



HBCU - UP Program  
3500 John A. Merritt Blvd., Box 9519  
Nashville, Tennessee 37209-1561  
(615) 277-1663 or (615) 963-5409

December 2009

Dear Friend of Tennessee State University:

In recent years there has been a decline in the number of students enrolling in Science, Technology, Engineering and Mathematics (STEM) majors in universities and colleges all across the United States. However, demands in the job market for skills in these areas continue to increase, not only in traditional areas, but many jobs that only required minimal knowledge in STEM, now requires higher levels of analytical and computational skills. In an effort to increase the number of qualified workers in these areas, the federal government and private foundations have made significant investments to universities and colleges to provide programs to increase participation in STEM programs. Studies have shown that precollege STEM programs do have a positive impact on the retention and graduation rate of college students.

Tennessee State University (TSU), with support from the National Science Foundation, is offering a *STEM Rising Freshman Summer Institute*, June 7 – July 10, 2010, to introduce student participants to college life and courses in Chemistry, Mathematics, Physics and Computer Science. The Institute is for precollege students who plan to attend TSU in Fall 2010 and are interested in pursuing a STEM major (see enclosed list of STEM majors and concentrations offered by TSU).

We request your assistance in recruiting students for this five-week residential program (room and board will be covered by the NSF grant). If you know of graduating high school seniors who have an interest in majoring in a STEM area, please recommend this program. The enclosed materials provide instructions for submitting an application; these materials can be duplicated or students can visit the HBCU-UP website at [www.tnstate.edu/hbcu\\_up](http://www.tnstate.edu/hbcu_up) to access the materials.

Students who successfully complete the Summer Institute and attend TSU in the Fall 2010 will receive some financial assistance during their freshman year. If you have any questions about this program, please feel free to contact Dee Green, Program Coordinator (615-277-1663 or [dgreen10@tnstate.edu](mailto:dgreen10@tnstate.edu)) or me.

Thank you for your interest in and support of TSU, and best wishes for the Holiday Season.

Sincerely,

Jeanetta Jackson, Ph.D.  
Activity Leader, STEM Summer Institute  
Professor, Department of Physics and Mathematics  
615-963-5869

**Historically Black Colleges and Universities – Undergraduate Program (HBCU-UP)**  
Funded by the National Science Foundation

**LIST OF UNDERGRADUATE SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)  
MAJORS AND CONCENTRATIONS OFFERED BY  
TENNESSEE STATE UNIVERSITY  
(December 2009)**

**College of Arts and Sciences**

*Bachelor of Science in Biology with Concentrations in:*

*General Biology  
Cell and Molecular Biology  
Biology Teacher Certification for Grades 7-12  
Pre-Medicine/Pre-Dentistry*

*Bachelor of Science in Chemistry with Concentrations in:*

*Professional Chemistry  
Biochemistry  
Natural Sciences/Chemistry  
Chemistry Teacher Certification for Grades 7-12  
Cooperative Program in Pharmacy*

*Bachelor of Science in Mathematics*

*Also with Concentration in Mathematics Teacher Certification for Grades 7-12  
Bachelor of Science in Physics*

**College of Engineering, Technology and Computer Science**

*Bachelor of Science in Aeronautical and Industrial Technology with Concentrations in:*

*Industrial Electronic Technology  
Aviation Flight Training  
Aviation Management*

*Bachelor of Science in Architectural Engineering*

*Bachelor of Science in Civil Engineering*

*Bachelor of Science in Computer Science*

*Bachelor of Science in Electrical Engineering*

*Bachelor of Science in Electrical Engineering with Concentration in Computer Engineering*

*Bachelor of Science in Mechanical Engineering*

**School of Agriculture and Consumer Sciences**

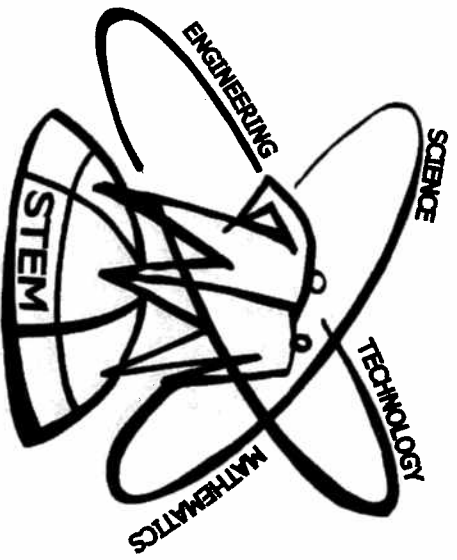
*Bachelor of Science degree in Agricultural Sciences with Concentrations in:*

*Agribusiness  
Agricultural Education  
Animal Science/Pre-Veterinary Medicine  
Applied Geospatial Information Systems  
Food Technology  
Plant and Soil Science*

**Please visit the TSU website ([www.tnstate.edu](http://www.tnstate.edu)) for additional information.**

The HBCU-UP Project at Tennessee State University is designed to support the success of students enrolled in science, technology, engineering and mathematics (STEM) disciplines for entrance into STEM careers and/or graduate school. The project includes the STEM Rising Freshman Summer Institute, Peer-led Mentoring/Tutoring Program, the Rising Sophomore STEM Research Skills Institute and Faculty Undergraduate Research Mentors for sophomores, juniors and seniors.

**Science**  
**Technology**  
**Engineering**  
**Mathematics**



The National Science Foundation (NSF), through their Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), provides grant support to Tennessee State University's efforts to enhance STEM education and research (HRD-0715004).

The HBCU-UP Project at TSU is a collaborative effort between the College of Arts & Sciences, the College of Engineering, Technology and Computer Science, the Center of Excellence for Learning Sciences, Research and Sponsored Programs, the Massie Chair of Excellence and the School of Agriculture and Consumer Sciences.



**Please submit application package to:**

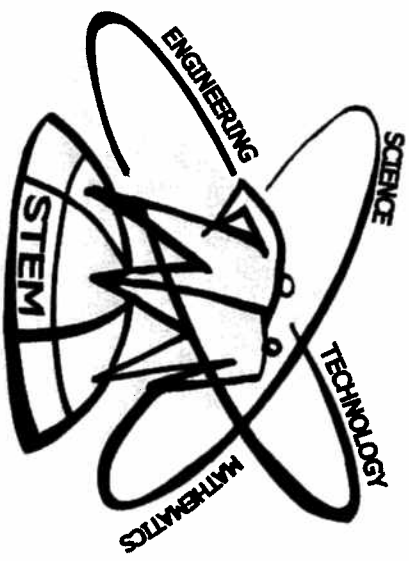
Dee Green, Program Coordinator  
 HBCU-UP Project  
 Tennessee State University  
 P. O. Box 9519  
 3500 John A. Merritt Blvd.  
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[dgreen10@tstate.edu](mailto:dgreen10@tstate.edu)

Also visit the HBCU-UP website at [www.tstate.edu/hbcu\\_up](http://www.tstate.edu/hbcu_up)



**STEM RISING**  
**FRESHMAN SUMMER**  
**INSTITUTE**

Sponsored by the HBCU-UP Project



**June 7 - July 9, 2010**

The purpose of the Institute is to induct rising freshman students into the STEM academic and research cultures at Tennessee State University (TSU).

# Overview

The STEM Rising Freshman Summer Institute at Tennessee State University is a five-week academic program to support students who plan to pursue a college degree in one of the four disciplines of science, technology, engineering or mathematics (STEM).

During the Institute, students will participate in chemistry, physics, mathematics, computer science classes and labs, and pair with a mentor/tutor who will work with them throughout their freshman year. Students who participate in this program also have an opportunity to: learn basic research skills and principles; dialogue with guest speakers; and visit local businesses and industries that employ STEM graduates.

After receipt and review of all applications, twenty-four (24) rising freshman students, who demonstrate **strong** capability in science and mathematics, will be selected to participate in the Summer Institute. *[Please see attached list of STEM majors eligible for consideration in this program. You can also visit the TSU website ([www.instate.edu](http://www.instate.edu)) or the HBCU-UP website at [www.instate.edu/hbcu\\_up/](http://www.instate.edu/hbcu_up/)]*

**Note: Special consideration will be given to applicants interested in pursuing a college degree in physics or mathematics.**

## Goals of the Institute

1. To provide the participants with the fundamentals and practices necessary for successful completion of a degree in a STEM area.
2. To strengthen and enhance analytical problem solving skills.
3. To familiarize students with experimental tools and their usage.
4. To introduce students to career possibilities in STEM areas.

# Benefits

1. The program will allow students to:

- Develop skills to work effectively with peers and develop and maintain collegial relationships.
- Develop an effective relationship with peer mentors/tutors and faculty members to provide support throughout the freshman and sophomore years.
- Develop working academic relationships with faculty members teaching core science and mathematics courses in the freshman and sophomore years.

2. During the summer, on-campus housing, meals and a stipend will be provided for participants (valued over \$1,000). The stipend will be adjusted as appropriate for students who do not complete the full five weeks of the program.

3. Students who make satisfactory progress during the Summer Institute, and continue to pursue a STEM major at TSU, may be eligible to receive additional financial assistance with tuition, books and other expenses during their freshman year.

## Participants will be selected on the following criteria:

- Science and mathematics courses taken in high school
- Recommendation forms submitted from high school teachers (forms can also be downloaded from HBCU-UP website)
- Scores on ACT and/or SAT tests
- Quality of one-page essay
- Admission to TSU
- Selected major within four STEM disciplines.

# To Apply

**Important: Each student must be at least conditionally admitted to TSU for the Fall semester following the STEM Summer Institute.**

Include in your application packet:

1. An application form for the STEM Summer Institute. To request a form, call or e-mail Dee Green (*see contact information on the back of this brochure*) or visit [www.instate.edu/hbcu\\_up](http://www.instate.edu/hbcu_up).

2. An official transcript. (*This transcript is in addition to the one sent to the TSU Office of Enrollment Management for admission to the university.*)

3. Three (3) letters of recommendation from high school teachers. At least two (2) letters must be from science (including computer science) or mathematics teachers. Please access [www.instate.edu/hbcu\\_up](http://www.instate.edu/hbcu_up) to access Student Recommendation Form.

4. A one-page essay stating your educational and career goals.

## Application deadline

The deadline for submission of completed application packet is **March 19, 2010**.

***Incomplete application packets will not be accepted.***

Applications from underrepresented populations are strongly encouraged.



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**STUDENT RECOMMENDATION FORM**

**STEM Rising Freshman Summer Institute 2010**  
**Deadline for Submission of Application Package: March 19, 2010**

**Directions:** This recommendation form is part of the application package for graduating high school students interested in participating in the HBCU-UP Program at Tennessee State University (TSU). This form should be used by high school Science, Technology or Mathematics teachers to submit a recommendation in support of a student’s application. The student must plan to attend TSU in the Fall 2010, and plan to pursue a college degree in a Science, Technology, Engineering or Mathematics (STEM) field. For additional information, please visit the HBCU-UP website at [www.tnstate.edu/hbcu\\_up](http://www.tnstate.edu/hbcu_up). ***Please note that incomplete application packages will not be accepted.***

**Name of Student:** \_\_\_\_\_ **School:** \_\_\_\_\_ **Grade Level:** \_\_\_\_\_

**Name and Title of Faculty/Staff:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Directions:** Please rate the student applicant on a scale of 1 to 5 (1 = low; 5 = high).

**I. Personal**

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| a. Desire to help others/people-oriented  | 1 | 2 | 3 | 4 | 5 |
| b. Responsible                            | 1 | 2 | 3 | 4 | 5 |
| c. Motivation and desire to learn         | 1 | 2 | 3 | 4 | 5 |
| d. Independence and Initiative            | 1 | 2 | 3 | 4 | 5 |
| e. Self-Discipline                        | 1 | 2 | 3 | 4 | 5 |
| f. Determination and/or desire to succeed | 1 | 2 | 3 | 4 | 5 |
| g. Respect for self and others            | 1 | 2 | 3 | 4 | 5 |
| h. Extra-curricular involvement           | 1 | 2 | 3 | 4 | 5 |
| i. Social and emotional maturity          | 1 | 2 | 3 | 4 | 5 |

(circle)

**II. Leadership**

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| a. Ability to lead others in a positive way | 1 | 2 | 3 | 4 | 5 |
| b. Leadership potential                     | 1 | 2 | 3 | 4 | 5 |
| c. Ability to stand out in a group          | 1 | 2 | 3 | 4 | 5 |
| d. Respect for authority                    | 1 | 2 | 3 | 4 | 5 |

**III. Academic**

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| a. Ability to understand STEM subjects                        | 1 | 2 | 3 | 4 | 5 |
| b. Desire to learn STEM subjects                              | 1 | 2 | 3 | 4 | 5 |
| c. Has clear career goals                                     | 1 | 2 | 3 | 4 | 5 |
| d. Desire to attend a 4-year institution                      | 1 | 2 | 3 | 4 | 5 |
| e. Interest in pursuing a science-related career or education | 1 | 2 | 3 | 4 | 5 |

**Comments:** Please recommend any areas in which the student needs help and/or improvement? (Write comments below or continue on another sheet of paper.)