

National Science Foundation Funding Opportunities for Early-Career Researchers

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Agenda

- Introductions
- Review NSF programs geared towards early career faculty
- How to contact the NSF program director and write the concept outline
- Overview of the NSF merit review process and criteria

Who We Are

- PRISSEM Academic Services, LLC, a Black-owned company, was founded by Dr. Falcon Rankins in 2005 with the goal of helping HBCU STEM faculty thrive.
- Dr. F. Rankins brings a host of experience working closely with STEM faculty at HBCUs to develop research plans, obtain funding, and successfully carry out funded projects.
- Dr. Claudia Rankins brings 12 years of experience as program officer for the NSF HBCU-UP, CAREER, and HBCU Excellence in Research programs, having managed a portfolio of \$400m in awards, mostly to HBCUs. She also has over 20 years of experience in STEM faculty and administrative positions at an HBCU.

What we do

- Individualized grant- and professional development activities
- Project management and grant development services for individual investigators and teams
- NSF grant development workshops
- Strategic planning meetings with institutional leadership

Introduce yourself

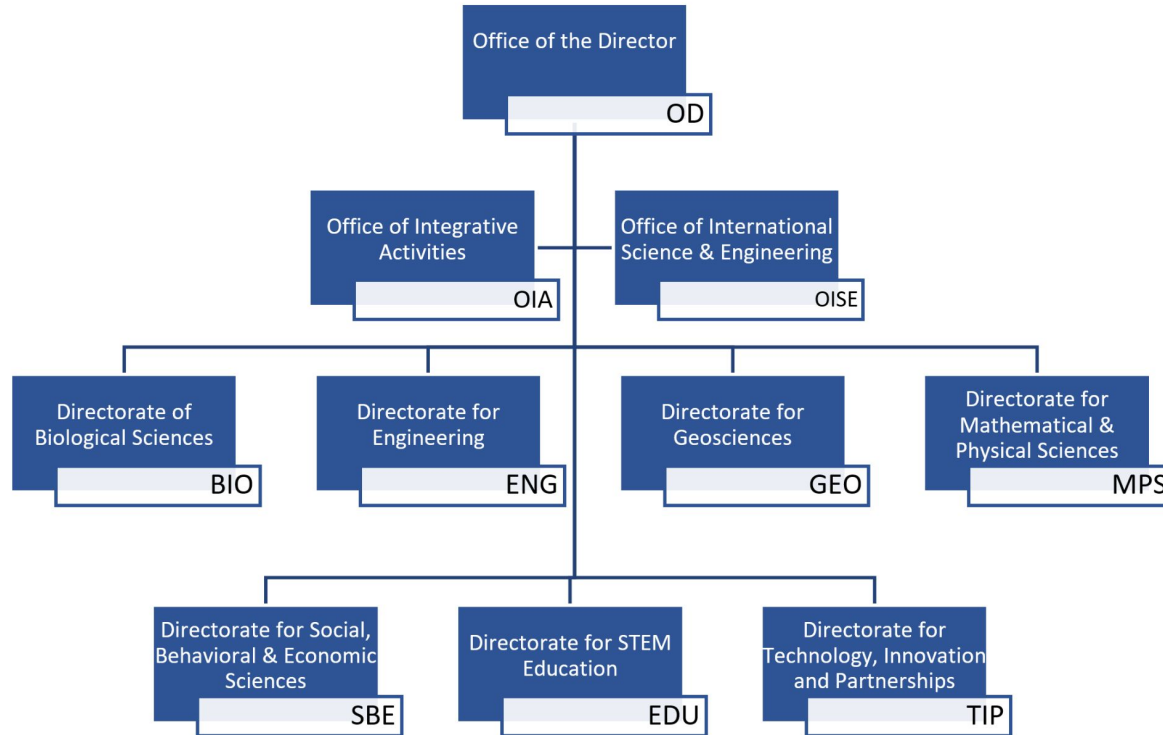
- Your name
- Your academic rank/job title
- Your discipline

National Science Foundation

“To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes.” –National Science Foundation Act of 1950, Public Law 507-81st Congress

- NSF supports research across all non-medical fields of science and engineering and S&E education through more than 300 programs
- In FY 2022, NSF...
 - has a budget of \$8.8 billion for STEM research and education & human resource activities
 - Is the funding source for ~27% of federal supported basic research conducted by colleges universities
 - Makes about 12,000 new awards annually, primarily through grants.

NSF Directorates

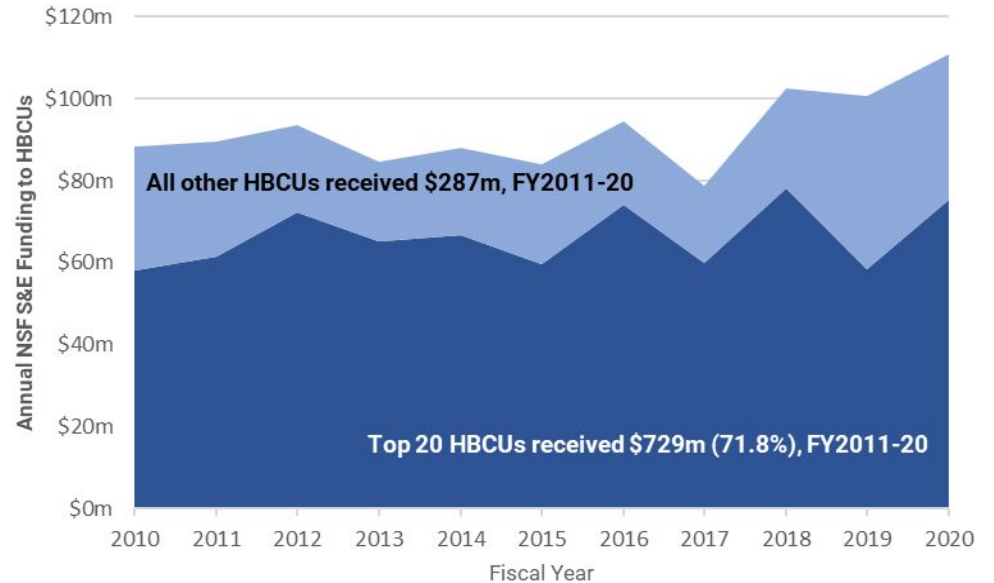


NSF funding landscape of HBCUs

Current funded projects at **TSU**, by NSF directorate:

NSF Directorate	# Awards
EDU	11
ENG	9
CISE	5
MPS	9
OISE	1
SBE	3
BIO	0
GEO	7

NSF awarded HBCUs \$1.02b in Science & Engineering funding, FY2011-20



What NSF is interested in

- Research across all non-medical fields of science and engineering and S&E education that fits well within the established programs in the directorates/offices or that cut across directorates - such as the 10 Big Ideas
- Occasionally, Congress names areas of research that are of urgent or current need for the national well-being
- Projects with intellectual merit *and* broader impacts

What NSF does NOT fund

- Research with disease related goals, including animal research in that area
- Clinical, counseling, business administration or management, education (except STEM), history (except STEM) areas
- Pharmacologic and other interventions for disease prevention, diagnosis or therapy.

Submitting a proposal that is deemed by the program director to NOT fit into NSF's portfolio is grounds for Return without Review.

Funding opportunities to consider

NSF has about 300 programs to which you can apply, most of them in very specific areas of a STEM discipline.

We have prepared a [handout with some opportunities](#) to consider grouped in the following 3 areas:

- Disciplinary research and research infrastructure
- STEM education research
- Understanding and improving implementation in STEM education

Two Programs for HBCU faculty only

- **HBCU-Undergraduate Program** [NSF 23-563](#) - supports faculty researchers without prior/recent research awards through Research Initiation Awards. There are also tracks for STEM education implementation projects, as well as broadening participation research.
- **HBCU Excellence in Research** [NSF 20-542](#) - supports HBCU research capacity building by funding projects aligned with NSF's research programs.
- HBCU Excellence in Research [DCL 23-067](#) for planning grants
- Both programs/tracks support projects in **all** NSF funded research areas, including STEM education research and social and behavioral science research.

Select Programs as Entry Pathways into NSF

- **Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS)** [NSF 22-604](#) - supports pre-tenure faculty in astronomy, chemistry, materials science, mathematics, and physics at MSIs, PUIs, and R2 institutions.
- **Computer and Information Science and Engineering Research Initiation Initiative (CRII)** [NSF 22-598](#) - supports early-career academicians who specifically lack access to adequate organizational or other resources.
- **Engineering Research Initiation (ERI)** [NSF 22-595](#) - supports faculty from non-R1 institutions who have not yet received federal funding.

Select Programs as Entry Pathways into NSF

- **Building Research Capacity of New Faculty in Biology (BRC-BIO)** [NSF 22-500](#)
- supports pre-tenure faculty in biological sciences at institutions that do not receive significant NSF funding in this field.
- **CAREER** [NSF 22-586](#) - NSF wide program for assistant professors who are untenured (or in an equivalent position). NSF's most prestigious award for early career faculty.

Where do CAREER awards go?

4,943 CAREER awards were made from 2017-2022

Institution type	No. of CAREER Awards	Sum of Awards
HBCUs	15	\$9,276,918
All other IHEs	4,938	\$2,876,378,063
HBCU percentages	0.3%	0.3%

Note: ~3.3% of 4yr IHEs are HBCUs

More on CAREER

- Solicitation [NSF 22-586](#) clearly outlines eligibility requirements and lists the CAREER proposal specific requirements
- One of the few solicitations that lists reasons for “return without review”
- PECASE - Presidential Early Career Awards for Scientists and Engineers
- General questions? Email: nsf-ccc@nsf.gov
- Specific questions, fit of proposal, contact the [director representative](#) or the program director

More on CAREER

- Deadline is 4th Wednesday in July
- You must still be untenured and assistant professor by the **submission** deadline
- Be sure to pay attention to the required education component and the letter from the chair. Research **and** education must be integrated in a CAREER proposal.
- **Lower** limit on budget

Programs focusing on STEM education research

- **EHR Core Research (ECR)** [NSF 21-588](#) - supports fundamental research (curiosity-driven basic research and use-inspired basic research) that contributes to the knowledge that underlies STEM education in one or more of: Research on STEM Learning and Learning Environments, Research on Broadening Participation in STEM fields, and Research on STEM Workforce Development.
- **ECR: Building Capacity in STEM Education Research** [NSF 22-548](#) - supports activities that enable researchers to expand their areas of expertise and acquire the requisite knowledge and skills to conduct rigorous research in STEM education.

STEM student and education specific funding opportunities

These opportunities are announced through a solicitation

- **HBCU-Undergraduate Program [NSF 23-563](#)** - Targeted Infusion Projects support projects that enhance and innovate undergraduate STEM education
- **IUSE Improving Undergraduate STEM Education [NSF 23-510](#)** - supports novel, creative, and transformative approaches to generating and using new knowledge about STEM teaching and learning
- **S-STEM NSF Scholarships in STEM [NSF 23-527](#)** - scholarship support to enable low-income students with academic ability, talent or potential to pursue successful careers in promising STEM fields
- **REU Research Experiences for Undergraduates [NSF 22-601](#)** - support for active research participation by undergraduate students in any of the areas of research funded by NSF

Other funding opportunities per PAPPG

- EAGER proposals
- RAPID proposals
- RAISE proposals
- Equipment proposals
- Supplements to proposals
- Conference/workshop proposals

Please read the PAPPG for instructions on the concept outline

Opportunities for undergraduate students

- Assist your students with applying for the Graduate Research Fellowship.
 - Applications are typically due in October.
 - The solicitation for the next competition is not yet released.
 - Undergraduate seniors and Bachelor's degree holders who have never enrolled in a graduate degree program have no restrictions on the number of times they can apply before enrolling in a degree-granting graduate program.

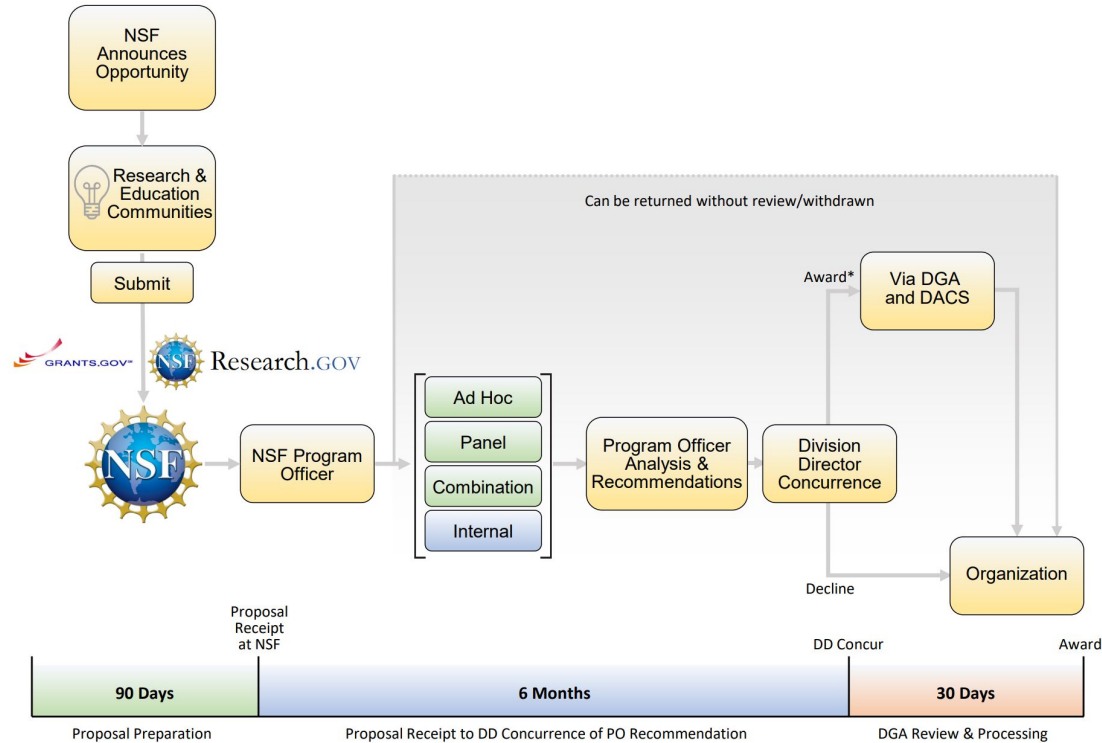
- Point your students to the REU (Research Experiences for Undergraduates) for students [site](#), where they can see all of the current funded sites and the topics of research that are offered.

Ask yourself this

*Do you understand, cultivate and guard the most impactful and unique aspects of your work as a scholar? Not what an **institution** or **mentor** prioritizes and **tells** you is important through metrics, **rewards**, reprimand and mentoring as **imprinting**, but the unique thing you offer?*

-Dr. Beronda Montgomery

NSF Merit Review Process



* In accordance with Chapter III.F, the Division of Grants and Agreements (DGA) or the Division of Acquisition and Cooperative Support (DACs) may decline a proposal recommended for award after conducting a review of business, financial and policy implications.

NSF merit review criteria

- **Intellectual Merit** – potential to advance knowledge
- **Broader Impacts** – potential to benefit society and contribute to achievement of specific, desired societal outcomes
- Proposers must fully address both criteria
- Other considerations:
 - Creativity and transformative potential valued
 - Plan must be well-organized and well-reasoned
 - Project team must be qualified
 - PI must have adequate resources available

If following a solicitation, also check for solicitation-specific review criteria.

Merit Review Principles

Per the PAPPG:

All NSF-funded projects must:

- Be of the highest quality and have potential to advance knowledge ← **Intellectual Merit**
- Contribute to societal goals ← **Broader Impacts**
- Be assessed and evaluated based on appropriate metrics ← **Evaluation**

**Write in the chat which NSF
directorates/divisions/programs you are
planning to submit a proposal to**

When to contact the program director (PD)

- For Excellence in Research, you are strongly advised to contact the PD (see NSF 20-542).
- For RAPID, EAGER, RAISE, planning proposals, you must submit a concept outline to the PD or via ProSPCT (see PAPPG Chapt II F).
- For conference/workshop proposals, equipment proposals, or supplements contact the PD with a concept outline.
- If your idea does not clearly fit into a program or if you are unsure that it is a good fit for NSF, contact one or more PDs.
- If you plan to submit a research proposal, it is a great idea to contact a PD.
- If you are responding to a solicitation like HBCU-UP or S-STEM and the expectations are clearly described, there may not be a need to contact a PD, as long as you adhere to the solicitation guidelines.

Preparing a Concept Outline

A concept outline is a concise summary of a project idea that contains information about:

- the prospective PI(s),
- potentially germane NSF organizational unit(s),
- project title,
- keywords,
- brief narrative descriptions of the idea and fit to any special criteria required for the proposal type or funding opportunity.

The primary purpose of requiring a concept outline is to ensure that the concept being proposed by the prospective PI is appropriate for the proposal type/funding opportunity.

Tips on contacting program directors

- Generally sending an e-mail is better than calling; it is ok to follow-up after a few days if no response is received
- Do not mass email - multiple program directors may work on a program, talking to many creates redundancy
- Be specific in what you are asking for:
 - advice on where to submit an idea
 - feedback on a concept outline to a program
 - procedural advice (be sure to first look for the answer in the PAPPG or solicitation)
- Send your CV if you are interested in serving on a panel or being considered for ad hoc reviews

Reminder:

Program Directors are *your* peers

Additional Tips

- Reach out to colleagues about their experiences with NSF
- Search the NSF awards site for projects funded in the program you are submitting to
- Volunteer to serve on a review panel
- Serve on NSF committees, such as committee of visitors, advisory panels and committees, such as site visit committees

One last thought

Let's imagine a science that is made better in ways we aren't yet capable of imagining, because we don't understand what is important and valuable to the people who we have been actively excluding from science.

- Dr. Falcon Rankins

Questions/thoughts