Ethical and Responsible Research (ER2)

Solicitation 23-630

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Webinar Outline

- About NSF

- Responsible and Ethical Conduct of Research (RECR)

- History of the ER2 Program

- ER2 Proposal Types, Awards, and Other Related Information

- Preparing to Create a Proposal and the Merit Review Process

- Resources for More Information

About the National Science Foundation (NSF)

- NSF is an independent federal agency

- It was established in 1950 by Congress to:
    - Promote the progress of science.
    - Advance the national health, prosperity and welfare.
    - Secure the national defense.

- Receives more than 43,000 proposals per year for research, education, and training projects, and more than 13,000 applications for graduate and postdoctoral fellowships

Responsible and Ethical Conduct of Research (RECR)

"The responsible and ethical conduct of research (RECR) is critical for excellence, as well as public trust, in science and engineering. RECR involves not only a responsibility to generate and disseminate knowledge with rigor and integrity, but also a responsibility to:

a.   conduct peer review with the highest ethical standards;

b.   diligently protect proprietary information and intellectual property from inappropriate disclosure; and

c.   treat students and colleagues fairly and with respect.

Consequently, education in RECR is considered essential in the preparation of future scientists and engineers."

Source: NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 23-1): Chapter IX: Recipient Standards.

History of the Program

Ethics Education in Science and Engineering (EESE)

- EESE ran from 2005 to 2013.

- It aimed to "…deepen the understanding of ethical dilemmas in science and engineering, and provide cutting edge, effective research and educational materials to train the next generation of scientists and engineers"

- Largely focused on graduate education

Cultivating Cultures for Ethical STEM (CCE STEM)

- CCE STEM ran from 2014 to 2018.

- It focused on "What constitutes responsible conduct for research (RCR), and which cultural and institutional contexts promote ethical STEM research and practice and why?"

- In 2015, the program added the option of Institutional Transformation

History of the Program (continued)

Ethical and Responsible Research (ER2)

- Began in 2019

- As of 2023, it involves a partnership of 8 Directorates & 1 Office

- Typically funds between 10-15 awards per year

- Added the options of Conference Proposals & Project Incubation Proposals

ER2: A Cross-Directorate Program

Biological Sciences

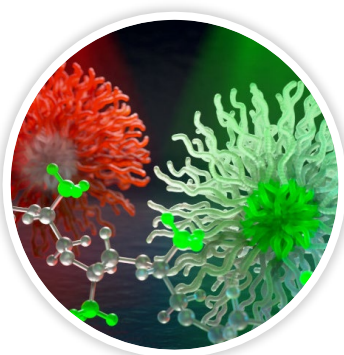**Computer & Information Science & Engineering**

STEM Education

Engineering

Geosciences (including Polar Programs)

International Science and Engineering

Mathematical & Physical Sciences

Social, Behavioral & Economic Sciences

Technology, Innovation & Partnerships

ER2 Program Website

The home link is: https://new.nsf.gov/funding/opportunities/ethical-responsible-research-er2

ER2 Program Solicitation

The next ER2 proposal target date is:

January 25, 2024

The solicitation link is:

https://www.nsf.gov/pubs/2023/nsf23630/nsf23630.htm

Ethical and Responsible Research (ER2)

PROGRAM SOLICITATION
NSF 23-630

REPLACES DOCUMENT(S):
NSF 22-526

National Science Foundation
Directorate for Social, Behavioral and Economic Sciences
    SBE Office of Multidisciplinary Activities
Office of International Science and Engineering
Directorate for Biological Sciences
Directorate for Computer and Information Science and Engineering
Directorate for Engineering
Directorate for Geosciences
Directorate for Mathematical and Physical Sciences
Directorate for STEM Education
Directorate for Technology, Innovation and Partnerships

Full Proposal Target Date(s):

January 25, 2024

Fourth Thursday in January, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

ER2 Program Scope

The Ethical and Responsible Research (ER2) program aims to support fundamental research about what constitutes or promotes responsible and ethical conduct of research (RECR). The ER2 program seeks to encourage science, technology, engineering and mathematics (STEM) researchers, practitioners and educators at all career stages to conduct research with integrity and to educate others about RECR.

Research Questions of Interest

Research questions of interest to the program include the following:

- What constitutes responsible and ethical conduct of research (RECR) and why?

- What are the similarities and differences between RECR norms in different STEM fields or sectors (for example, academia, industry and non-profit), and what can these fields or sectors learn from one another in terms of promoting ethical research practice?

- Which organizational practices, contexts and incentives promote ethical and responsible STEM research and why?

- Which practices contribute to establishing and maintaining ethical cultures, and how can these practices be transferred and integrated into other research and learning settings?

Research Topics

Topics of interest to the program include but are not limited to ethical dimensions of:

- Environmental, environmental justice, geoengineering or climate change research.

- Research involving emerging technologies such as gene editing, synthetic biology, artificial intelligence, robotics or cryptography.

- Emerging technologies and their impacts on research practices such as authorship, collaboration, mentoring, peer review or research misconduct.

- Research that is co-designed with practitioners or users or that involves bringing together teams from multiple sectors (for example, academia, industry and non-profit).

Research Topics (continued)

Topics of interest to the program include but are not limited to ethical dimensions of:

- Data-related research practices such as collection, governance, access, ownership, management, sharing and reporting.

- Diversity, equity, inclusion and accessibility in STEM research, including mentoring of students and postdocs with disabilities.

- The prevention of sexual harassment in STEM fields.

- STEM research in international contexts.

- Research with Indigenous populations or other historically underrepresented groups in STEM or in locations that are owned or considered sacred by Indigenous communities.

Types of ER2 Proposals

Conference Proposal
- maximum budget of $50,000 and duration of 12 months
- to foster new research, identify emerging challenges and opportunities or develop new standards pertaining to ethical and responsible practices within STEM communities

Project Incubation Proposal
- maximum budget of $90,000 and duration of 12 months
- enable **multiple organizations** to collaborate to develop and submit a full ER2 standard proposal submission

Standard Research Proposal
- maximum budget of $400,000 and duration of 3 years

Institutional Transformation Proposal
- maximum budget of $700,000 and duration of 5 years
- encouraged to include a senior administrator as PI/co-PI

Types of Organizations That Can Apply

- **Institutions of Higher Education (IHEs)** - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members.

- **Non-profit, non-academic organizations** - Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Submitting Organizations and Collaborations

- Proposals from or involving substantial collaboration with institutions in EPSCoR-eligible jurisdictions,* minority-serving institutions, women's colleges, or organizations primarily serving persons with disabilities are strongly encouraged.

- Proposals that include international collaborations are encouraged if the unique resources, expertise, facilities, or locations of international partners enhance the merit of the proposed work.

*EPSCoR = Established Program to Stimulate Competitive Research

Project Team Leadership

- Proposals must include project teams with appropriate expertise. This might include expertise in the STEM domains on which the project focuses, or in ethics, values, evaluation, and pedagogy.

- An individual may appear as PI, co-PI, or Senior Personnel on **no more than two proposals** submitted in response to this solicitation.

- Note: there is no limitation on the number of proposals an institution can submit to the program.

Mentoring

- **Postdoctoral Fellows**: a proposal that requests funding for a postdoctoral fellow must include a Postdoctoral Researcher Mentoring Plan as a supplementary document.

- **Student Researchers**: a proposal that requests funding for undergraduate or graduate students to conduct research is expected to include a section that describes mentoring-related activities. This section must appear in the Project Description under the title, "Mentoring Student Researchers."

Award Conditions

Standard NSF award conditions apply. In addition, ER2 awardees must submit project deliverables such as ethics case studies, modules and instructor materials to the Online Ethics Center for Engineering and Science and share project findings at biennial ER2 PI meetings.

The PI meetings may alternate between in-person and virtual formats. PIs are responsible for covering the expenses of participating in these meetings throughout the duration of their award and must include these costs in their proposed budget.
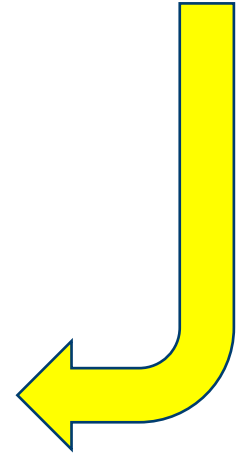
ER2 Awards

Information about the projects funded by ER2 can be found
[through an awards search](#)

Awards made through this program

Browse projects funded by this program

Map of recent awards made through this program

Interested in Being a Reviewer for ER2?

The sign up link can be found at:
https://new.nsf.gov/funding/opportunities/ethical-responsible-research-er2

> **Additional program resources**

Sign up to be a reviewer for the Ethical and Responsible Research Program

Required Components for a Proposal

These include but are not necessarily limited to:

- Project Summary (one page)
- Project Description (typically a maximum of 15 pages)
- References Cited
- Data Management Plan (depending on the type of project)
- Postdoctoral Mentoring Plan (if applicable)
- Current and Pending Form
- Collaborators & Other Affiliations Information
- Biographical Sketch
- Budget and Budget Justification

NSF Review Criteria

All NSF proposals are evaluated using the following two criteria:

- **Intellectual Merit**: The Intellectual Merit criterion encompasses the potential to advance knowledge; and

- **Broader Impacts**: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

A program can have additional review criteria, which ER2 has for Institutional Transformation proposals.

Additional Review Criteria for Institutional Transformation Proposals

1. How significant will the study of the proposed institutional transformation activities be to the knowledge base about what fosters ethical research?

2. To what degree are the proposed activities linked to the institutional context, and are there indicators of institutional readiness and commitment to the project's transformational activities and goals?

3. To what degree does the proposal include well-formulated and feasible plans for evaluation of the effectiveness of the proposed institutional transformation activities?

4. How well is the relevant social science literature incorporated into the design of the proposed activities?

5. Are mechanisms planned and clearly described to ensure the long-term sustainability of transformational activities or goals beyond the duration of the funded project?

6. Are there adequate supporting materials to document commitment from the individuals and institutions listed as having a substantive role in the project?

Be sure to review the PAPPG…

https://new.nsf.gov/policies/pappg/23-1
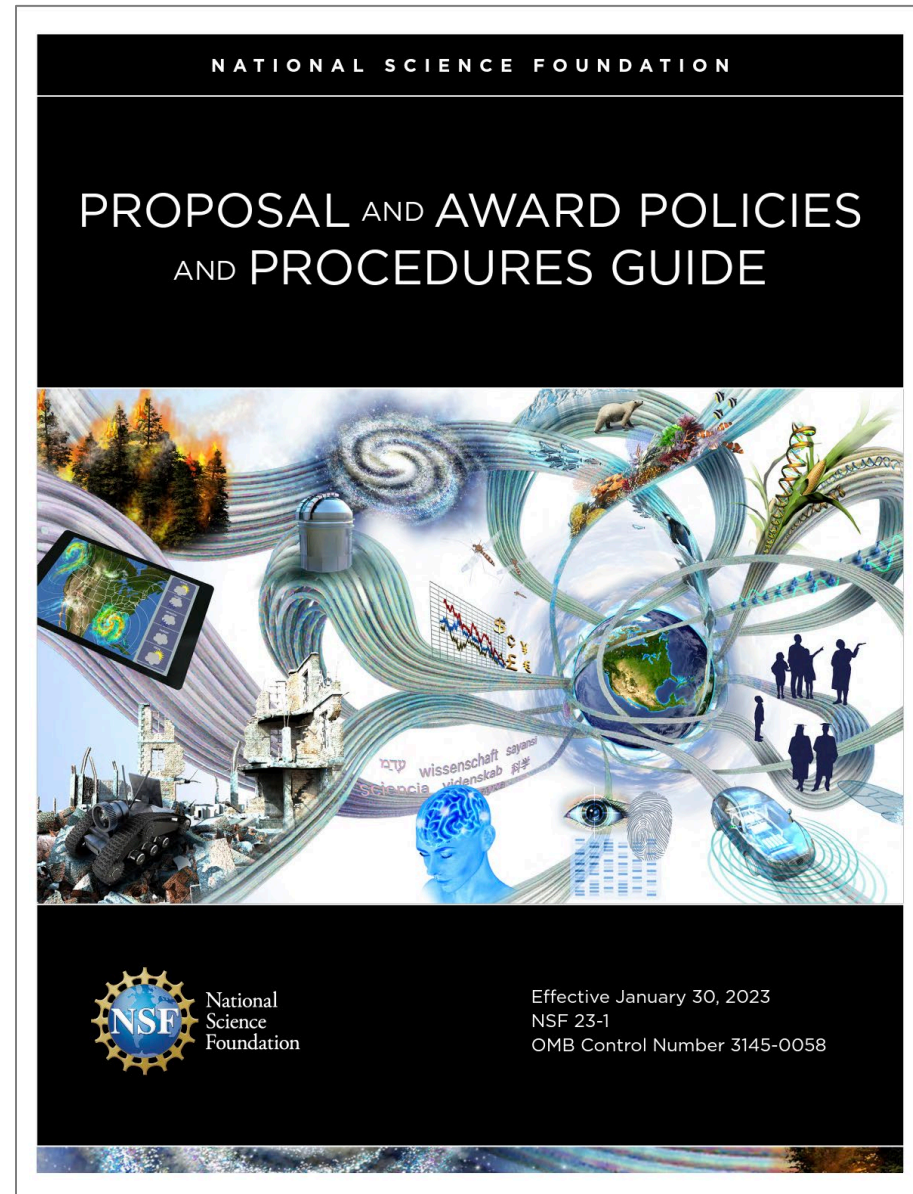
ER2 Program Updates and Office Hours

- You can sign up for ER2 email updates at: https://public.govdelivery.com/accounts/USNSF/subscriber/new?topic_id=USNSF_418

- From September to December 2023, office hours are the first and third Wednesday of each month at **3:00PM (eastern time)**.

Cognizant Program Officers

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For more information...

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