

# **MORGAN: Leading the Future**

**The Role the National Science Foundation Can Play**

**Morgan State University**  
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**PRISSEM Academic Services, LLC**  
**Claudia Rankins, PhD**  
**Falcon Rankins, PhD**

# Who We Are

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- 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.

# Agenda

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- Introduction to NSF
- Review NSF programs geared towards new or single investigators
- Programs/initiatives that may support Morgan's "Peaks of Excellence"
- Contacting the program officer
- Q&A

# National Science Foundation

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*“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*

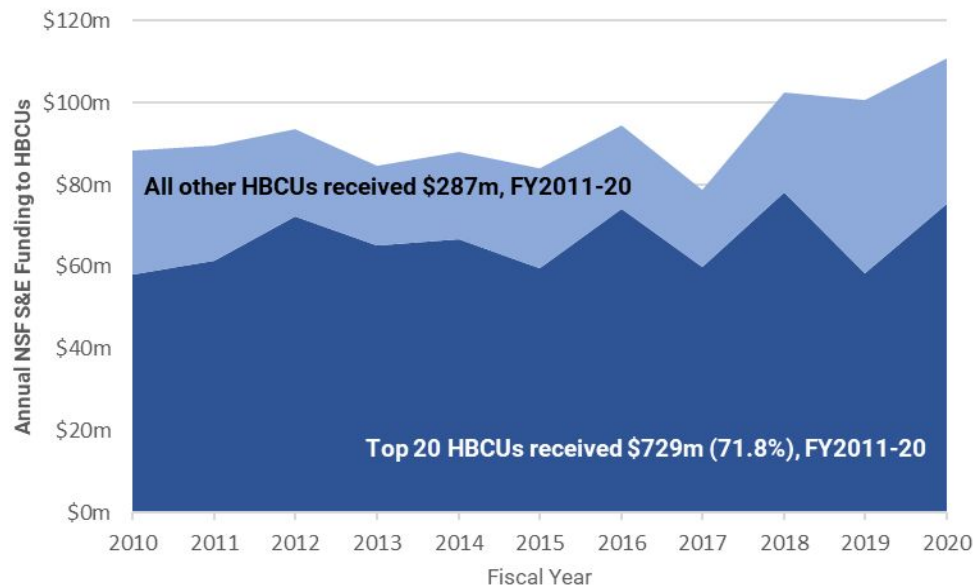
- NSF supports research across all non-medical fields of science and engineering and S&E education through more than 300 programs
- In FY 2022, NSF...
  - Has a budget of \$8.8 billion for STEM research and education & human resource activities
  - Is the funding source for ~27% of federal supported basic research conducted by colleges universities
  - Received 39,140 proposals and funded 10,970 (28%) of them. [NSF by the Numbers.](#)

# NSF funding landscape of HBCUs

Current funded projects at **MSU**, 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



# Funding opportunities to consider

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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

# Other funding opportunities per PAPPG [NSF 23-1](#)

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

Please read the PAPPG for instructions on the concept outline

# Two Programs for HBCU faculty only

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- **HBCU-Undergraduate Program** [NSF 23-563](#) - supports faculty researchers without prior/recent research awards through Research Initiation Awards.
- **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

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- **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

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- **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.
- **Build and Broaden (B2)** [NSF 22-638](#) - supports fundamental research and research capacity across all SBE disciplines at minority-serving institutions.
- **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.

# Pathways and Opportunities for Single/New Investigators

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EIR Planning Grant	⇒	Excellence in Research	⇒	Research directorate
Research Initiation Award	⇒	Excellence in Research	⇒	Research directorate
Directorate Pathway Program	⇒	Excellence in Research	⇒	Research directorate
Research Initiation Award	⇒	CAREER	⇒	Research directorate
Directorate Pathway Program	⇒	CAREER	⇒	Research directorate

# An example - what getting your foot in the door can do

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## **CAREER: Studies in Hadronic Structure and Dynamics**

Award Number:9733343; Principal Investigator:Jose Goity; Co-Principal Investigator;; Organization:Hampton University;NSF Organization:PHY Start Date:**09/01/1998**; Award Amount:\$249,968.00; Relevance:96.0;

## **Hadronic Structure and Dynamics**

Award Number:0300185; Principal Investigator:Jose Goity; Co-Principal Investigator;; Organization:Hampton University;NSF Organization:PHY Start Date:**09/01/2003**; Award Amount:\$170,651.00; Relevance:96.0;

## **Hadronic Structure and Dynamics**

Award Number:0555559; Principal Investigator:Jose Goity; Co-Principal Investigator;; Organization:Hampton University;NSF Organization:PHY Start Date:**09/01/2006**; Award Amount:\$196,739.00; Relevance:96.0;

## **Hadronic and Nuclear Structure and Dynamics**

Award Number:0855789; Principal Investigator:Jose Goity; Co-Principal Investigator;; Organization:Hampton University;NSF Organization:PHY Start Date:**09/01/2009**; Award Amount:\$225,000.00; Relevance:96.0;

## **Hadronic and Nuclear Structure and Dynamics**

Award Number:1307413; Principal Investigator:Jose Goity; Co-Principal Investigator;; Organization:Hampton University;NSF Organization:PHY Start Date:**06/01/2013**; Award Amount:\$214,243.00; Relevance:96.0;

## **Hadronic and Nuclear Structure and Dynamics**

Award Number:1613951; Principal Investigator:Jose Goity; Co-Principal Investigator;; Organization:Hampton University;NSF Organization:PHY Start Date:**06/15/2016**; Award Amount:\$289,812.00; Relevance:96.0;

## **Hadronic and Nuclear Structure and Dynamics**

Award Number:1913562; Principal Investigator:Jose Goity; Co-Principal Investigator;; Organization:Hampton University;NSF Organization:PHY Start Date:**08/01/2019**; Award Amount:\$239,948.00; Relevance:96.0;

# Make sure grants work for you - not the other way around

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- Think about what you want out of your life and career
- Understand what you need to reach these goals
- Ask how the grant can help you achieve your broader goals
- Prioritize the grant/funding opportunities that do the most to get you to your goals
- Recognize that this path may require patience
- Know that your interests outside of “science” are valid and valuable, too

# Morgan State “Peaks of Excellence”

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The 2021-2030 MSU strategic plan lists the following research areas from which it will to identify “peaks of excellence”

Advanced Manufacturing	Commercial Rocketry and Hypersonics
Artificial Intelligence and Machine Learning	Cybersecurity for IoT Devices
Biotechnology/Engineering Biology	Data Analytics
Brain Science	Urban Health Equity
Climate Science	STEM Education

# Larger Scale Projects in the EDU Directorate

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- After 3 **HBCU-UP implementation projects** ⇨ Broadening Participation Research Center
- **Racial Equity in STEM** [NSF 22-634](#) - support for projects that contribute to advancing racial equity in STEM education and workforce development through practice and/or fundamental or applied research
- **CREST** - no current solicitation - provides support to enhance the research capabilities of minority-serving institutions (MSI) through the establishment of centers that effectively integrate education and research
- **INCLUDES** [NSF 22-622](#) - seeks to motivate and accelerate collaborative infrastructure building to advance equity and sustain systemic change to broaden participation in STEM fields at scale through 5 different tracks

# The Directorate for Technology, Innovation & Partnerships

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The [TIP](#) Directorate advances use-inspired and translational research in all fields of science and engineering, giving rise to new industries and engaging all Americans – regardless of background or location – in the pursuit of new, high-wage jobs in STEM.



# The SBE Directorate

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The Social, Behavioral, and Economic Sciences Directorate offers funding opportunities for research in many disciplines that we don't always associate with NSF

- Most programs have a program description and target dates
- The directorate offers postdoctoral fellowships
- Some programs offer doctoral dissertation fellowships
- Two programs focus on broadening participation:
  - **Build and Broaden** ([NSF 22-530](#))
  - **Science of Broadening Participation** ([PD](#))
- SBE programs have relatively small budgets
- Let's take a look at the [SBE](#) website

# Additional funding opportunities

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- **Major Research Instrumentation (MRI)** [NSF 23-519](#) - supports requests for up to \$4 million from NSF for the development or acquisition of multi-user research instruments that are critical to the advancement of science and engineering.
- **Smart Health and Biomedical Research in the Era of AI and Advanced Data Science** [NSF 21-530](#) - supports development of transformative advances in computer and information science, engineering, mathematics, statistics, behavioral and cognitive research to address pressing questions in the biomedical and public health communities.

# Programs focusing on STEM education research

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- **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.
- **Science and Technology Studies** [NSF 22-629](#) - an interdisciplinary program that investigates the conceptual foundations, historical developments and social contexts of STEM, **including medical science**.

# STEM student and education specific funding opportunities

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*These opportunities are student focused, but should still be treated as STEM education research*

- **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

# Opportunities for undergraduate students

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- Assist your students with applying for the **Graduate Research Fellowship Program**.
  - 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 **Research Experiences for Undergraduates (REU)** for students [site](#), where they can see all of the current funded sites and the topics of research that are offered.

# When to contact the PD

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- For Excellence in Research, you are strongly advised to contact the PO (see NSF 20-542).
- For RAPID, EAGER, RAISE, planning proposals, conference/workshop proposals, equipment proposals, or supplements, you must submit a concept outline to the PD (see PAPPG I D-1).
- 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 POs.
- 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

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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.

# Questions?

Contact us:

[crankins@prisse.com](mailto:crankins@prisse.com)