EHR Core Research:
Building Capacity in STEM Education Research (ECR: BCSER)

Overview of Solicitation and Proposal Submission
FY22 Competition

Directorate for Education and Human Resources (EHR)

National Science Foundation

Webinar Outline

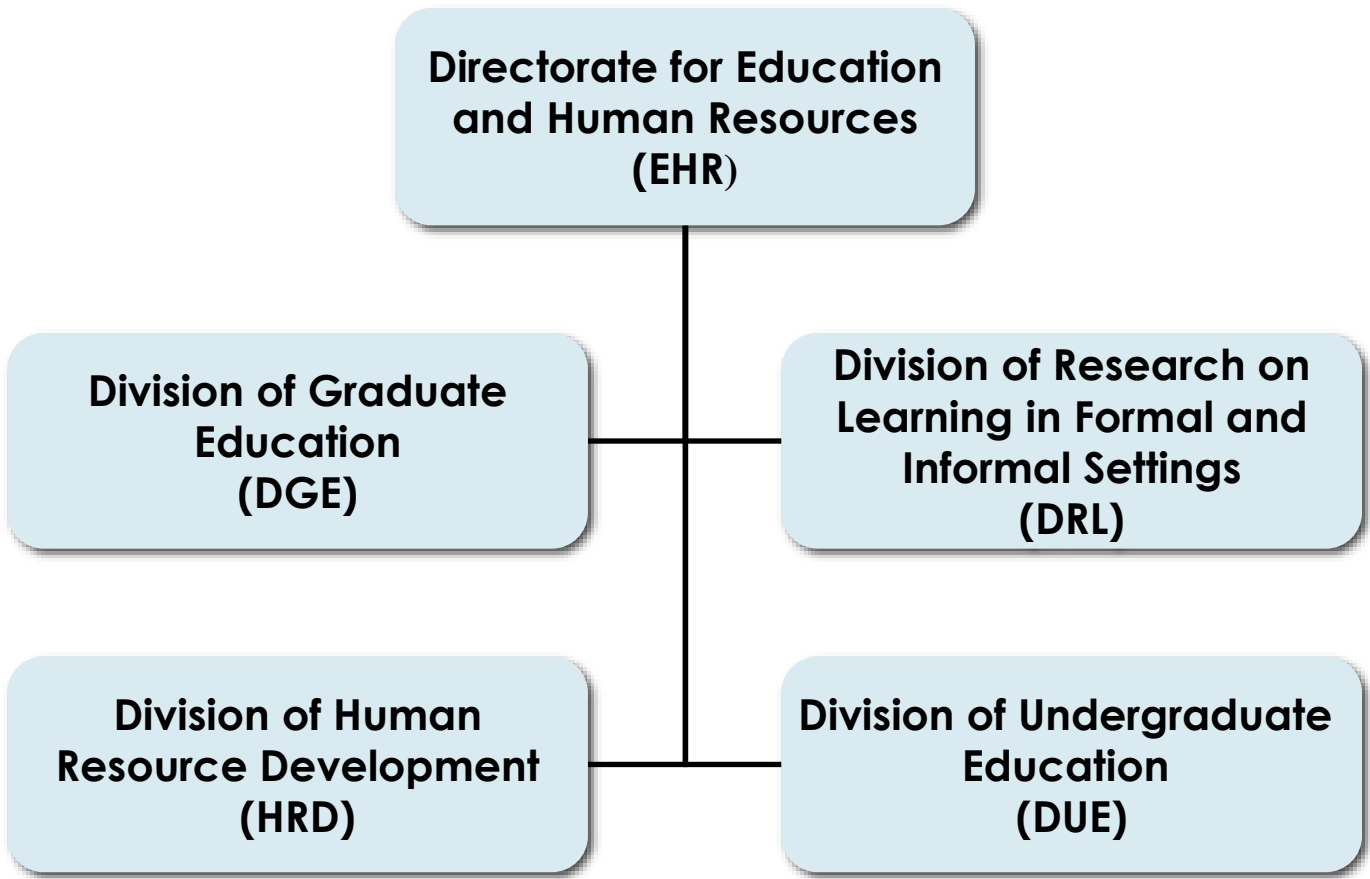- Overview of NSF and EHR
- ECR: BCSER Program
- Proposal Preparation
- Merit Review Criteria
- Useful Resources
- Questions and Contact Information

EHR Organization Chart

Directorate for Education and Human Resources (EHR)

Division of Graduate Education (DGE)

Division of Research on Learning in Formal and Informal Settings (DRL)

Division of Human Resource Development (HRD)

Division of Undergraduate Education (DUE)

EHR supports excellence in U.S. STEM education at all levels, in all settings for the development of a diverse and well-prepared workforce of scientists, technicians, engineers, mathematicians, and educators and a well-informed citizenry.

EHR Core Research: Building Capacity in STEM Education Research (ECR: BCSER)

Program Solicitation

NSF 22-548

Replaces Document:

NSF 20-521

Next Deadline:

March 29, 2022

Directorate for Education & Human Resources
Division of Graduate Education
Division of Human Resource Development
Research on Learning in Formal and Informal Settings
Division of Undergraduate Education

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

Program Rationale & Synopsis

ECR: BCSER supports projects that build investigators' capacity to carry out high-quality STEM education research.

Two Tracks

1. **Individual Investigator Development in STEM Education Research (IID)**

2. **Institutes for Methods and Practice in STEM Education Research (IMP)**

Relevant Foci for Capacity-Building Efforts

- Deep knowledge of subject-matter literature

- Interdisciplinary perspectives

- Skills for operationalizing research questions & articulating theories of change

- Expertise in study design, research methods, and data analysis techniques

- Expertise that could advance educational innovation

- Skills for synthesizing study findings using systematic review methodologies

- Experience collecting, managing, documenting, and archiving data

- Experience building teams, establishing partnerships, leading collaborations, and mentoring junior collaborators

Potential Applicants to BCSER include:

1. Individual investigators from academic and non-academic organizations, at any career stage, who seek to build STEM education research competencies.

- *Investigators New to STEM Education Research*

  - support investigators in building their capacity to make contributions to the STEM education knowledge base

- *Investigators Experienced in STEM Education Research*

  - support investigators in expanding their areas of expertise and acquiring knowledge and skills to conduct rigorous **fundamental** STEM education research

2. Experts and organizations with the capacity to implement Institutes in Methods and Practice in STEM Education Research

Funding Levels and Duration

➢ **Individual Investigator Development (IID):**
maximum of $350,000, up to 3 years

➢ **Institutes for Methods and Practice (IMP):**
maximum of $1,000,000, up to 3 years

➢ **Conferences and Workshops**:
typically $25,000 to $100,000

Preparation of a BCSER PROPOSAL

Proposal Preparation

Individual Investigator Development (IID) Proposals must include the following:

- <u>Self-Assessment</u> of PI's STEM education research experience, skills and needs

- <u>Professional Development Plan</u> with detailed career trajectory, goals, rationale for activities, and timeline for completion

- For *New to STEM Education Research* applicants

  - identify <u>STEM education research issues</u> for which the PI will conduct a <u>pilot project</u>

  - describe the <u>mentoring structure</u>, including roles and rationale for mentor selection

- For *Experienced in STEM Education* Research applicants

  - identify the <u>fundamental STEM education research topic</u> and an appropriately scoped project

Fundamental STEM Education Research Project

Required element for IID proposals from Investigators Experienced in STEM Education Research

Designed to make important contributions to the general, explanatory knowledge (e.g., theories) that underlies STEM education

Generates knowledge and understanding with the potential for broad relevance

Knowledge generated is NOT only or primarily relevant for a particular pedagogy, curriculum, technology, etc.

May be curiosity-driven or use-inspired

Proposal Preparation

Institutes in Methods and Practices (IMP) proposals should articulate:

- Relevance to ECR: BCSER program goals

- The scope and significance of the institute's mission and goals

- Detailed description of the curriculum, training plan, schedule of activities, and expected outcomes

- Evidence of demand of the proposed training and detailed participant recruitment strategy

- Description of organization's (investigator's) capabilities, evidence of prior success, and detailed project management plan

Proposal Preparation

Conference and workshop proposals should include:

- A conceptual framework for the conference or workshop

- Draft agenda

- Potential participant list

- Outcomes or products that will result from the conference or workshop

Proposers should:

- Refer to Chapter II.E.7 in the PAPPG for additional guidance

- Contact a cognizant EHR Program Officer prior to submission

Proposal Preparation

Cover Sheet

- Select NSF 22-548 ECR: BCSER
- Add **BCSER:** as a prefix to the proposal title
- Check box for Human Subjects

Project Summary

- 1- page summary, include intellectual merit and broader impacts statements
- Specify Track - *IID: New to STEM Education Research; IID: Experienced in STEM Education Research; Institutes for Methods and Practice;* or *Conference*
- Think of this as your first draft of your award abstract should your project be funded

Proposal Preparation

- **<u>Supplementary Documents</u>**

  - Postdoctoral Mentoring Plan

  - Data Management Plan: https://www.nsf.gov/bfa/dias/policy/dmpdocs/ehr.pdf

  - Letters of Commitment from Mentor, if applicable

  - List of project personnel

- **<u>Collaborators and other Affiliations</u>**

  - Submitted using the instructions and spreadsheet template found at https://www.nsf.gov/bfa/dias/policy/coa.jsp

Merit Review Criteria: Intellectual Merit and Broader Impacts

Merit Review Criteria

All NSF proposals are evaluated through two merit review criteria:

- **Intellectual Merit** – the potential to advance the knowledge

- **Broader Impacts** – the potential to benefit society and contribute to the achievements of specific, desired societal outcomes

Merit Review Elements

The following **five elements** are considered in the review of both intellectual merit <u>and</u> broader impacts.

1. What is the potential for the proposed activity to:
   a) **Advance knowledge** and understanding within its own field or across different fields (Intellectual Merit); and
   b) **Benefit society** or advance desired societal outcomes (Broader Impacts)?

2. To what extent do the proposed activities suggest and explore creative, original, or **potentially transformative** concepts?

3. 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**?

4. How **well qualified** is the individual, team, or organization to conduct the potential activities?

5. Are there **adequate resources** available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Proposal Review Process and Timeline
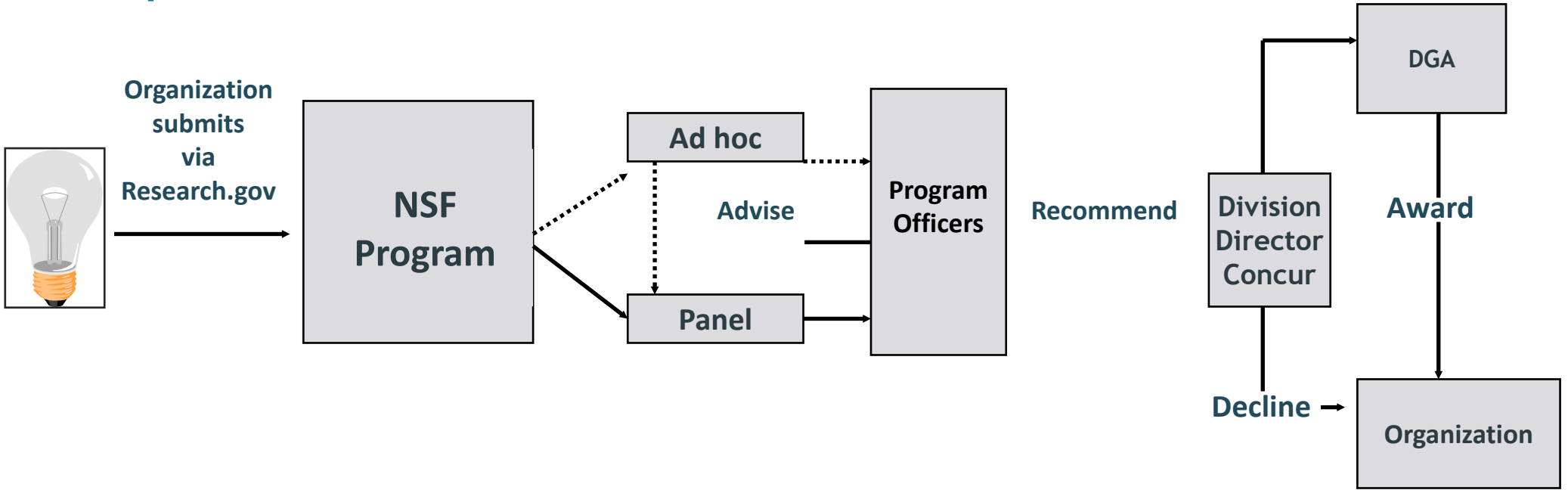
Useful Resources

- EHR Core Research (ECR: Core) Solicitation: NSF 21-588: https://www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=504924&ods_key=nsf21588

- Proposals & Award Policies & Procedures Guide (PAPPG), Oct 2021, NSF 22-1: https://www.nsf.gov/pubs/policydocs/pappg22_1/nsf22_1.pdf

- You may now prepare and submit proposals in Research.gov https://www.research.gov/research-web/

- Prospective New Awardee Guide, January 2018: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pnag

- EHR Core Research Building Capacity in STEM Education Research (ECR:BCSER) Solicitation NSF 22-548: https://www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=505645&ods_key=nsf22548

- For a comprehensive webinar about Preparing Clear and Effective Budgets and Budget Justifications please see the recording at: http://informalscience.org/projects/funding/nsf-aisl

Open Office Hours (2:00-4:00 PM, EASTERN)

- February 22, 23, 24

- March 21, 22, 23

*Individual meetings by appointment

Questions?

ECRBCSER@nsf.gov