National Science Foundation Research Traineeship (NRT) and Innovations in Graduate Education (IGE) Programs

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NRT Office Hours Meeting

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NSF Research Traineeship

Encouraging the development of innovative models for interdisciplinary/convergent STEM graduate training

Key Traineeship Elements

- Interdisciplinary/convergent research & training
- Professional development
- Inclusive workforce development
- Institutional transformation
- Sustainability

Training & Research spans all NSF Directorates

Computer & Information Science & Engineering

Geosciences

Engineering

NSF Research Traineeship Program

Biological Sciences

Mathematical & Physical Sciences

Technology, Innovation & Partnerships

Social, Behavioral & Economic Sciences

STEM Education

NRT Awards and Eligibility - NSF 21-536

- Track 1: Up to **$3 million** for projects up to 5 years
- Track 2: Up to **$2 million** for projects up to 5 years
  (R1 institutions are not eligible for Track 2 awards)

- Minority Serving Institutions including Historically Black Colleges and Universities are encouraged to apply for all tracks for which they are eligible

Full Proposal Deadline (due by 5 p.m. submitter's local time): **September 6, 2023 (check website for next year's deadline)**

See NRT landing page for program updates:
https://nsf.gov/funding/pgm_summ.jsp?pims_id=505015

Key Elements of a Successful NRT Program

Institutional Transformation & Inclusive Workforce Development

Training
Interdisciplinary/Convergent

Professional Development
Teamwork, Communication, Ethics, Leadership,
Internships, Entrepreneurship, etc.

Research
Interdisciplinary/Convergent

Interdisciplinary/Convergent Research

Thematic area:
- **Open** to any theme of national importance
- Priority areas encouraged in each solicitation

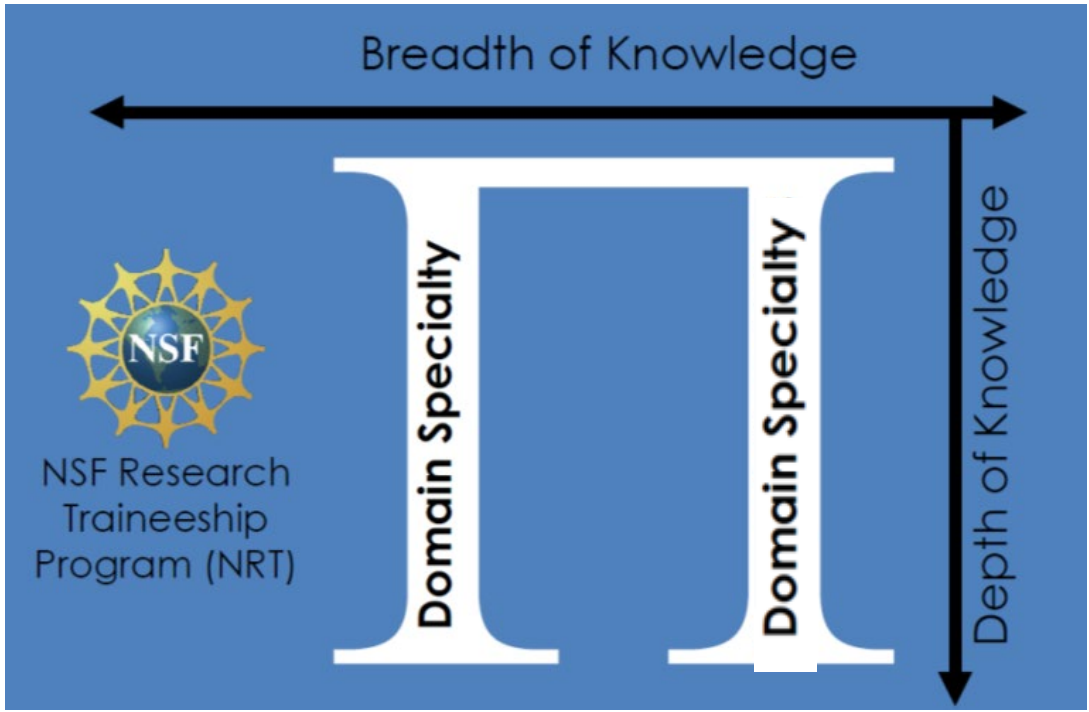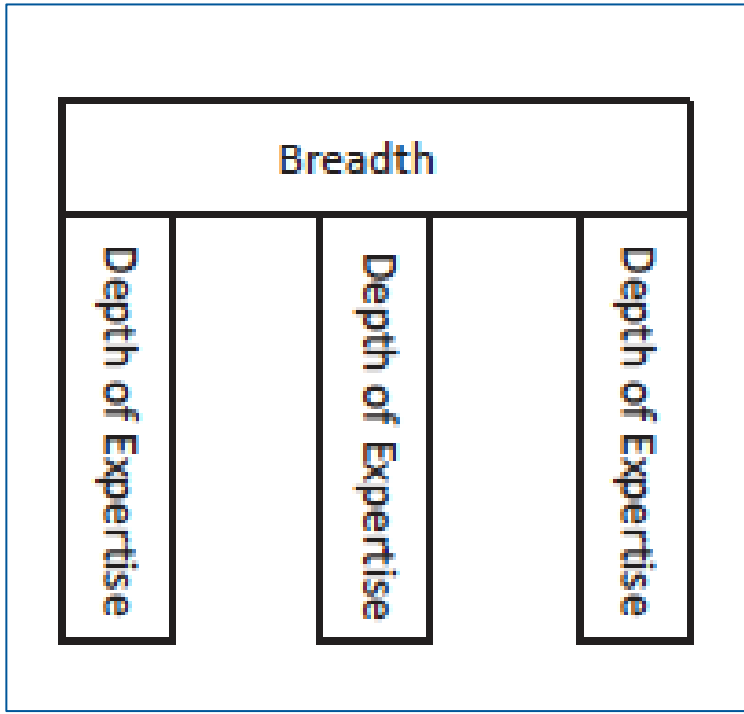| Current Priority Areas |
| --- |
| Artificial Intelligence |
| Quantum Information Science and Engineering |
| Harnessing the Data Revolution |
| Future of Work at the Human Technology Frontier |
| Windows on the Universe |
| Navigating the New Arctic |
| Understanding the Rules of Life |

Training Model

PI-shaped training model

Comb-shaped training model

NRC (National Research Council). 2014. Convergence: Facilitating Transdisciplinary Integration of Life Sciences, Physical Sciences, Engineering, and Beyond. Washington, DC: The National Academies Press.

Training Considerations

Integrate training and research

- Do not extend time to degree
- Carefully consider the content-area and career-aligned skillsets integrated with research and training
  - Training is for broad workforce development: academia, research, government, industry, non-profit sector…
- Clearly define: *Who is a trainee*?
  - What programs/depts/institutions will they come from?
  - How will they be recruited?
  - How do you know your recruitment plan will be successful?
  - What will be needed to support and retain through degree/program completion?
  - How will trainee be funded after NRT funding ends?

Professional Development

Integrate professional development with both research and teaching

Required Skills Areas:
- Ethics
- Teamwork
- Communication
- Other skills needed specifically by your NRT

Inclusive Workforce Development

All NRT Proposals Must include:

Recruitment, Mentoring, and Retention Plans with a particular emphasis on broadening participation of students from groups underrepresented in STEM fields.

Demographic Table with quantitative data showing recruitment (enrollment), retention, and graduation outcomes of graduate students from underrepresented groups and, separately, for majority students in participating departments for the five years preceding the submission date, including time-to-degree completion.

Diversification Strategy detailing the <u>evidence base</u> for the recruiting, mentoring, retention, and broadening participation strategies; the rationale for strategies used; and successes that will be leveraged through the project.

Institutional Change

- NRT should align with mission of institution
  - A letter of institutional support from a senior administrator is **required**

- Expectations of sustainability
  - Clearly address the sustainability plan for program after NSF funding ends
  - Sustainability should be supported by the institutional letter

Project Evaluation:
a critical component

- Unbiased evaluator (internal, external or a combination). For internal evaluators, <u>clearly explain how lack of bias is ensured</u>.
- Include evaluator in the proposal preparation
  - **The lead evaluator must be named and appear on the table of 10 NRT core participants (Section 3a.)**
- The evaluation plan should align with the stated NRT goals and objectives
- <u>ALL</u> areas of the NRT (research, training, professional development, etc.) must be evaluated
- Ensure program is benefiting from feedback (formative and summative assessment) <u>throughout</u> the project period

Innovations in Graduate Education (IGE)

IGE is dedicated to:

(a) piloting, testing, and validating innovative approaches to graduate education, and

(b) generating the knowledge required for the customization and implementation of the most successful, transformative approaches.

FY 2024 Deadline = March 25, 2024 (IGE Proposals)
Max. award size: $500k over 3 years

Contact: ige@nsf.gov

Features of IGE

- Generate the knowledge base to inform development, implementation, and adaptation of new approaches to STEM graduate education.

- Catalyze rapid advances in STEM graduate education broadly and in response to disciplinary and interdisciplinary fields.

- Design, pilot, and test new, innovative and transformative approaches for STEM grad education.

- Develop targeted test-bed projects that are informed by learning science and the existing body of knowledge about STEM graduate education.

NSF

The IGE is NOT intended for:

- Comprehensive or mini traineeship projects,
- Development of new degree programs, or
- Foundational research on how graduate students learn.

Rather, the IGE promotes <u>research</u> to test targeted innovative interventions to improve particular areas of STEM graduate education.

Thanks for your attention!