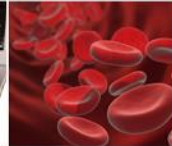# Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)

Implementation and Achieving Competitive Excellence Implementation Projects

Proposal Preparation Guidance Webinar 2022

Program Directors:
Carleitta Paige-Anderson, LeRoy Jones II, Tori Rhoulac Smith, Jeremy Guinn, Alfred Hall, Minerva Cordero, Toni Edquist (Specialist)
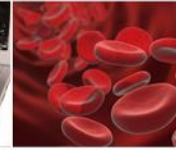
Letters of Intent due September 13, 2022
Full Proposals due November 10, 2022

Division of Human Resource Development (EHR)
**Directorate for Education and Human Resources (HRD)**
**National Science Foundation (NSF)**

Two Important Documents

The HBCU-UP program solicitation, NSF 20-559, is available at: Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) | NSF - National Science Foundation

The Proposal and Award Policies and Procedures Guide (PAPPG 22-1) is available at: PAPPG Introduction (nsf.gov). This guide gives you step by step instructions on proposal preparation in Chapter II.
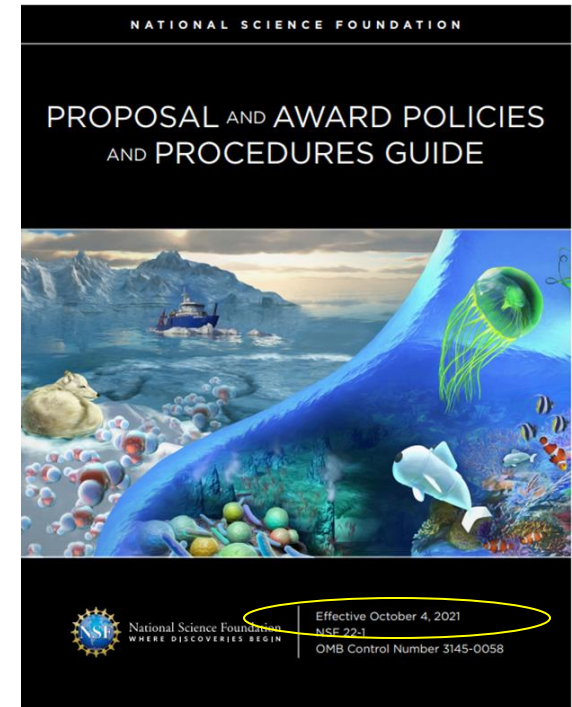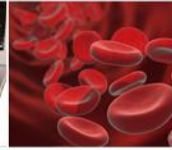
# Historically Black Colleges and Universities- Undergraduate Program

The Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) is committed to enhancing the quality of undergraduate science, technology, engineering, and mathematics (STEM) education and research at Historically Black Colleges and Universities (HBCUs) as a means to broaden participation in the Nation's STEM workforce.
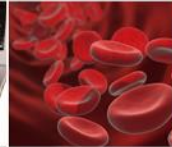
HBCU-UP Supports

Development, implementation, and the study of evidence-based, innovative models and approaches to prepare HBCU undergraduates for STEM workforce.

- ✓ **Innovation in instruction and curriculum development**
- ✓ STEM research experiences for undergraduates
- ✓ Critical transitions (K-12 to undergraduate, 2-year to 4-year, retention from freshman to sophomore, undergraduate to graduate)
- ✓ STEM faculty professional and leadership development
- ✓ Enhance STEM faculty research
- ✓ Research capacity building
- ✓ Broadening participation research in STEM Education
- ✓ STEM teacher preparation
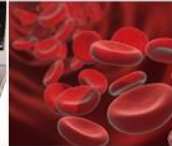
How do you seek to advance STEM Education and Research?

Faculty Research

- Broadening Participation Research in STEM Education
- Research Initiation Awards (RIA)
- HBCU-Excellence in Research*

Institutional Change

- Targeted Infusion Projects (TIP)
- Implementation Projects (IMP)
- Achieving Competitive Excellence Projects (ACE)

National Impact

- Broadening Participation Research Centers (BPRC)

Implementation Projects (IMP)

- Provide support to design, implement, study, and assess comprehensive institutional efforts for increasing the number of students receiving undergraduate degrees in STEM and enhancing the quality of their preparation by strengthening STEM education and research.

Achieving Competitive Excellence (ACE) Implementation Projects

- Intended for HBCUs with exemplary achievements and established institutionalized foundations from previous Implementation Project grants.

Number of awards: up to 6 (IMP) and 1 (ACE) in FY 2023

Project Length:

– <u>IMP</u>: Up to 4 years for 1st round Implementation Projects; up to five years for 2nd and 3rd round Implementation Projects

– <u>ACE</u>: Up to five years

Implementation and ACE IMP Projects

- Award Size:
  - <u>IMP</u>: Up to $1.25 million for 1st round IMP Projects; up to $2.25 million for 2nd and 3rd round IMP Projects
  - <u>ACE</u>: Up to $3 million

- Restrictions: Equipment costs may not exceed 30% of the total budget request

- The Principal Investigator and co-Principal Investigators for an **Implementation Project and ACE Implementation Project must** be the key personnel that will be responsible for guiding the implementation of the project.
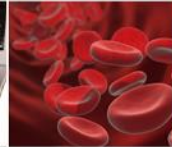
Implementation and ACE IMP Projects

- Eligibility: Historically Black Colleges and Universities (HBCUs) that are accredited and offer undergraduate educational degree programs in science, technology, engineering and mathematics (STEM).

- An eligible institution can submit only **one** Implementation Project or ACE Implementation Project proposal **per year**.

  - An institution **may have only one active** Implementation Project or ACE Implementation Project award. However, a new proposal can be submitted by an institution with an active project if that project is due to expire before new awards will be made. Also, an institution can be awarded, at most, three Implementation Projects and one ACE Implementation Project over time.

- Limit on Number of Proposals per PI or Co-PI: 2

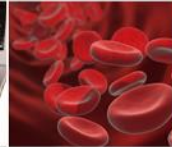- Project title must begin with "Implementation Project: Title or ACE Implementation Project: Title".
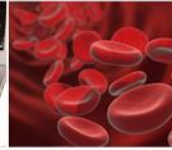
Implementation Projects

- Should create and/or adapt and assess evidence-based models and materials for teaching and learning in STEM, embody knowledge about how students learn most effectively in STEM teaching and learning activities, and bring STEM disciplinary advances into the undergraduate experience.

- Innovative models and tools for STEM teaching and learning developed through an Implementation Project should be part of comprehensive institutional reform to enhance STEM teaching and learning and improve student access and retention in STEM areas.

- Implementation Projects should establish sustainable practices that prepare students to compete successfully for graduate research fellowships.

- The recruitment and retention of veterans in STEM fields as a means to diversify and increase the STEM workforce is encouraged.
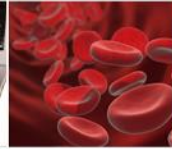
Implementation Projects

- Activities and strategies will be consistent with and complementary to the institution's STEM needs, long-term goals, and mission.

- The project plan should be clearly described, detailing measurable outcomes for STEM students (e.g. number and types of high-quality research experiences, number of students going on to graduate school or the workforce) and faculty (e.g. number of publications) of the proposed HBCU-UP activities.

- The proposal also should include activities for scholarly dissemination of project results and processes to inform the broader community about the effectiveness of specific implementation strategies.

- Projects may offer a postdoctoral research fellowship to a social science or educational researcher to provide opportunities early in his or her career and to work with this research project.

Institutions with previous IMP awards:

- It is critical that the proposal for another IMP Project provide complete information on the outcomes and impact of the previous IMP award, including a description of what was learned from the previous activities, how these findings were disseminated to the broader community, and how successful activities are being sustained at the institution.

- Implementation proposals from past awardees must not simply propose to continue the activities of the previous Implementation Project grant.

- The new proposal should be based on a thorough evaluation of the previous project and an assessment of the current state of the institution so that the project builds on progress and achievements and identifies new innovations undertaken to move the institution into the next level of STEM program competitiveness.

- The proposal should include a component that outlines a strategy for the creative integration of NSF-funded awards at the institution that are related to the proposed project's goals and scope.

- Proposals for a second round or subsequent Implementation Project must include a **research project** that is linked to the proposed interventions and strategies to formally study such strategies in the setting of the HBCU.

ACE Implementation Projects

- The goal of the ACE program is to help institutions to bolster their capacity and move onto the national landscape in undergraduate STEM education and research.

- ACE projects are ambitious, potentially transformative proposals that have the promise of significant advances in STEM undergraduate education at the institution.

- Institutions that have had previous Implementation Project grants should be able to exhibit an established foundation and to provide evidence of institutionalized achievements toward the HBCU-UP goals and objectives.

- Institutions submitting an ACE Implementation Project must include a component that outlines a strategy for the creative integration of NSF-funded awards at the institution that are related to the proposed project's goals and scope, and that describes how the institution thinks strategically about moving forward in STEM education and research.

- ACE Implementation Projects must include a research project that is linked to the proposed approaches and interventions to formally study such approaches in the setting of the HBCU. Projects may include a postdoctoral research fellow in social science or education research.
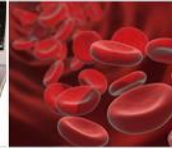
Implementation and ACE Implementation Projects

- Due Date and Time for proposals:
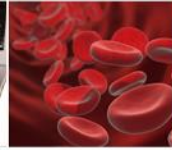
  November 10, 2022   5:00 pm proposer's time
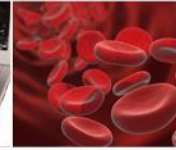
- The due dates are not negotiable and will not be extended.

- Because some Research.gov issues take a while to resolve, please submit early.
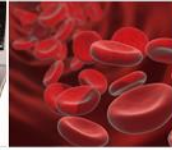
HBCU-UP MERIT REVIEW PROCESS

Proposal Preparation Instructions

NSF Merit Review Criteria:

Both criteria, **Intellectual Merit** and **Broader Impact** , will be given full consideration during the merit review and decision-making process. Each criterion is necessary but neither, by itself, is sufficient. Proposers must fully address both criteria.

The following elements will be considered in the proposal's review:

➢ What is the potential for the proposed activity to:

- advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
- benefit society or advance desired societal outcomes (Broader Impacts)?

Proposal Preparation Instructions

NSF Merit Review Criteria

➢ To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

➢ Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?

➢ How well qualified is the individual, team, or institution to conduct the proposed activities?

➢ Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?
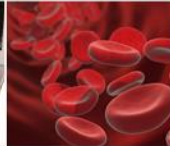
Proposal Preparation Instructions

## Additional Solicitation Specific Review Criteria

- Does the proposal describe a convincing rationale and appropriate methods for the project activities that are research-based/evidence-based?
- Are the project design and methods linked to measurable outcomes and are they appropriate to the scope, scale, and setting for the project?
- Is the project likely to produce high quality results that contribute to the undergraduate STEM education knowledge base?
- Is the project likely to have an impact on STEM education, student learning, and faculty practice?
- Is the project management plan adequate and does it include clear roles and responsibilities of the personnel who will contribute to the project?
- Is there commitment of the leadership to the implementation process?
- Does the evaluation plan define indicators and benchmarks to inform the project team and others about the operations and effectiveness of the implementation?
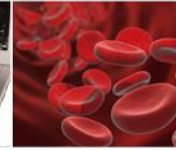- Does the project have a plan for effective and scholarly dissemination of results?

Proposal Processing: Average duration
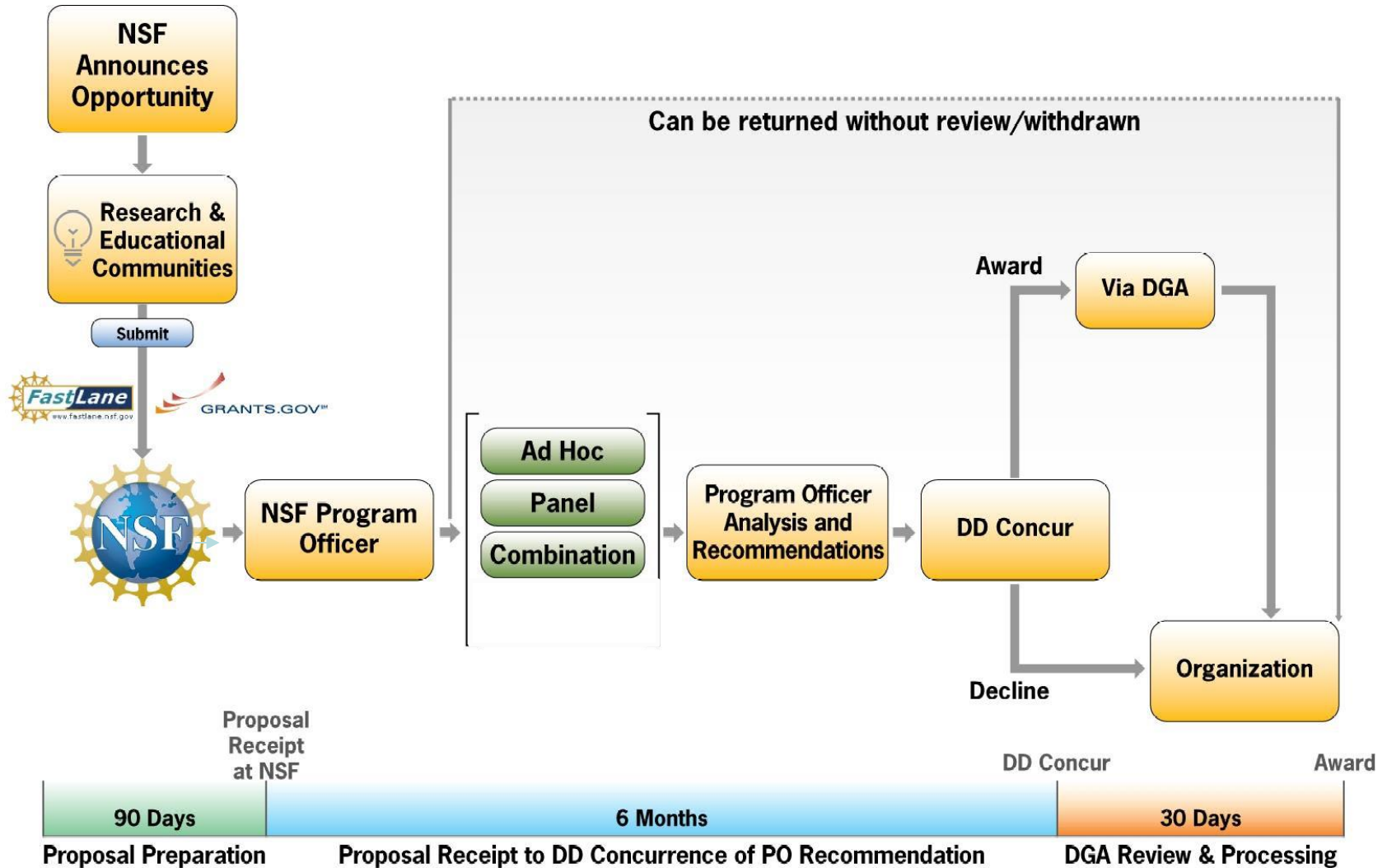
PROPOSAL PREPARATION INSTRUCTIONS

Research.gov (or grants.gov)

Proposal Preparation and Submission

About Proposal Preparation and Submission

- About Proposal Preparation and Submission
- Proposal Submission Capabilities
- Letter of Intent FAQs
- **Proposal FAQs** ⌄
  - General
  - Preliminary Proposals
  - Collaborative Proposals
  - Uploading Documents
  - Proposal Sections
  - Proposal Submission
  - Proposal Withdrawal
- **Proposal Statuses** ⌄
  - In Progress Statuses
  - Submitted Statuses
  - PFU/BR Statuses
- **Demo Site FAQs** ⌄

The Research.gov Proposal Submission System modernizes proposal preparation and submission capabilities by improving the user experience while also reducing administrative burden through an intuitive interface and expanded automated proposal compliance checking. NSF is transitioning all preparation and submission functionality for **new** proposals from FastLane to Research.gov when the *Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 23-1) goes into effect in January 2023. Research.gov proposal preparation and submission capabilities have been developed incrementally, and Research.gov is very near the point where it can support all of FastLane's proposal preparation and submission tasks. Please see NSF Important Notice 147: Research.gov Implementation Update ↗ issued September 22, 2020, for additional information. Grants.gov continues to be an option for the preparation and submission of most types of NSF proposals.

Access the Research.gov Proposal Submission System

Explore the Research.gov Proposal Preparation Demo Site

Why Prepare Proposals in Research.gov?
- Fast and easy Proposal Setup Wizard
- Quickly find funding opportunities, initiate a proposal, and give access to administrative staff
- Expanded compliance checking (View Research.gov compliance checks ↗)
- Immediate compliance feedback upon proposal section upload
- PDF uploads are not altered
- Minimizes the Return without Review of proposals due to some formatting issues
- On-screen references to relevant sections of the PAPPG
- Better management of personnel and subawards
- Improved performance and less system downtime

Help NSF Build and Refine the New System

When to Use Research.gov

You may prepare your proposal in Research.gov if:

1. You are preparing a proposal in response to a Program Description
2. Your Program Solicitation specifies submission via Research.gov is available or required or your Program Solicitation requires a Letter of Intent or Preliminary Proposal
3. Your proposal is a **full proposal, renewal, or accomplishment-based renewal, OR**
4. Your proposal is one of the following types:
   - **Research**
   - **Planning (Research.gov submission required)**
   - **RAPID**
   - **EAGER**
   - **RAISE**
   - **GOALI**

https://www.research.gov/research-web/content/aboutpsm

Would your university like to host a demonstration session? Contact rgovbusinessoffice@nsf.gov. Be sure to indicate the number of people expected to attend.

IMP/ACE Important Proposal Submission Details

Letter of Intent

September 13, 2022

Full Proposal

November 10, 2022
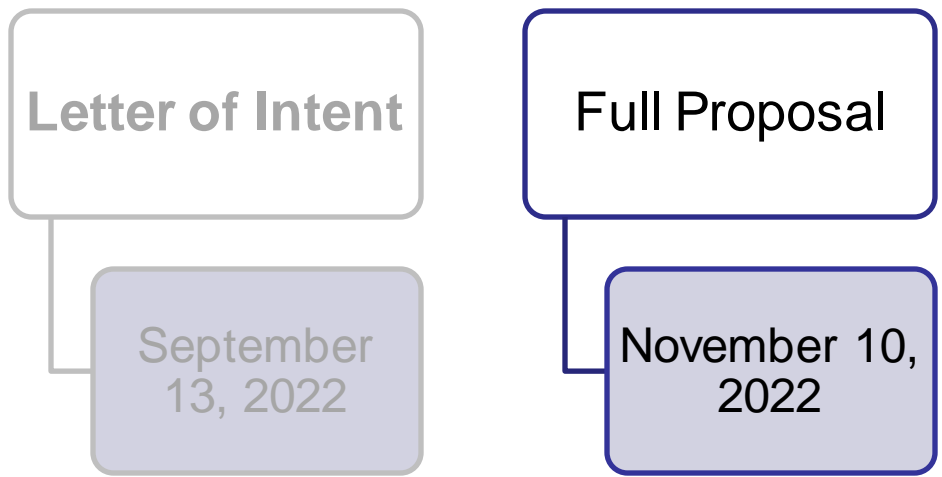
- ALL full proposals should be submitted via **research.gov (Do not use Fastlane)**
- LOIs are required for IMP/ACE full proposal submissions.
  - If LOI submitted via research.gov, associate LOI ID with the full proposal (insert in box).
  - If LOI submitted via Fastlane
    - Do NOT associate the LOI number in research.gov (leave this blank)
  - The first sentence of the project summary *must* identify the LOI ID (from Fastlane). "The LOI [insert LOI ID number] was submitted in Fastlane."
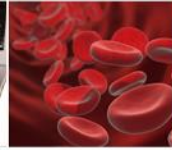
Related Letter of Intent

Refer to funding opportunity NSF 20-559 ↗ to determine letter of intent requirements. If needed, enter a letter of intent ID number that uses the same solicitation as this proposal.

Letter of Intent ID Number (e.g., L7654321)

NSF Proposal Content
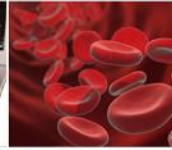
- **Cover Sheet and Certifications**
- **Project Summary**
  - **Both intellectual merit and broader impacts described**
- **Table of Contents (Automatic)**
- **Project Description**
- **References Cited**
- **Biographical Sketches (new format)**
- **Budgets and Budget Justification**
- **Current and Pending Support (new format)**
- **Facilities, Equipment and Other resources**

NSF Proposal Content

- **Collaborators and other Affiliations as a single copy document**
- **Special Information/Supplementary Documents**
    - **Mentoring Plans**
        - **Undergraduate student, Graduate student and/or Post-Doctoral research (if applicable)**
    - **Data Management Plan**
    - **Letters of Collaboration**

Proposal Preparation Instructions

Cover Sheet

Please begin the project title with "**Implementation Project:**" or **"ACE Implementation:"** *Followed by the title*"

Be sure to check all boxes that apply. Each box refers you to a section in the PAPPG, if you have questions.

Project Summary

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an **overview**, a statement on the **intellectual merit** of the proposed activity, and a statement on the **broader impacts** of the proposed activity.
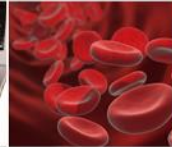
Proposal Preparation Instructions
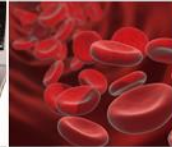
Project Description

- 15-page limit

- The Project Description for NSF proposals must contain, as a separate section within the narrative, a discussion of the **intellectual merit and broader impacts** of the proposed activities. This should **not** be merely a repeat of the statements from the project summary, but an expansion of these statements.

- In addition, where applicable, Intellectual Merit and Broader Impact activities **must** be described in two separate sections in the summary of **Results from Prior NSF Support**.

Proposal Preparation Instructions

Project Description - Background and Context

- State the problem(s) to be addressed. Articulate current knowledge of the problem(s) and some of the causes as understood from documented sources.

- Provide information on the institution's current STEM education and research capability (baseline data).

- Provide information on the extent and use of evidence-based instructional practices in STEM degree programs at the institution.

- Describe prior efforts and results of those efforts. Provide information on STEM-related programs that have been implemented or are currently active. This should include previous HBCU-UP awards and awards from other NSF programs, other federal programs, state programs, and institution programs. Explain the outcomes from these efforts. Institutions that have received an HBCU-UP Planning Grant must describe the planning grant activities and the findings of those activities.

- Identify the areas that have not been understood, determined, verified, tested, or resolved by previous efforts. Highlight some of the areas that need improvement and that will be addressed with the proposed project activities.

Proposal Preparation Instructions

Project Description – Goals and Objectives

- Clearly state the goals and objectives of the project.

- Describe the information and knowledge that will be obtained from the project.

- Describe the expected results and student outcomes.

- Explain the expected significance of the project and the compatibility with the mission and environment of the institute

Project Description – Detailed Project Plan

- Describe the research-based or evidence-based practices selected and why and how they could improve undergraduate STEM education at the institution.

- Implementation Design: Present the conceptual model of the project and describe each of the components and their links to the project goals and objectives.

- Implementation/Intervention Study: Define the procedures and methods for analyzing and assessing each of the educational activities and interventions of the project in producing the desired effects.

- Define the expected measurable outcomes and explain the relationships with the components of the implementation linked to project goals and objectives. Include indicators and benchmarks with timelines that will determine which implementation strategies are proving to be effective in the environment.
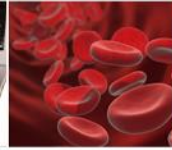
Proposal Preparation Instructions

Project Description - Dissemination

- Describe detailed plans to communicate the results and outcomes of the project to other professionals in STEM education and research and the higher education community, both during and after the project.

- Describe the information to be disseminated, the means of dissemination, and the procedures for determining the success of the dissemination effort.

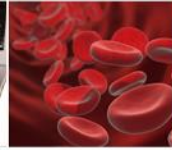**Project Description -** Management

- Define the organizational structure for the project and explain its institutional alignment for achieving the project goals and objectives. Define the roles and responsibilities of key personnel who will carry out project activities.

- Define the processes and systems that will be applied to operate the project, including budget management, data management and reporting.

- Implementation Projects should have an Internal Steering or Advisory Committee and an external advisory committee.

- Define the commitment of institutional leadership to the implementation process. Substantive letters of commitment to the proposed project activities can be included as supplementary documents.

Proposal Preparation Instructions
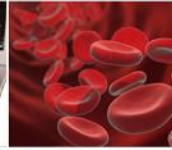
Project Description – Evaluation

- Provide a formative evaluation plan with strategies to monitor operations and activities of the project as they evolve and to inform and guide these efforts.

- Describe the criteria to be used in evaluating the quality and impact of the project and the process for collecting and analyzing information at the institution.

- Provide a summative evaluation plan with strategies to assess the effectiveness and impact of the project in achieving its goals and for identifying positive and negative findings when the project is completed.

- Include the capability statement and credentials of the external evaluator as supplementary documents.

Proposal Preparation Instructions

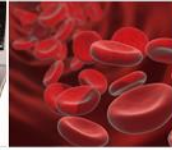**Supplementary Document –** Research Project (5 pages)

- Second round and subsequent Implementation and ACE Implementation Project proposals are required to include a research project.

- The research is linked to the proposed approaches and interventions to formally study why and if such approaches work in the setting of the HBCU. Research that investigates novel aspects of the proposal is especially encouraged.

- It should be clear in the proposal, which team members, and/or consultants will undertake the research and their relevant qualifications should be included.

- The document must include information relevant to the proposed study, such as: The research question(s) to be investigated; the conceptual framework for the project; and a discussion of the theory or theories grounding the research and testable hypotheses.

Proposal Preparation Instructions

Supplementary Document – Research Project (5 pages)

- The research plan must include the research design, including underlying methodological assumptions, targeted population and sampling, measures and instruments, and data gathering and analysis plan.

- Data collection procedures should be specified, particularly with information on the reliability, validity, and appropriateness of proposed measures and instruments or specific plans for establishing them if not initially known. Quantitative research should include statistical methods to be used. Qualitative studies should include procedures to collect, code, reduce, and analyze data and specific conceptual frameworks that will guide analysis.

- For the research project, projects may offer a postdoctoral research fellowship to a social science or educational researcher to provide opportunities early in his or her career.

- A letter of collaboration indicating specific institutional support for the project activities from the appropriate administrator should be included.

Proposal Preparation Instructions

Additional Proposal Preparation Instructions

- Include references cited in the proposal. Follow PAPPG guidelines. Be sure your references reflect the most current state of the research in your field, and you are citing them properly in the proposal.

- Include biographical sketches in NSF format, follow PAPPG guidelines.

- Include *current and pending support*, as well as *facilities, equipment and other resources* pages and use NSF format.
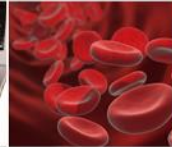   - **Enter this proposal as pending support.**

Proposal Preparation Instructions
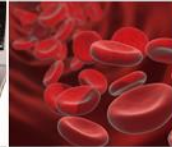
Budget and Budget Justification

- IMP/ACE projects should budget for the PI with the most day-to-day contact with the project to attend a 2-day grantee meeting in the Washington, DC area each year of the project.

- PIs who include a postdoctoral fellow for second, third or fourth round Implementation Projects or for ACE Implementation Projects may add the salary and fringe benefits, as well as an annual travel allowance of $2,000, for the postdoctoral fellow to the maximum allowed award size.

- Use the PAPPG (NSF 22-1) and section B of the solicitation as a guide in preparing the budget.

- Include a clear and detailed budget justification with your budget. The budget justification must correspond to the budget line items. All costs must be fully explained.

- Use the federally negotiated indirect cost rate in your budget.

- Write out clearly in your budget justification that you used the federally negotiated indirect cost rate of **xx%** and describe to which budget items this rate applies.

Proposal Preparation Instructions

Facilities, Equipment & Other Resources

- Provide a description of available facilities and priorities for their use, if applicable. Please note that this section is a required part of the proposal.

- This is the section where you may describe institutional support provided to your project. Such as, for example, the fact that the university will provide maintenance and utilities for a laboratory.

- Do not provide any $ amounts – voluntary committed cost sharing is not allowed.

Proposal Preparation Instructions

Supplementary Documentation

- In the special information/supplementary documentation section of the proposal, include the following information only:

- Letters of collaboration

- Data management plan

- Postdoctoral researcher mentoring and/or undergraduate or graduate student mentoring plans

- The evaluator's credentials.

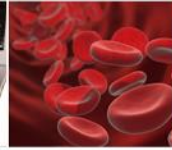- Research plan (as previously discussed)

NOTE: The supplementary documentation section of the proposal may not be used to continue the project description.
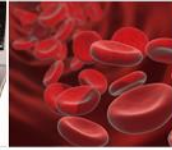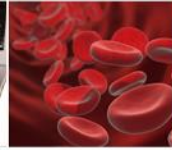
Proposal Preparation Instructions

Supplementary Documentation

- **Data Management Plan:** All proposals must describe plans for data management and sharing of the products of research or assert the absence of the need for such plans. The data management plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Information can be found at: https://www.nsf.gov/bfa/dias/policy/dmpdocs/ehr.pdf

  Other Resource: https://dmptool.org

- **Postdoctoral Researcher and/or Undergraduate/Graduate Student Mentoring Plan:** Each proposal that requests funding to support postdoctoral researchers, undergraduate or graduate students must include, as supplementary documents, a description of the mentoring activities that will be provided for such individuals.

Common Traits of Successful Proposals

- The proposal is well organized with appropriate sections

- The narrative is clear and detailed

- There is adequate justification for the proposed project

- There are clear goals and objectives

- There is a description of activities to be implemented

- Sustainability is clearly addressed

- Dissemination plan, Mentoring plan(s), Data management plan, and evaluation plan are specific to this particular project and detailed

Common Traits of Successful Proposals

- The data management plan is developed covering appropriate sections

- Letters of collaboration are included from all appropriate individuals

- If students are in budget, there is a discussion on how students will be engaged or the impact on students

- Proposal was proof-read and does not have typos, font issues, illegible tables or charts

- The proposal has strong and well-developed Intellectual Merit **and** Broader Impacts component
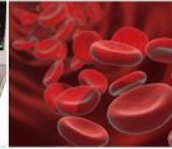
Stay Informed

- Join the HBCU-UP List Serv

– To subscribe:
 1) Send an e-mail to LISTSERV@LISTSERV.NSF.GOV
 2) Leave the subject line blank
 3) The body of the message should say: subscribe HBCU 'your full name'

– Example of the body of your message:
  - subscribe HBCU Percy Julian

- General Questions: HBCU_UP@nsf.gov

Contact Information

Carleitta Paige-Anderson
cpaigean@nsf.gov
(703) 292-2816

LeRoy Jones II
ljones@nsf.gov
703-292-4684

Tori Rhoulac Smith
tosmith@nsf.gov
703-292-2315

Jeremy Guinn
jguinn@nsf.gov
703-292-8193

Alfred Hall
alfhall@nsf.gov
703-292-4895

Minerva Cordero
mcordero@nsf.gov
703-292-4757