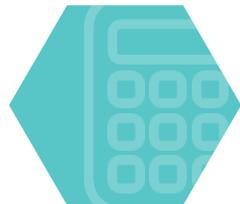
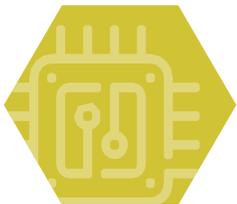
Q & A #3



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 Director Team



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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, and 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.

Track 4 Eligibility

Research teams must include:

- At least one individual with expertise and experience in STEM education research
- At least one individual with an advanced degree in a STEM or STEM education discipline

Note: These two requirements must be met by separate individuals on the research team.

There is no restriction on the number of proposals submitted by any PI or Co-PI.

Proposals may be submitted by:

- One or more U.S. universities, four-year colleges, two-year colleges, and/or consortia of these;
- U.S. nonprofit entities offering a teacher education or residency program; or
- Professional societies and similar organizations that are directly associated with educational or research activities (for Track 4: Noyce Research only).

Note: There is no restriction on the number of proposals submitted by any organization.



Track 4: Noyce Research

Supports exploratory studies and research projects that address STEM teacher effectiveness and retention in high-need school districts.

Supports contributions to the knowledge base of scholarly research in STEM teacher education.

Allows for qualitative, quantitative, and mixed methodologies, as well as research syntheses.

Budget up to \$1,000,000 for up to 5 years.

- Projects can request up to an additional \$100,000 for each previously funded Noyce project substantively engaged in the research, up to a maximum budget total of \$2,500,000.

Examples of Possible Studies

Studies **must** focus on STEM teacher **effectiveness and retention** in high-need school districts (HNSDs). Examples include:

- Teacher characteristics or programmatic features predictive of highly effective teachers who persist in teaching in HNSDs
- Retention of Noyce Scholars or Fellows who remain as teachers in HNSDs beyond their service requirement
- Characteristics of HNSDs that result in retention of STEM teachers

Note: These are just examples and do not span the scope of research studies possible to examine STEM teacher effectiveness and retention in HNSDs.



Required Elements of Track 4 Projects

Research studies must include:

- Substantive collaboration among educational researchers (including those from the social and behavioral sciences, as applicable), faculty members (or persons) with expertise in a STEM discipline, and faculty members (or persons) with expertise in STEM education.
- Research literature and theory on which the research design is based.
- Appropriate methodologies and strategies.
- Contribution to knowledge and theory to be made, including a coherent and persuasive chain of reasoning that shows how the research claims will be supported and how the results have potential to add new evidence-based insights to theory and practice.
- External feedback, including a plan for soliciting ongoing objective input and overall assessment of project progress (formative) and success (summative). While various mechanisms (e.g., advisory board, independent evaluator) may be used for project evaluation, an explicit rationale for the mechanism must be included.



Common Track 4 Weaknesses

Failure to address STEM teacher effectiveness and retention in High-Need School Districts (HNSDs)

Failure to clearly articulate the research questions, their relationship to the data to be collected, the methods of analysis, and the project's ability to authoritatively answer the research questions.

Examining only a single institution's teacher preparation program without a compelling argument that the study will produce findings or theory with the potential to contribute to understanding of a broader community.

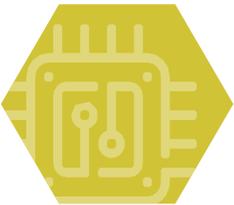
Pop Quiz – True or False

Track 4 Proposals Must:

- Involve Noyce Scholars, Fellows, or Projects
- Include both qualitative and quantitative methods
- Include letters of commitment detailing access to appropriate data
- Identify the methods to be used to answer the research questions as well as a description of the sample to be studied



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 4: Noyce Research)
- 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 and how well designed is the project?

Broader Impacts

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

Project Description

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

Broader Impacts

Literature and Theoretical Framework

Methods

Knowledge Generation

Evaluation

Dissemination

Note: Results from Prior Support must be discussed within the 15 pgs per the solicitation & PAPPG.

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.

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?

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?

Pop Quiz:

Which of the following **MUST** be included in the Proposal?

- Project Summary with Intellectual Merit & Broader Impacts labeled
- 15-Page Project Description
- Dissemination plan
- Prior NSF Support (if applicable)
- Research Question(s)
- Research design, data sources, methodology
- Relevant Research literature
- Plan for an objective evaluation

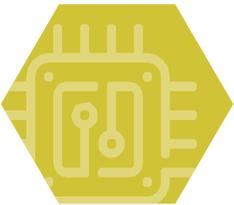


General Tips for Success

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' places. 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



Faculty Early Career Development (CAREER) Program

[NSF 20-525](#) — (deadline: July 26, 2021)

- CAREER "is a Foundation-wide activity that offers NSF's most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education, and to lead advances in the missions of their departments or organizations."
- **Research that would be aligned with the goals of the Noyce solicitation for Track 4 proposals can be submitted to the CAREER program by designating Noyce as the target program.**
- As of the annual deadline, proposers must:
 - Hold a doctoral degree in a field supported by NSF;
 - Be engaged in research in an area of science, engineering, or education in a field supported by NSF;
 - Hold at least a 50% tenure-track (or tenure track-equivalent) position as an assistant professor (or equivalent title);
 - Be untenured; and
 - Have not previously received a CAREER award. (Prior or concurrent Federal support for other types of awards for non-duplicative research does not preclude eligibility.)



CAREER & Noyce Track 4

- CAREER PIs are expected to formulate research questions that are likely to yield significant knowledge relevant to STEM education.
-
- Proposed research methods should be **detailed, carefully justified, and well-aligned with clear, specific research questions** that seek to address problems of compelling importance.
- CAREER proposals also require the integration of research and education. Proposals must describe the ways in which the proposed research will impact the investigator's education goals and the proposed education activities will feed back into the research.



Other EHR Programs of Possible Interest

Improving Undergraduate STEM Education (IUSE: EHR): [NSF 21-579](#)

Improving the quality and effectiveness of the education of undergraduates in all STEM fields

Faculty Early Career Development Program (CAREER): [NSF 20-525](#)

Supporting early career role models in research and education and leaders in the missions of departments and fields

EHR Core Research (ECR): [NSF 19-508](#)

Fundamental research to advance knowledge in Learning and Learning Environments, Broadening Participation, and Workforce Development

Critical Noyce Resources

Solicitation [NSF 21-578](#) and [Noyce Program webpage](#)

Proposal and Award Policies and Procedures Guide (PAPPG), [NSF 20-1](#)

Common Guidelines for Education Research and Development: [Report](#) | [FAQs](#)

[Design-Based Implementation Research \(DBIR\)](#)

www.nsfnoyce.org

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



Cognizant Noyce Program Directors

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



Q & A # 3

