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

Program Solicitation
NSF 06-508
Replaces Document NSF 04-603

Letter of Intent Due Date(s) (optional):

January 30, 2006
Implementation Projects, Planning Grants, Targeted Infusion Projects and Education Research Projects

May 01, 2006
Targeted Infusion Projects (second competition)

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

February 28, 2006
Implementation Projects, Planning Grants, Targeted Infusion Projects and Education Research Projects

June 05, 2006
Targeted Infusion Projects (second competition)

REVISIONS AND UPDATES

While the Implementation Projects and Planning Grants remain the main component of the Historically Black Colleges and Universities-Undergraduate Program (HBCU-UP), the current solicitation includes two additional opportunities for HBCUs; 1) Education Research Projects and 2) Targeted Infusion Projects. Individual PIs from HBCUs are encouraged to submit proposals for three-year Education Research Projects that will contribute to the enhancement of science, technology, engineering and mathematics (STEM) education and research programs at HBCUs. In addition, STEM departmental heads from HBCUs are invited to submit a proposal for one to two year Targeted Infusion Projects to meet a specific and measurable short term goal to improve the STEM department's education and research program (only one Targeted Infusion Project proposal per eligible institution can be submitted in each biannual competition).

SUMMARY OF PROGRAM REQUIREMENTS

General Information
Program Title:

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

Synopsis of Program:

This program provides awards to build the science, technology, engineering, and mathematics (STEM) education and research capacity at Historically Black Colleges and Universities (HBCUs) as a means to broaden participation in the Nation's STEM workforce. Support is available for Implementation Projects, Planning Grants, Education Research Projects, and Targeted Infusion Projects.

Implementation Projects provide support to implement a comprehensive institutional project to strengthen STEM education and research. Proposed activities and strategies should be the result of an institutional STEM self-analysis, address institutional and NSF goals, and have the potential to result in significant and sustainable improvements in STEM program offerings. Typical project implementation strategies include: curriculum enhancement, faculty professional development, undergraduate research, academic enrichment, infusion of technology to enhance STEM instruction, collaborations with research institutions and industry, and other activities that meet institutional needs.

Planning Grants provide support to an institution in order to undertake an institutional STEM self-analysis and to identify activities and strategies for an Implementation Project. Typical activities include data collection and research of potential activities and strategies.

Education Research Projects provide support to undertake a three-year education research project which is relevant to the HBCU community and has the potential to strengthen the STEM education and research programs at HBCUs. Potential research topics include: retention, diffusion of innovations, curricula enhancements, technology in education, and the identification of successful models.

Targeted Infusion Projects provide support to implement activities that will result in the achievement of a well defined goal within one STEM department over one to two years. Potential goals include: specialized accreditation, establishing new programs or certifications, and updating programs to reflect advances in the field and industry standards.

Cognizant Program Officer(s):

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- Camille McKayle, Program Director, Directorate for Education & Human Resources, Division of Human Resource Development, 815 N, telephone: (703) 292-4671, fax: (703) 292-9018, email: cmckayle@nsf.gov

Eligibility Information

- **Organization Limit:** Historically Black Colleges and Universities that are accredited and that currently offer associate or baccalaureate degrees in the sciences, technology, engineering, and mathematics (STEM) fields.

- **PI Eligibility Limit:**
  - The Principal Investigator for HBCU-UP Implementation Projects and Planning Grant proposals should be the chief academic officer of the institution or other senior academic official. Potential Co-Principal Investigators include the key personnel that will be involved in the implementation of the project activities.
  - The Principal Investigator for Targeted Infusion Projects should be a STEM departmental head. Potential Co-Principal Investigators include the key personnel that will be involved in the implementation of the project activities.
  - The Principal Investigator for Education Research Projects should be the individual who will perform the research project. Potential Co-Principal Investigators include all collaborators on the research project.

- **Limit on Number of Proposals:** Eligible institutions can submit either an Implementation Project proposal or a Planning Grant proposal in any year. Please note that an eligible institution can only have one active Implementation Project or Planning Grant. Eligible institutions can submit one Targeted Infusion Project proposal in each biannual
competition. This is in addition to either an Implementation Project or Planning Grant proposal if applicable. There is no limit to the number of Education Research Project proposals that can be submitted from an eligible institution.

**Award Information**

- **Anticipated Type of Award**: Standard or Continuing Grant
- **Estimated Number of Awards**: 16 in FY 2006 - approximately 6 Implementation Projects, 2 Planning Grants, 3 Education Research Projects, and 5 Targeted Infusion Projects
- **Anticipated Funding Amount**: $7,000,000 - Approximately $7 million in FY 2006 pending the availability of funds

**Proposal Preparation and Submission Instructions**

**A. Proposal Preparation Instructions**

- **Letters of Intent**: Submission of Letters of Intent is optional. Please see the full text of this solicitation for further information.
- **Full Proposal Preparation Instructions**: This solicitation contains information that supplements the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

**B. Budgetary Information**

- **Cost Sharing Requirements**: Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations**: Not Applicable.
- **Other Budgetary Limitations**: Other budgetary limitations apply. Please see the full text of this solicitation for further information.

**C. Due Dates**

- **Letters of Intent (optional)**:
  - May 01, 2006: Targeted Infusion Projects (second competition)
- **Full Proposal Deadline Date(s) (due by 5 p.m. submitter's local time)**:
  - June 05, 2006: Targeted Infusion Projects (second competition)

**Proposal Review Information**

- **Merit Review Criteria**: National Science Board approved criteria apply.

**Award Administration Information**

- **Award Conditions**: Additional award conditions apply. Please see the full text of this solicitation for further information.
- **Reporting Requirements**: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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Summary of Program Requirements
I. INTRODUCTION

The Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) is committed to increasing the quality of science, technology, engineering, and mathematics (STEM) education and research at HBCUs. HBCU-UP recognizes and supports the important role that HBCUs play in increasing the numbers of underrepresented ethnic minorities that are well prepared for participation and leadership at every level of education and research in STEM.

HBCU-UP is one of the National Science Foundation's programs designed to make progress toward the Foundation's People Goal; "A diverse, competitive and globally engaged U.S. workforce of scientists, engineers, technologists and well prepared citizens." HBCU-UP is managed by the Division of Human Resource Development (HRD), located in the Directorate for Education and Human Resources. For Fiscal Year (FY) 2006, HBCU-UP will support awards for Implementation Projects, Planning Grants, Education Research Projects, and Targeted Infusion Projects.

II. PROGRAM DESCRIPTION

1. IMPLEMENTATION PROJECTS: Five-year, institution-wide, STEM capacity building projects.

NSF expects that the activities and strategies included in Implementation Project proposals will be designed specifically to address the HBCU's institutional STEM needs, long-term goals, and mission. Therefore NSF allows maximum flexibility in the design of Implementation Projects under HBCU-UP. The activities should be designed to produce significant improvements in undergraduate STEM education and research programs that have the potential to become sustainable by the end of the five years. HBCUs that do not have STEM research activities (4-year comprehensive and 2-year colleges) are particularly encouraged to submit proposals focusing on enhancing their STEM education programs. Institutions that have not already identified these activities and strategies in a planning process are encouraged to consider applying for a Planning Grant to perform an institutional STEM self-analysis before submitting an Implementation Project proposal.

If an institution has previously received an HBCU-UP Implementation Project grant, it is critical that the proposal provide complete information on the outcomes of that HBCU-UP project. Include a description of how successful activities are being sustained by the institution and what was learned from any unsuccessful
activities. Second HBCU-UP awards must not simply continue previous HBCU-UP activities. The activities in the new proposal should be based on a thorough evaluation of the previous HBCU-UP project and move the institution to the next level of STEM program quality.

Competitive HBCU-UP implementation proposals will:

- Support new STEM activities or enhancements - not support existing activities.
- Coordinate all institutional STEM strengthening activities (new and existing) in order to create a comprehensive STEM program that will result in significant and sustainable improvements.
- Raise the quality of STEM education and student learning, including increasing opportunities for quality student and faculty research experiences when appropriate.
- Establish and develop partnerships with other minority-serving institutions, other institutions of higher education, industrial laboratories, national laboratories, and other research centers to enhance and support HBCU-UP activities.

Project Scope: The scope will depend on the size and number of STEM programs and the complexity of the current and proposed project activities - ideally all STEM programs and STEM students and faculty would be affected by the HBCU-UP activities. The scope of the project should be clearly defined numerically, outlining the impact on students and faculty of the proposed HBCU-UP activities. If the proposed scope will be limited the reasons should be clearly outlined.

Activities may include, but are not limited to:

Course and curriculum development, revision, and enhancement:

- Revise STEM gate-keeping and bottleneck courses
- Develop, adapt, and/or implement new instructional materials
- Develop and introduce new STEM program offerings
- Incorporate advances in science and engineering knowledge into courses and laboratories
- Implement research-based teaching and learning techniques and practices
- Integrate technology into STEM curricula and instruction
- Integrate student research and other active-learning opportunities into the STEM curriculum
- Enhance STEM equipment available for undergraduate education

Undergraduate student support services, academic success, and educational enrichment:

- Coordinate and support research opportunities for undergraduate students on-campus or off-site including international research opportunities
- Coordinate and support internships or cooperative education opportunities
- Provide undergraduate STEM scholarships and awards
- Develop and enhance tutoring services and mentoring programs
- Enhance student access to computer labs and STEM scientific equipment
- Provide travel for students for professional development
- Develop and enhance advising, counseling, and career services
- Address critical transition points such as the transition between high school and college, between two- and four-year colleges, from undergraduate to graduate studies, and from college to the workplace
- Provide graduate school planning and preparation – test taking courses, application preparation, curriculum vitae development, funding opportunities and financial aid information

NOTES: Student financial support may only be provided to students who are United States citizens, nationals, or permanent residents of the United States. Graduate student research is not supported under the HBCU-UP program.

Faculty professional development:

- Develop and enhance professional development opportunities - pedagogy training, mentoring training, using technology in classrooms, innovative teaching practices, grant writing skills, and student assessment techniques
- Build the institution’s on-site research capacity (for example start up funds and other strategies to support faculty in the acquisition of preliminary data in order to pursue additional research funding)
- Coordinate and support research opportunities for faculty on-site or off-site including international research opportunities
- Establish partnerships and collaborations in order to expand the research capacity of the institution
- Provide faculty release time to participate in other HBCU-UP activities
- Support sabbaticals and faculty exchange programs
- Bring visiting faculty and industry practitioners to the campus to teach and do research
- Coordinate and provide STEM disciplinary and topical seminars

2. PLANNING GRANTS: Twelve to eighteen month projects to perform a STEM program self-analysis.

The proposed activities should include an institutional STEM self-analysis and the development of an action plan with activities and strategies to enhance the institution’s STEM programs. The activities should result in the institution’s submission of a strong Implementation Project proposal to the HBCU-UP program.

Activities may include, but are not limited to:

- Faculty release time to manage and participate in planning activities
- Visiting faculty or consultants involved in the planning process
- Consultation of stakeholders (for example students, faculty, administrators, as well as industry and K-12 representatives)
- Data collection
- STEM Program assessment and evaluation
- Computer services
- Research on effective STEM strengthening strategies
- Travel for site visits to exemplar institutions including existing HBCU-UP project sites
- Professional travel and professional development related to improving the planning activities

3. EDUCATION RESEARCH PROJECTS: Three-year projects to perform an educational research project.

We encourage proposals for research that can serve as a basis for strengthening the STEM programs of HBCUs. Research proposals that are linked to ongoing HBCU-UP Implementation Projects are strongly encouraged. Successful proposals will demonstrate expertise in education research and/or social science research methods as well as knowledge about STEM programs at HBCUs. Proposers are encouraged to establish collaborations to strengthen the research proposal. The proposal should describe the nature of the collaboration and the anticipated effects of the collaboration. The proposal should include letters of support from collaborators which outline the role and value of the collaboration. Potential research topics include the following:

- Factors contributing to enhanced retention of students, completion of their degrees, and successful placement in STEM careers, particularly for students from groups underrepresented in STEM fields, including women and persons with disabilities
- Identification of successful education models in various STEM fields, definitions of what constitutes successful outcomes, and the factors associated with these outcomes
- Strategies for strengthening the capacity of HBCUs to provide academically excellent STEM undergraduate programs
- Mechanisms to redesign STEM education in response to changes in traditional disciplines, efforts to enhance curricula and learning, and the incorporation of STEM research into teaching
- Impacts of and partnerships with industry, K-12 schools, and informal education settings
- Investigations of the causes, consequences, and performance of STEM-oriented intervention programs or public policies

Proposals should discuss how the work would contribute to productive public or scholarly debate. As appropriate, proposals should describe mechanisms to effectively and efficiently transfer findings into educational practice. Requests for the preparation of critical literature reviews, workshops to develop new research networks and collaborations, and other forums to communicate results among constituencies are appropriate. In addition, proposals that focus on the potential utility of research and evaluation findings and their transfer into practice or use by other researchers and policymakers are encouraged.

Proposals should reflect relevant advances in quantitative, qualitative, and mixed-methods research and evaluation methodologies and provide a compelling argument about how the methodologies proposed are appropriately matched with strategic research questions. Additionally, proposal should demonstrate how the methods chosen would result in rigorous, cumulative, reproducible, and usable findings.

Proposers are encouraged to review the Research on Learning and Education (ROLE) program solicitation (http://www.nsf.gov/pubs/2005/nsf05529/nsf05529.htm) for more discussion of education research and
evaluation as well as useful references. In addition, proposers are encouraged to contact the ROLE program officer listed in the Contacts for Additional Information section of this solicitation to discuss potential research questions and research methodologies. For general questions and proposal process questions please contact one of the Cognizant Program Officers listed at the beginning of this solicitation.

4. TARGETED INFUSION PROJECTS: One to two-year projects to meet a short term, well defined goal to improve a STEM department.

Project activities must be extremely focused in order to meet a very well defined short term goal to build the education and research capacity of one STEM department. Potential goals include; new specialized accreditation, establishing a new STEM program or certification, building on-site research infrastructure, or revamping a STEM program to meet discipline and industry standards. Projects aligned with the NSF priority areas (http://www.nsf.gov/news/priority_areas/) and interdisciplinary projects are highly encouraged.

Competitive projects will clearly outline how the activities will result in an overall enhancement of the current STEM department. Appropriate short term goals are easily measurable and attainable within the project time frame. Activities could include but are not limited to; curriculum enhancement, travel, training, new course development, and equipment acquisitions. The activities must clearly lead to the specific short term goal of the project. Proposals that include normal operating activities will not be competitive. HBCUs that currently have a five-year Implementation Project will need to explain how the Targeted Infusion Project is unique from the Implementation Project activities.

Proposers are encouraged to contact the discipline appropriate program director listed in the Contacts for Additional Information section of this solicitation to discuss proposed project activities and goals of a potential Targeted Infusion Project. For general questions and proposal process questions please contact one of the Cognizant Program Officers listed at the beginning of this solicitation.

III. ELIGIBILITY INFORMATION

Eligible Institutions:

Historically Black Colleges and Universities that are accredited and that currently offer associate or baccalaureate degrees in the sciences, technology, engineering, and mathematics (STEM) fields.

Limit on the Number of Proposals:

- Eligible institutions can submit either an Implementation Project proposal or a Planning Grant proposal in any year. Please note that an eligible institution can only have one active Implementation Project or Planning Grant.
- Eligible institutions can submit one Targeted Infusion Project proposal in each biannual competition. This is in addition to either an Implementation Project or Planning Grant proposal if applicable.
- There is no limit to the number of Education Research Project proposals that can be submitted from an eligible institution.

PI Eligibility Limit:

- The Principal Investigator for HBCU-UP Implementation Projects and Planning Grant proposals should be the chief academic officer of the institution or other senior academic official. Potential Co-Principal Investigators include the key personnel that will be involved in the implementation of the project activities.
- The Principal Investigator for Targeted Infusion Projects should be a STEM departmental head. Potential Co-Principal Investigators include the key personnel that will be involved in the implementation of the project activities.
- The Principal Investigator for Education Research Projects should be the individual who will perform the research project. Potential Co-Principal Investigators include all collaborators on the research project.

IV. AWARD INFORMATION

1. Implementation Projects
2. Planning Grants

- Number of awards: Approximately 2 in FY 2006
- Average Award: Up to $50,000
- Project Length: Twelve to eighteen months
- Cost Share Requirement: None
- Restrictions: Equipment costs are not normally allowed under planning grants
- Grant Administration: Planning grant will be managed by NSF as standard grants

3. Education Research Projects

- Number of awards: Approximately 3 in FY 2006
- Average Award: $750,000 to $1,050,000 ($250,000 to $350,000 per year)
- Project Length: Three years
- Cost Share Requirement: None
- Restrictions: Equipment costs are not normally allowed under Education Research Projects
- Grant Administration: Education Research Projects will be managed by NSF as continuing grants

4. Targeted Infusion Projects

- Number of awards: Approximately 5 in FY 2006 (across the two competitions)
- Average Award: $75,000 to $150,000
- Project Length: Up to two years
- Cost Share Requirement: None
- Restrictions: There are no equipment cost restrictions
- Grant Administration: Targeted Infusion Projects will be managed by NSF as standard grants

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent (optional):

All letters of intent must be submitted via FastLane. A separate letter of intent is requested for each type of HBCU-UP proposal (Implementation Project, Planning Grant, Targeted Infusion Project, or Education Research Project) that will be submitted from an eligible institution.

Letters of intent must contain the following information:

- Project title
- PI name and Co-PI names, department, institution, phone, fax and email
- Point of contact if different than the PI (phone, fax, email)
- Submitting institution name
- Project synopsis: Provide a brief description of the proposed activities. Education Research Projects should also include the research questions to be addressed and the population to be examined.
- The type of proposal that will be submitted (Implementation Project, Planning Grant, Targeted Infusion Project, or Education Research Project)

Full Proposal Instructions:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance
with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF Website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pub@nsf.gov.

The GPG provides general instructions for each section required in the full proposal. Additional program specific guidance is provided below.

- **Cover Sheet** -
  - For all HBCU-UP proposals under "NSF Unit Consideration" please select:
    - "HRD-Division of Human Resource Development" as the division
    - "Hist Black Colleges and Univ" as the program
  - Planning Grant proposals:
    - Please begin the project title with "Planning Grant:"
    - The "proposal duration" should be between 12 and 18 months
  - Education Research proposals:
    - Please begin the project title with "Education Research Grant:"n
  - Targeted Infusion proposals:
    - Please begin the project title with "Targeted Infusion Grant:"n
  - The "proposal duration" should be between 12 and 24 months

- **You must review the regulations regarding Human Subjects (45 CFR 690.101-124 http://www.nsf.gov/bfa/dias/policy/docs/45cfr690.pdf). Please note that Human Subjects regulations also govern activities that have to do with safe guarding individually identifiable information such as student and faculty surveys and data, therefore many Implementation Projects, Planning Grants, and possibly Targeted Infusion Projects, will need to be reviewed by your Human Subjects Internal Review Board (IRB). If your project will be reviewed by your IRB once the project has been funded please check the box on the cover sheet and indicate that the review is pending. If the proposal has already been reviewed by your IRB and found to be exempt please cite the applicable subsection for the exemption on the cover sheet. If the IRB has already given approval of the activities include a letter from the IRB and indicate the expiration date of the IRB approval on the cover sheet.

- **Project Summary** - The Project Summary is a self-contained one-page description of the activities that would be implemented if the proposal were funded.
  - IMPORTANT NOTE: Both NSF merit review criteria must be addressed separately in the one-page project summary in all proposals submitted under this solicitation: What is the intellectual merit of the proposed activity? and What are the broader impacts of the proposed activity? Proposals will be returned, without review, if they do not address both merit review criteria separately.

- **Project Description** - 15 page limit. Refer to the "Project Description" section below for more information on each type of HBCU-UP proposal: 1) Implementation Projects, 2) Planning Grants, 3) Education Research Projects, and 4) Targeted Infusion Projects.

- **References Cited** - Provide the references cited in the proposal.

- **Biographical Sketches** - Outline the experiences of the PI and co-PIs (two-page limit each person). Include a two-page position description with minimum qualifications and percent time commitment for any project staff position that will be filled if the proposal is funded (for example a project coordinator or data collection manager).

- **Budget** - Implementation Projects should budget for the PI and the co-PI who has the most day-to-day contact with the project, to attend a three-day grantee meeting in the Washington, DC area each year of the project. Implementation Projects should also budget for the institution’s financial officer assigned to the HBCU-UP project to attend a one day workshop on financial management of NSF grants in the Washington, DC area each year of the project. Education Research Projects and Targeted Infusion Projects should budget for the PI to attend a three-day grantee meeting in the Washington, DC area each year of the project.

1. **Implementation Projects** - The project description should include the following information:

   **Background and context**

   - Provide information on the institution's current STEM capability including a description of STEM programs, student enrollment and performance, faculty, and STEM resources at the institution and partner organizations.
   - Baseline Data: Include baseline data describing the current state of your STEM programs. Competitive proposals will provide the key information that will allow the reviewers to determine the scope and impact of the proposed project in terms of the numbers of students and faculty that will be involved in each activity.
   - Proposers are highly encouraged to review the Self Evaluation Indicator System (SEIS), which is part of the reporting requirements for HBCU-UP awardees, as a guide for the types of data that should be included. You can download a copy of the SEIS questions at http://www.systemic.com/pdfs/Sample_Cohort_6_SEIS05.
For institutions that have previously received an HBCU-UP implementation award, competitive proposals for a second award will also answer the following questions concerning the first HBCU-UP project (these questions could be answered in a table):

- What were the objectives and goals of the project (numerical when possible)?
- What activities were implemented?
- What were the results of the activities (numerical when possible)?
- Have the activities been institutionalized? If not, why not?

For institutions that have received an HBCU-UP planning grant, competitive proposals will provide a description of the results of the planning grant activities.

- Describe the relationship between the HBCU-UP project goals and objectives and the institution’s long-term STEM goals and mission.
- Provide evidence of the commitment of the institution administration (and partners if applicable) as well as the STEM faculty and leadership to improve undergraduate STEM education at the HBCU.

### Proposed activities

- Describe the proposed activities that will be implemented. Competitive proposals will provide answers to following questions for each proposed activity:
  
  - **WHAT**: What are the goals and objectives? Include the number of STEM students and faculty that will be impacted by the activity each year of the project. Describe whether the proposed activity addresses the needs of other underrepresented groups, such as women and persons with disabilities, in addition to minority populations.
  
  - **HOW**: Describe the activity that will be implemented in order to achieve these goals and objectives? Include enough details so that the scope of your proposed activity is clear. What are the strategies and methods that will be used? How will the activity be sustained after NSF funding ends?
  
  - **WHY**: Provide evidence that the proposed activity is based on research and/or other projects that have been shown to be effective in achieving similar goals and objectives. What are the expected outcomes and impacts of the activity at your institution?
  
  - **WHEN and WHO**: Outline the five-year timeline for the proposed activity with measurable milestones. Include the project staff, administrators, and/or partners that are responsible for the activity and milestones.

- Institutions that have previously received an HBCU-UP implementation award will also need to explain:
  
  - How the proposed activities will build on the previous project and not just continue previous activities.
  
  - How the proposed activities will move the institution to the next level of STEM program quality.

### Project Management and Evaluation

- Provide a management plan and timeline for the project that will ensure that the activities will be implemented on time, within budget, and the required reporting will be accurately completed and submitted. Include your plans for collecting and submitting Self Evaluation Indicator System (SEIS) data annually and at the end of the project.

  - Project staff and organization will depend on the design, scope, and the disciplines involved.
  
  - The Principal Investigator (PI) should be the chief academic officer of the institution.
  
  - The Project Manager should be the co-PI who will have the most day-to-day contact with the project.
  
  - Many projects will have an Internal Steering Committee or Internal Advisory Committee with faculty from relevant disciplines and programs – the size and composition depends on the complexity of the project. This committee should meet regularly throughout the project. Describe the responsibilities and duties of the committee.
  
  - HBCU-UP requires that projects have an External Advisory Committee that meets at least once a year, chaired by the chief executive officer of the institution. The External Advisory Committee should have representatives from other institutions including two-year institutions, industry, and local school districts. Persons involved in the implementation of the project activities should not serve on the External Advisory Committee. Describe the responsibilities and duties of the committee.

- Evaluation and assessment:
  
  - Referring to the objectives, goals, and baseline data, already presented with your proposed Implementation Project activities, describe the specific project evaluation methods that will evaluate the project’s success in achieving those objectives and goals.
  
  - Describe the plans to disseminate the outcomes of the project.

2. **Planning Grants** - The project description should include the following information:
Background and context

- Provide information on the institution's current STEM capability including a description of STEM programs, student enrollment and performance, faculty, and STEM resources at the institution and partner organizations.
  - Baseline Data: Include baseline data describing the current state of your STEM programs. Competitive proposals will provide the key information that will allow the reviewers to determine the scope and impact of a potential implementation project in terms of the numbers of students and faculty that will be involved in each potential activity.
    - Proposers are highly encouraged to review the Self Evaluation Indicator System (SEIS), which is part of the reporting requirements for HBCU-UP awardees, as a guide for the types of data that should be included. You can download a copy of the SEIS questions at http://www.systemic.com/pdfs/Sample_Cohort_6_SEIS05.pdf.
  - Describe the relationship between the HBCU-UP planning grant objectives and the institution's long-term STEM goals and mission.
  - Provide evidence of the commitment of the institution administration (and partners if applicable) as well as the STEM faculty and leadership to improve undergraduate STEM education at the HBCU.

Proposed activities

- Describe the activities to be supported by the planning grant.
  - Provide a timeline for the planning grant’s major activities and milestones - identify who will participate and who will be responsible for completing each activity.
  - Outline the potential impact of a full HBCU-UP implementation project on STEM programs.

Project Management and Evaluation

- Provide a management plan and timeline for the project that will ensure that the activities will be implemented on time, within budget, and the required reporting will be accurately completed and submitted.
  - Project staff organization - staffing requirements will depend on the design, scope, and the disciplines involved.
  - The Principal Investigator (PI) is normally the chief academic officer of the institution.
  - The Project Manager should be the co-PI who will have the most day-to-day contact with the planning grant.
  - Planning grants should have an Internal Steering Committee with faculty from relevant disciplines and programs as well as key decision-making administrators – the size and composition should be representative of your STEM programs. The participation of representatives from the local community including school districts, community colleges and industry is also encouraged. Describe the responsibilities of the committee and the planned frequency of meetings.
  - Evaluation and assessment:
    - Referring to the objectives, goals, and baseline data already presented with your proposed activities, describe the specific project evaluation methods that will evaluate the project's success in achieving those project objectives and goals.

3. Education Research Projects - The project description should include the following information:

Background and context

- Describe the research questions to be addressed.
- Provide the theoretical basis for the proposed research methods and strategies.
- Explain how the research will contribute to the knowledge base of STEM education research and improve the STEM education and research programs at HBCUs.

Proposed activities

- Describe the activities that will be undertaken.
- Provide a timeline for the activities to be implemented - include measurable objectives and outcomes.
- Describe how the project results will be disseminated to the education research and HBCU communities.
Project Management and Evaluation

- Provide a management plan for the project that will ensure that the activities and the required reporting will be implemented on time and within budget.
- Provide an evaluation and assessment plan of the project.

4. Targeted Infusion Projects - The project description should include the following information:

Background and context

- Describe the overall goal of the project. The goal must be clearly stated, measurable, and achievable within the proposed time line.
- Describe the benefits of achieving the goal to the STEM education and research enterprise at the institution.
- How does achieving the goal fit into the institution's overall mission or strategic plan.
- Baseline data should be included in order to provide context for the impact of the Targeted Infusion Project.

Proposed activities

- Describe the activities that will be undertaken in order to achieve the goal. Proposals that include normal operating activities will not be competitive.
- Provide a timeline for the activities to be implemented - include measurable objectives and outcomes.
- If appropriate, you should include evidence (such as letters of support or minutes from governance committees) that indicate that institutionally required procedures have been followed and preliminary approvals have been secured.

Project Management and Evaluation

- Provide a management plan for the project that will ensure that the activities and the required reporting will be implemented on time and within budget.
- Evaluation and assessment:
  - Referring to the objectives and goals already presented with your proposed activities, describe the specific project evaluation methods that will evaluate the project's success in achieving those objectives and goals.

Proposers are reminded to identify the program announcement/solicitation number (06-508) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required by NSF in proposals submitted under this Program Solicitation.

Other Budgetary Limitations:

- Equipment costs may not exceed 30% of the total NSF budget requested for an HBCU-UP Implementation Project. Equipment costs are not allowed under Planning Grants or Education Research Projects.
- Financial support may be provided to student participants under HBCU-UP. However, financial support may only be provided to students that are U.S. citizens, nationals, or permanent residents of the U.S. Student support should be included under "Participant support costs" on line F.1. “Stipends” of the budget. Stipends to undergraduate students should not replace other need-based grants and scholarships already awarded to the students.
- Implementation Projects should budget for the PI and the co-PI who has the most day-to-day contact with the project, to attend a three-day grantee meeting in the Washington, DC area each year of the project. Implementation Projects should also budget for the institution’s financial officer assigned to the HBCU-UP project to attend a one day workshop on financial management of NSF grants in the Washington, DC area each year of the project. In the first year of an Implementation Project, funds should be budgeted for two people, the person with the most day to day
contact with the project and the person who will act as a data manager for the project, to attend a one day workshop on the SEIS data collection system. Education Research Projects and Targeted Infusion Projects should budget for the PI to attend a three-day grantee meeting in the Washington, DC area each year of the project.

C. Due Dates

Proposals must be submitted by the following date(s):

**Letters of Intent (optional):**

January 30, 2006
Implementation Projects, Planning Grants, Targeted Infusion Projects and Education Research Projects

May 01, 2006
Targeted Infusion Projects (second competition)

**Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):**

February 28, 2006
Implementation Projects, Planning Grants, Targeted Infusion Projects and Education Research Projects

June 05, 2006
Targeted Infusion Projects (second competition)

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

**Submission of Electronically Signed Cover Sheets.** The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: http://www.fastlane.nsf.gov

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 (NSB 97-72). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued Important Notice 127, Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the
preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the Grant Proposal Guide Chapter III.A for further information). The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which he/she is qualified to make judgments.

**What is the intellectual merit of the proposed activity?**

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

**What are the broader impacts of the proposed activity?**

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

**Integration of Research and Education**

One of the principal strategies in support of NSF’s goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

**Integrating Diversity into NSF Programs, Projects, and Activities**

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

**B. Review Protocol and Associated Customer Service Standard**

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.
NSF is striving to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation, or the date of proposal receipt, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to the submitting organization by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/. Paper copies of these documents may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.


Special Award Conditions:

Reverse Site Visits: Participation in a Reverse Site Visit (RSV) can be requested by NSF at anytime during the grant period. The RSV is a presentation on the outcomes and progress of the grant activities at NSF in front of a peer review panel. Participation in the RSV is required by the appropriate grant management and administration.

Site Visits: NSF staff may visit the site of the grant project at anytime during the grant period. Reasonable accommodation of the site visit by NSF program staff is required by the grantee.

Cooperation with NSF evaluation projects and special projects: NSF, an NSF contractor, or a grantee on behalf of NSF, may from time to time conduct program evaluations or special projects of HBCU-UP projects. These may occur at anytime during the grant period and sometimes after the grant period has ended. Reasonable cooperation with these efforts is required by the grantee.

C. Reporting Requirements
For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF’s electronic project reporting system, available through FastLane, for preparation and submission of annual and final project reports. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

- Jessie A. DeAro, Associate Program Director, Directorate for Education & Human Resources, Division of Human Resource Development, 815 N, telephone: (703) 292-5350, fax: (703) 292-9018, email: jdearo@nsf.gov
- Camille McKayle, Program Director, Directorate for Education & Human Resources, Division of Human Resource Development, 815 N, telephone: (703) 292-4671, fax: (703) 292-9018, email: cmckayle@nsf.gov

ROLE Program Contact:

- James Dietz, Program Director, Research on Learning and Education (ROLE), Directorate for Education & Human Resources, telephone: (703) 292-5156, fax: (703) 292-8046, email: jdietz@nsf.gov

Biological Sciences Contact:

- Thomas Brady, Division Director, Directorate for Biological Sciences, Division of Integrative Organismal Biology, telephone: (703) 292-8420, fax: (703) 292-9153, email: tbrady@nsf.gov

Computer and Information Science and Engineering Contact:

- Janice Cuny, Program Director, Directorate for Computer & Information Science & Engineering, Division of Computer and Network Systems, telephone: (703) 292-8950, fax: (703) 292-9010, email: jcuny@nsf.gov

Engineering Contact:

- Susan Kemnitzer, Deputy Division Director, Directorate for Engineering, Division of Education & Centers, telephone: (703) 292-5347, fax: (703) 292-9051, email: skemnitz@nsf.gov

Geosciences Contact:

- Program Director for Diversity and Education, Directorate for Geosciences, telephone: (703) 292-8500, email: geo_diversity@nsf.gov

Mathematical and Physical Sciences Contact:

- Henry Blount, III, Head, Office of Multidisciplinary Activities, Directorate for Mathematical & Physical Sciences, telephone: (703) 292-8803, fax: (703) 292-9151, email: hblount@nsf.gov

For questions related to the use of FastLane, contact:
IX. OTHER PROGRAMS OF INTEREST

The NSF Guide to Programs is a compilation of funding for research and education in science, mathematics, and engineering. The NSF Guide to Programs is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF’s fiscal year programs occurring after press time for the Guide to Programs will be announced in the NSF E-Bulletin, which is updated daily on the NSF Website at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF’s MyNSF News Service (http://www.nsf.gov/mynsf/) to be notified of new funding opportunities that become available.

The Historically Black Colleges and Universities Undergraduate Program is among a number of NSF programs that promote the involvement of underrepresented minorities in science, technology, engineering, and mathematics and foster innovation in education for all students. Related programs in the Division of Human Resource Development include the Tribal Colleges and Universities Program (TCUP), Louis Stokes Alliances for Minority Participation (LSAMP), Centers of Research Excellence in Science and Technology (CREST), Alliances for Graduate Education and the Professoriate (AGEP), Research on Gender in Science and Engineering (GSE), and Research in Disabilities Education (RDE). The following programs might also be of interest:

Biological Studies (BIO) (http://www.nsf.gov/cgi-bin/bio/biolist.pl)

- Undergraduate Mentoring in Environmental Biology (UMEB)

Computer and Information Science and Engineering (http://www.cise.nsf.gov/)

- Combined Research and Curriculum Development and Educational Innovation Program (CRCD/EI)
- Information Technology Workforce (ITWF)

Cross Directorate (http://www.nsf.gov/home/crssprgm/)

- Faculty Early Career Development Program (CAREER)
- Research Experiences for Undergraduates (REU)
- Major Research Instrumentation program (MRI)
- Science of Learning Centers (SLC)
- Science and Technology Centers (STC)

Education and Human Resources (EHR) (http://www.nsf.gov/home/ehr/)

- Advanced Technological Education (ATE)
- NSF Graduate Teaching Fellows in K-12 Education (GK-12)
- Course, Curriculum, and Laboratory Improvement (CCLI)

Engineering (ENG) (http://www.eng.nsf.gov/eecl/)

- Engineering Research Centers (ERC)

Funding opportunities for principle investigators
Funding opportunities for undergraduate students

Mathematical and Physical Sciences (MPS) (http://www.nsf.gov/mps/start.htm)

- Partnerships for Research and Education in Materials (PREM)
- Enhancing the Mathematical Sciences Workforce in the 21st Century (EMSW21)

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- Location: 4201 Wilson Blvd. Arlington, VA 22230
- For General Information (NSF Information Center): (703) 292-5111
- TDD (for the hearing-impaired): (703) 292-5090
- To Order Publications or Forms:
  Send an e-mail to: pubs@nsf.gov
  or telephone: (703) 292-7827
- To Locate NSF Employees: (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science
Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

OMB control number: 3145-0058.