

# Introduction to the Ethical and Responsible Research Program (ER2)



Jason Borenstein  
Program Director  
SBE Office of  
Multidisciplinary Activities  
Directorate for Social,  
Behavioral and Economic  
Sciences  
2023



# Presentation Outline

- About NSF, the Directorates, and SBE
- The History of the ER2 Program
- The ER2 Program, Proposal Types, and Other Related Information
- Preparing to Create a Proposal and the Review Process
- Suggested Resources





# About the National Science Foundation (NSF)

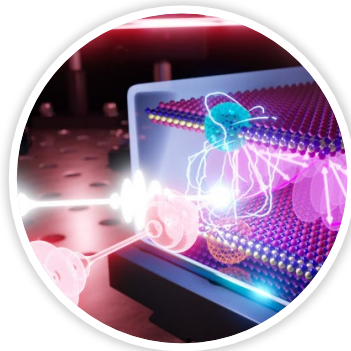
- NSF is an independent federal agency
- It was established in 1950 by Congress to:
  - Promote the progress of science.
  - Advance the national health, prosperity and welfare.
  - Secure the national defense.
- NSF's FY 2022 enacted budget is \$8.8 billion
- Receives more than 43,000 proposals per year for research, education, and training projects, and more than 13,000 applications for graduate and postdoctoral fellowships



# NSF Supports Multiple STEM Fields



**Biological Sciences  
(BIO)**



**Computer &  
Information Science &  
Engineering (CISE)**



**STEM Education  
(EDU)**



**Engineering  
(ENG)**



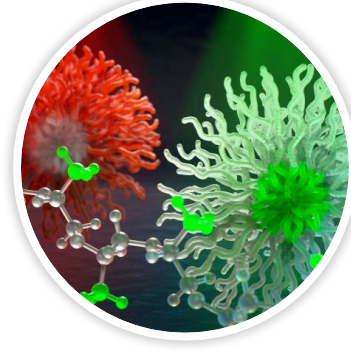
**Geosciences  
(GEO)**



**Integrative Activities  
(OIA)**



**International  
Science and  
Engineering (OISE)**



**Mathematical &  
Physical Sciences  
(MPS)**



**Social, Behavioral  
& Economic  
Sciences (SBE)**



**Technology, Innovation  
& Partnerships (TIP)**





# Directorate for Social, Behavioral and Economic Sciences (SBE)

Supports **basic research on people and society**. The SBE sciences focus on human behavior and social organizations and how social, economic, political, cultural and environmental forces affect the lives of people from birth to old age and how people in turn shape those forces.

For more information:  
<https://www.nsf.gov/sbe>



# The Structure of SBE

## Office of the Assistant Director (OAD)

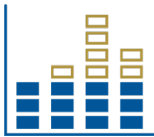
**Division of Behavioral and Cognitive Sciences**



**Division of Social and Economic Sciences**



**National Center for Science and Engineering Statistics**



**SBE Office of Multidisciplinary Activities (in OAD)**



# Division of Behavioral and Cognitive Sciences (BCS)



BCS promotes investigation of psychological, linguistic, anthropological and geographic sciences, including human origins, brain development and learning, and archaeology.

## BCS Programs

Archaeology\*

Biological Anthropology\*

Cognitive Neuroscience

Cultural Anthropology\*

Developmental Sciences

Human Environment and Geographical Sciences

Human Networks and Data Science

Linguistics and Dynamic Language Infrastructure\*

Perception, Action and Cognition

Science of Learning and Augmented Intelligence

Social Psychology

\* Programs that support Doctoral Dissertation Research Improvement (DDRI) grants



# Division of Social and Economic Sciences (SES)



SES invests in the study of how societies, organizations and economies function, including how decisions are made, how institutions function and how scientific and technological progress are pursued.

## SES Programs

Accountable Institutions and Behavior

Decision, Risk and Management Sciences\*

Economics\*

Law and Science

Methodology, Measurement and Statistics\*

Security and Preparedness

Science of Organizations

Science and Technology Studies\*

Science of Science: Discovery, Communication and Impact

Secure and Trustworthy Cyberspace

Sociology

\* Programs that support Doctoral Dissertation Research Improvement (DDRI) grants





# SBE Office of Multidisciplinary Activities (SMA)



SMA cultivates interdisciplinary research and training in the social, behavioral and economic sciences, including capacity-building at minority-serving institutions, international collaborations and the ethical conduct of scientific research.

## SMA Programs

Build and Broaden

→ Ethical and Responsible Research (ER2)

SBE Research Experiences for Undergraduates Sites

SBE Postdoctoral Research Fellowships

Science of Broadening Participation



# History of the Program

## Ethics Education in Science and Engineering (EERE)

- EERE 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 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

## **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?



# ER2 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).



# ER2 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.”



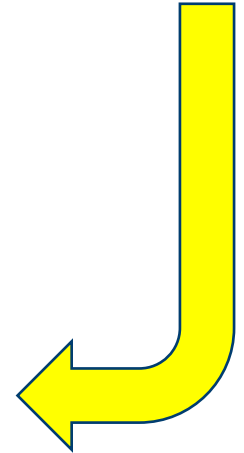
# Prior ER2 Awards

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](#)



# Sample ER2 Awards

Export up to 3,000 Awards: [CSV](#) | [XML](#) | [Excel](#) | [Text](#) [Email this Link](#) | [Export All Results](#)

Sort By:  Results size:  Page 1 of 3 [←](#) [→](#) [↺](#) [↻](#) Displaying 1 - 30 of 70

[Table](#) | [List](#)

**Research Community Development Grant: Summer Training Program to Expand the AI and Data Ethics Research Community**  
Award Number:2147220; Principal Investigator:Ronald Sandler; Co-Principal Investigator:John Basl, Sina Fazelpour, Chad Lee-Stronach, Kathleen Creel; Organization:Northeastern University;NSF Organization:SES Start Date:01/01/2023; Award Amount:\$359,249.00; Relevance:48.0;

**Sharing Results with Research Participants: Establishing Ethical Practices for Development Economics**  
Award Number:2316205; Principal Investigator:Melissa Graboyes; Co-Principal Investigator:Edward Miguel, Alfredo Burlando; Organization:University of Oregon Eugene;NSF Organization:SMA Start Date:09/01/2023; Award Amount:\$399,828.00; Relevance:48.0;

**Institutional Transformation: Anticipating Undesirable Consequences of Computer Science Research**  
Award Number:2315937; Principal Investigator:Katharina Reinecke; Co-Principal Investigator:Daniel Grossman, Tadayoshi Kohno; Organization:University of Washington;NSF Organization:SMA Start Date:09/01/2023; Award Amount:\$700,000.00; Relevance:48.0;

**Comprehensive Approach for Safe, Inclusive, and Responsible Research: An Incubation Project**  
Award Number:2316254; Principal Investigator:Elizabeth Moschella-Smith; Co-Principal Investigator:Sharyn Potter; Organization:University of New Hampshire;NSF Organization:SMA Start Date:11/01/2023; Award Amount:\$89,587.00; Relevance:48.0;

**Collaborative Research: Ethical Considerations in Three-Dimensional Digitization of Indigenous Heritage**  
Award Number:2325183; Principal Investigator:Medea Csoba-DeHass; Co-Principal Investigator:; Organization:University of Missouri-Columbia;NSF Organization:SES Start Date:10/01/2022; Award Amount:\$91,609.00; Relevance:48.0;



# 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.





# Preparing to Create a Proposal

Strategies include but are not limited to:

- Reading award abstracts from the program
- Checking if colleagues might share proposals they have written
- Being diligent about searching for potential partners/collaborators:
  - within the department;
  - in another department at the institution;
  - across institutions; and/or
  - outside of academia



# Preparing to Create a Proposal (continued)

Strategies include but are not limited to:

- Read the program solicitation carefully and evaluate whether your team's plans are within the scope of the solicitation
- Contact the relevant program officer for information as needed
- Consider being a reviewer for the 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



# Resources at Your Organization

- Check if your organization has grant development support; for example:
  - Writing specialists
  - Experts with creating budgets
  - Workshops on proposal writing
- Learn about the approval process internal to the organization; for example:
  - Institutional Review Board (IRB) for humans subjects research
  - Institutional Animal Care and Use Committee (IACUC) for non-human vertebrate animal research
- Review information from your sponsored programs office





# Required Components for a Proposal

These include but 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**.



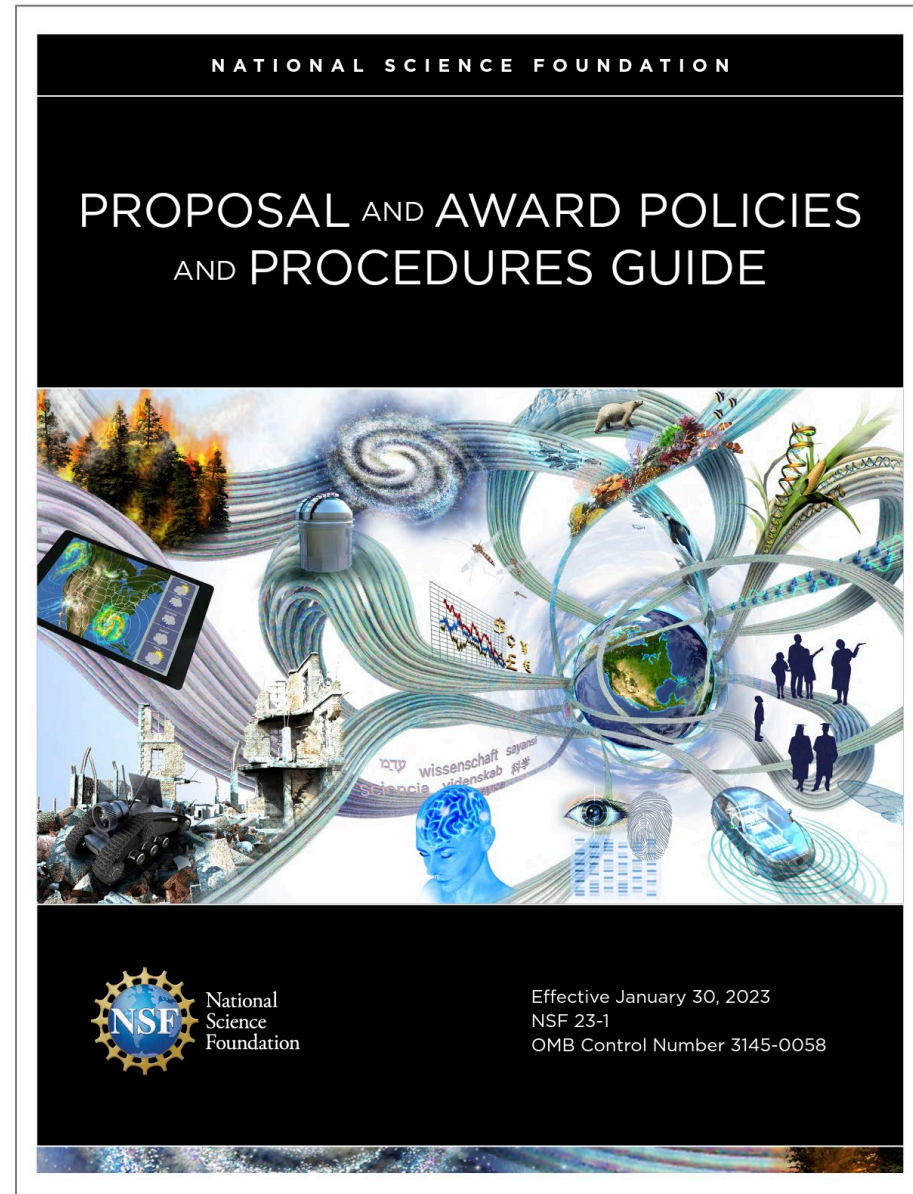
# Additional Review Criteria for Institutional Transformation Proposals

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>





# Resources on the NSF Website

- Consider signing up for SBE email updates:  
[https://public.govdelivery.com/accounts/USNSF/subscriber/new?to\\_pic\\_id=USNSF\\_108](https://public.govdelivery.com/accounts/USNSF/subscriber/new?to_pic_id=USNSF_108)
- Some funding opportunities may also show up in NSF's blog website: <https://new.nsf.gov/blog>
- NSF program websites may list webinars or other events



# NSF's Funding Search Tool: <https://new.nsf.gov/funding/opportunities>

The screenshot displays the NSF Funding Search Tool interface. At the top left is the NSF logo. The navigation menu includes 'Find Funding & Apply', 'Manage Your Award', 'Focus Areas', 'News & Events', and 'About'. A search bar at the top right contains the text 'Search NSF'. Below the navigation is a breadcrumb trail: 'Home / Funding at NSF / Funding search'. A secondary search bar contains the text 'ethics', a dropdown menu set to 'All fields', a 'Search' button, and an information icon. Below the search bar, it indicates '20 results for "ethics"' and provides a link to 'Export results .csv'. A note states: 'This Funding Search contains only current opportunities. Archived funding opportunities are hosted at the legacy NSF website. Please let us know what you think of the new search by completing a three-question survey, or by emailing us at [nsf-gov-feedback@nsf.gov](mailto:nsf-gov-feedback@nsf.gov)'. A 'Filter' section contains six dropdown menus: 'Limited submissions', 'Award type', 'Advancing diversity', 'Directorate', 'Division', and 'Education level'.

Can  
select  
SBE



# 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](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)**.



For more information...



Ethical and Responsible Research (ER2)

Jason Borenstein  
[jborenst@nsf.gov](mailto:jborenst@nsf.gov)

<https://new.nsf.gov/funding/opportunities/ethical-responsible-research-er2>

