The National Science Foundation

Historically Black Colleges and Universities Undergraduate Program

Broadening Participation in the Nation's Science and Engineering Workforce for the New Millennium

1998 Awardee Institutions

Morehouse College; Morgan State University; Southern University and A&M College

1999 Awardee Institutions

Albany State University; Alcorn State University; Bennett College; Clark Atlanta University; Florida A&M University; Hampton University; Howard University; Jackson State University; Miles College; North Carolina A&T State University; Oakwood College; Prairie View A&M University; Tuskegee University; University of The Virgin Islands

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HBCU-UP, an Integral Component of the Educational Continuum to Broaden Participation in the SMET Workforce

The recently established HBCU-Undergraduate Program with the Minority Graduate Education (MGE) program, the Louis Stokes Alliances for Minority Participation (LSAMP) and Centers for Research Excellence in Science and Technology (CREST) programs together address the first year of the undergraduate level through the doctorate and professoriate levels and provide center-based support of research and education. Operated synergistically, as a value-added aggregate, these four diversity-focused program activities form an educational continuum with the singular objective to substantially increase diversity in the SMET workforce by providing opportunities for broadening the participation of underrepresented groups in the Nation's science, engineering and technology enterprise.

The NSF sponsored diversity-programming continuum seeks to provide the nation with a well prepared, competitive, and diversified workforce. Working together and in concert with other NSF initiatives, these programs can ensure the expected outcome. It is the intent of NSF that the portfolio of diversity-focused programs function in a complementary, collaborative and highly interactive fashion with other educational and research initiatives within the grantee institution and the state. The strategic intent of these statewide efforts is to increase the overall productivity of the continuum and to raise the quality of the SMET academic programs at grantee institutions.

The Louis Stokes Alliances for Minority Participation and the HBCU Undergraduate Programs will develop a pool of underrepresented minority SMET baccalaureate graduates who have experienced the integration of research and education through mentoring, research experience for undergraduates on state-of-the-art equipment, and summer internships. Since the LSAMP and HBCU-UP institutions graduate over 20,000 qualified students in these areas each year, a doubling of the number enrolled in graduate school is possible. This possibility will be enhanced by the required collaboration of those schools with LSAMP, HBCU-UP, MGE, and CREST awards. Clearly, the impact of expanded MGE and CREST awards will be to increase the graduation rate of underrepresented minority Ph.D.'s in these fields.

At the Forefront of Change

Dr. Rita R. Colwell

Director
National Science Foundation

On August 4, 1998, Rita Rossi Colwell took office as Director of the National Science Foundation, an independent agency of the Federal Government that provides support for research and education in science, mathematics, engineering, and technology. Immediately prior to becoming NSF Director, Dr. Colwell was President of the University of Maryland Biotechnology Institute and Professor of Microbiology at the University of Maryland, positions she had held since 1991 and 1972 respectively. While at the University of Maryland, Dr. Colwell also served as Director of the Sea Grant College and Vice President for Academic Affairs.

Dr. Colwell began her career as a Research Assistant at the University of Washington, where she also held the position of Predoctoral Associate and as Assistant Research Professor. She served as Guest Scientist at the National Research Council of Canada after earning her Ph.D. From 1963 to 1972, she was a member of the biology faculty at Georgetown University.

A member of the National Science Board from 1984 to 1990, Dr. Colwell has held numerous other advisory positions in the U.S. Government, private foundations, as well as in the international community. She is a nationally respected scientist and educator and has authored or co-authored 16 books and more than 500 scientific publications. She produced the award-winning film, Invisible Seas, and has served on editorial boards for a variety of journals.

Dr. Colwell has received numerous awards, including the Medal of Distinction from Columbia University and the Andrew White Medal from Loyola College. She has also been awarded nine honorary degrees from institutions of higher education and has held several honorary professorships, including the University of Queensland, Australia.

Dr. Colwell has served as Chairman of the Board of Governors of the American Academy of Microbiology and also as President of the American Association for the Advancement of Science, the Washington Academy of Sciences, the American Society for Microbiology, the Sigma Xi National Science Honorary Society, and the International Union of Microbiological Societies.

Born in Beverly, Massachusetts, Dr. Colwell holds a B.S. in Bacteriology and an M.S. in Genetics, from Purdue University, and a Ph.D. in Marine Microbiology from the University of Washington.

Dr. Judith S. Sunley

Assistant Director for the Directorate for Education and Human Resources (Interim)
National Science Foundation

On August 15, 1999, Judith S. Sunley was appointed Interim Assistant Director for the Directorate for Education and Human Resources at the National Science Foundation.

Immediately prior to becoming NSF Interim Assistant Director, Dr. Sunley served as NSF representative to the National Science and Technology Council in the White House Office of Science and Technology Policy. She also served as Assistant to the Director for Science Policy and Planning. In this capacity, Dr. Sunley played a lead role in NSF's budgeting, planning, and program implementation. Dr. Sunley coordinated final stages in the development of NSF's 1995 strategic plan, *NSF in a Changing World*, and Foundation implementation of the 1993 Government Performance and Results Act. Dr. Sunley served as co-chair of an interagency working group with the Department of Education charged with developing an action strategy for using key federal resources to assist states and local school systems in improving student achievement in mathematics and science. Dr. Sunley continued her involvement in education issues as part of the working group coordinating the Interagency Education Research Initiative, a partnership of NSF, the Department of Education, and the National Institutes of Health.

Dr. Sunley joined the National Science Foundation in 1980. Prior to serving as Assistant to the Director, she was the Executive Officer for Mathematics and Physical Sciences. She also served as Associate Program Director, Deputy Division Director and Division Director in the Mathematical Sciences Division. Before coming to NSF, Dr. Sunley held positions as a faculty member, Department Chair, and Associate Dean

American University. She received her Ph.D. degree from the University of Maryland and M.S. and B.S. degrees from the University of Michigan, all in mathematics.

Dr. Roosevelt Calbert

Director, Division of Human Resource Development
Directorate for Education and Human Resources

Dr. Calbert received the master's and Ph.D. degrees in physics from the University of Kansas in 1969 and 1971, respectively. In 1975, Dr. Calbert joined the National Science Foundation's Directorate for Science Education. His career at the Foundation includes a position as Senior Program Analyst, Office of Planning and Resources Management, Agency Representative for the White House Initiative on Historically Black Colleges and Universities, and Program Director for several NSF initiatives. Currently, he is Director, Division of Human Resource Development.

Prior to joining the Foundation, Dr. Calbert was Director of the Cooperative Academic Planning Program at the Institute for Services to Education. He has held faculty positions at Alcorn State University and Alabama State University. He has presented more than 50 papers at professional association meetings and conferences and has published in professional journals. In 1987, he received the NSF Director's Equal Opportunity Achievement Award for demonstrating an exceptionally high commitment to developing the research capabilities of young minority investigators and enhancing the scientific research capabilities of minority-serving institutions.

During his nearly 25-year tenure at the Foundation, Dr. Calbert established numerous minority-targeted programs for the science, engineering and mathematics education of minority groups that are underrepresented in these fields. Programs established or managed by Dr. Calbert include Research Improvement in Minority Institutions (RIMI); Centers of Research Excellence in Science and Technology (CREST); Comprehensive Partnerships for Mathematics and Science Achievement (CPMSA); Louis Stokes Alliances for Minority Participation (LSAMP); and, Minority Research Initiation (MRI). These programs form the basis of the Foundation's current efforts in the science and engineering education of minority students.

Dr. Victor A. Santiago

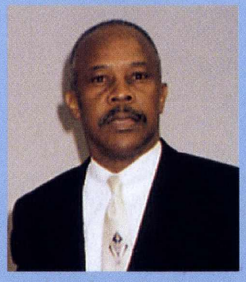
Program Director
Division of Human Resource Development

On February 15, 1998, Victor A. Santiago joined the National Science Foundation as Program Director of the Comprehensive Partnerships for Mathematics and Science Achievement (CPMSA) and Centers of Excellence for Research, Teaching and Learning (CERTL) programs. More recently, Dr. Santiago assumed the responsibilities of Program Director for the Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) and the Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM) program. Dr. Santiago also serves as co-Program Director of the Louis Stokes Alliances for Minority Participation (LSAMP) program.

Dr. Santiago holds a master's degree and Ph.D. from The University of Michigan. He received his bachelor's degree from the University of Puerto Rico. Prior to joining the Foundation, Dr. Santiago was an Associate Vice President for Research and Development at Inter American University of Puerto Rico. At this same institution, he served as Associate Professor of Earth Sciences and Dean of Science and Technology. Dr. Santiago also served as Assistant Secretary of Education for the Commonwealth of Puerto Rico.

Dr. A. James Hicks

Program Director
Division of Human Resource Development



Dr. Hicks, a plant scientist, has received numerous awards and recognitions for his work with minority students and faculty in North Carolina, Georgia, and Missouri. Undoubtedly, one of his most notable awards was the 1988 White House Initiatives Faculty Award for Excellence in Science and Technology. Noteworthy, also was his membership in North Carolina's 12-member delegation to Baden-Wurttemberg, Germany in November 1995. That official visit lead to a signed Memorandum of Understanding, which now allows both students and faculty exchanges between the two states. Hicks, a doctoral graduate from the University of Illinois-Urbana has experiences as a college dean, department chairperson and professor. His undergraduate degree in biology was earned at Tougaloo College. At NSF, Dr. Hicks serves as Program Director for the Louis Stokes Alliances for Minority Participation program.

HBCU-Undergraduate Program PI/PD Meeting

December 2, 1999

Albany State University
Alcorn State University
Bennett College
Clark Atlanta University
Florida A&M University
Hampton University
Howard University
Jackson State University
Miles College
Morehouse College
Morgan State University
North Carolina A&T State University
Oakwood College
Prairie View A&M University
Southern University and A&M College
Tuskegee University
University of the Virgin Islands

Thursday, December 2, 1999

Room 340

1:30-1:40 p.m. **Opening Remarks**
Victor A. Santiago
HBCU-UP Program Director

1:40-2:40 p.m. **Advanced Networking and Computing Support for Minority-Serving Institutions**
Mark Luker, EDUCAUSE

2:40-3:05 p.m. **Effective Publications & Outreach Strategies**
Louis Dale, Associate Provost
The University of Alabama at Birmingham

3:05-3:20 p.m. **Break**

3:20-3:50 p.m. **Improving HBCU Participation in Graduate Reseach Fellowships Program**
Susan Duby, Division Director
Graduate Education, NSF

3:50-4:20 p.m. **HBCU Participation in the National SMET Retention Database**
Theresa Smith, University of Oklahoma

4:30 p.m. **Adjourn**

NSF Makes Awards to 14 Historically Black Colleges and Universities

Preparing the Nation's workforce for an increasingly technological job market is one of the National Science Foundation's (NSF) key investment strategies to address the relevant goal of the NSF Strategic Plan: "*A diverse, globally-oriented workforce of scientists and engineers*". The Historically Black Colleges and Universities (HBCU) Undergraduate Program, located within the Directorate for Education and Human Resources, is directed toward this end by promoting efforts to broaden participation in science, mathematics, engineering, and technology (SMET) disciplines and careers.

Congress has consistently stressed the need for the NSF to expand its efforts to provide opportunities for underrepresented groups to participate in the Nation's science and engineering enterprise. Recently, for example, in the House and Conference reports that accompanied the Foundation's FY 1999 appropriations (H. Rept. 105-610 and H. Rept. 105-769, respectively) – NSF was encouraged to increase its support for minority undergraduate education.

The goal of the HBCU Undergraduate Program is to strengthen the Nation's workforce by enhancing the quality of undergraduate SMET programs at Historically Black Colleges and Universities. This enhanced capacity will result in increased numbers of underrepresented minority students enrolling in and successfully completing quality SMET baccalaureate degree programs.

Support is provided through the HBCU-Undergraduate Program for SMET curricular reform and enhancement, faculty development, student support, research experiences for undergraduates, and scientific instrumentation to improve instruction.

The HBCU-Undergraduate Program was established in Fiscal Year 1998. Three institutions, Morehouse College, Morgan State University and Southern University, received awards with a thirty-six month duration. In FY 1999, fourteen institutions were recommended for five-year awards.

Albany State University
Alcorn State University
Bennett College
Clark Atlanta University
Florida A&M University
Hampton University
Howard University
Jackson State University
Miles College
North Carolina A&T State University
Oakwood College
Prairie View A&M University
Tuskegee University
University of The Virgin Islands

These awards were announced during the White House Initiative on Historically Black Colleges and Universities Annual Conference in Washington, D.C. According to Dr. Roosevelt Calbert, Division Director of Human Resource Development, " This program comes along at a time when the Nation is examining economic security issues and the role and scope of technology in developing a more diverse science, engineering, and technology workforce. What we do know is that all talents from many diverse sources are needed to guarantee the preservation of our world leadership in these fields."

National Historically Black Co

Albany State University

Dr. Portia Holmes Shields, President

Alcorn State University

Dr. Samuel White, Director of Sponsored Programs

Bennett College

Dr. Gloria Scott, President and Ms. Elizabeth Fyrar, Student

University of the Virgin Islands

Dr. Camille McKayle
HBCU-UP Project Manager

1999 HBCU-UP Award Recipients

Tuskegee University

Dr. Willa Smith, Director, Tuskegee University Washington, D.C. Office

Prairie View A&M University

Dr. Willie Trotty, Vice President for Research and Development

Oakwood College

Dr. Delbert Baker, President and Dr. Rose M. Yates, Director, Grants and Contracts

lleges and Universities Week

Clark Atlanta University

Dr. Kofi Bota, Vice President for Research and Sponsored Programs

Florida A&M University

Dr. Eva Wanton, Associate Vice President for Academic Affairs and Dr. Franklin D. Hamilton, Vice President for Research

Hampton University

Dr. Johnnye Jones, Dean, School of Science

Howard University

Dr. A. James Hicks, Dr. Roosevelt Calbert, Dr. Victor Santiago

Dr. Antoine Garibaldi, Provost

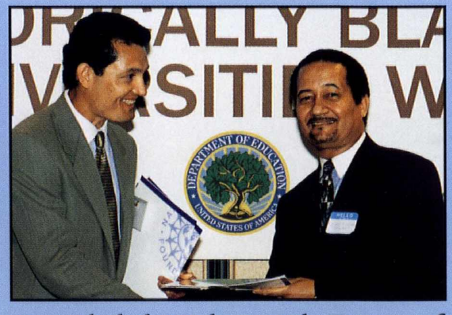
North Carolina A&T State University

Dr. Ernestine Psalmonds Vice Chancellor for Research

Miles College

Dr. Leotis Williams, Chair, Division of Natural Sciences

Jackson State University



Dr. Abdul Mohamed, Dean of Science and Technology

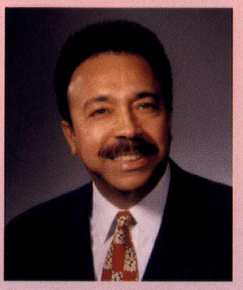
HBCU-UP Presidents and

Albany State University

Dr. Portia Holmes-Shields, President

Dr. Ellis Sykes, Principal Investigator

Hampton University



William R. Harvey, President

Johnnye M. Jones, Program Director

Alcorn State University

Dr. Clinton Bristow, Jr., President

Thomas D. Bolden, Project Manager

Howard University

Dr. Antoine M. Garibaldi, Provost

H. Patrick Swygert, Project Director

Bennett College

Dr. Gloria R. Scott, President

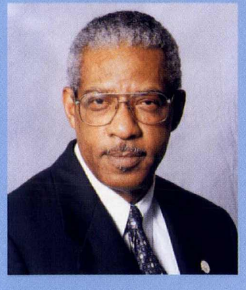
Donna Oliver, Principal Investigator

Jackson State University

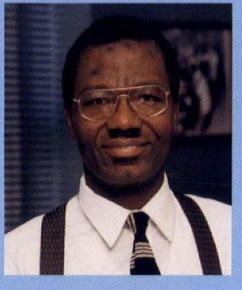
Bettye Ward Fletcher, President

Dr. Abdul Mohamed, Project Director

Clark Atlanta

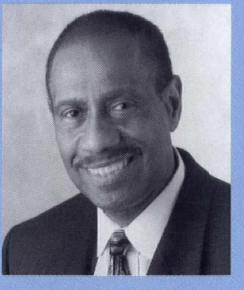


Thomas W. Cole, Jr., President



Dr. Yaw D. Yeboah, Project Director

Miles

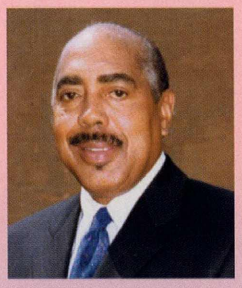


Dr. Albert J.H. Sloan, President

Dr. Hattie Griffin Lamar, Principal Investigator

Principal Investigators

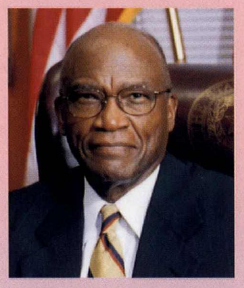
Morehouse College



Dr. Walter Massey, President

Dr. Melissa A. Harrington, Program Director

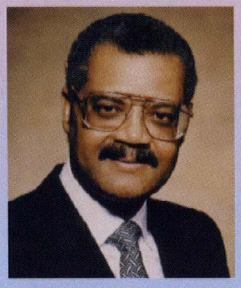
Prairie View A&M University



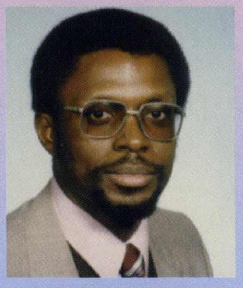
Dr. Charles A. Hines, President

Dr. E. Joahanne Thomas-Smith, Principal Investigator

Morgan State University



Dr. Earl S. Richardson, President



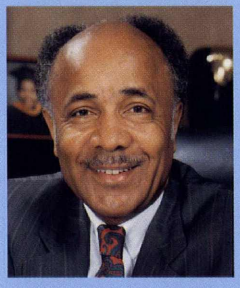
Dr. Arthur Grainger, Principal Investigator

Southern University A&M College

Dr. E. Jackson, President

Dr. Mildred Smalley, Project Director

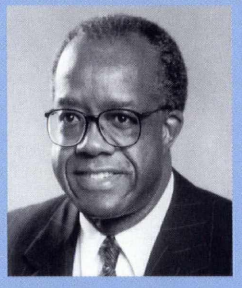
North Carolina A&M University



Dr. E.B. Fort President

Dr. Caesar R. Jackson, Project Director

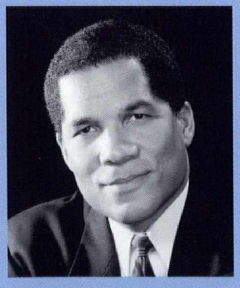
Tuskegee University



Benjamin F. Payton, President

William L. Lester, Program Director

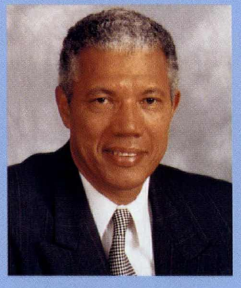
Oakwood College



Dr. Delbert Baker, President

Dr. Alexander Volkov Project Director

University of the Virgin Islands



Dr. Orville Kean, President

Dr. Camille McKayle, Project Director

ALBANY STATE UNIVERSITY HISTORICALLY BLACK COLLEGES AND UNIVERSITIES-UNDERGRADUATE PROGRAM (HBCU-UP)

The Albany State University Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) represents a collaborative project involving the Departments of Natural Sciences, Mathematics and Computer Science, regional and national universities, secondary schools, and numerous research laboratory and industrial partners.

The goal of the ASU HBCU Undergraduate Program is to increase significantly the number of students enrolling in, and successfully completing, quality SMET programs which will prepare them for post baccalaureate experiences in the SMET disciplines. The objectives of the program designed to accomplish this goal are to:

- reduce the attrition rate of students in gateway courses two fold.
- establish a technology based resource center that supports students and teachers.

- increase the infusion of technology in all phases of SMET instruction.
- increase the number of SMET students participating in Internship/COOP Programs (two fold).
- provide faculty development opportunities for SMET faculties.

To accomplish these objectives, specific activities that will involve faculty and students include:

- curricula revisions of the gateway courses (SMET).
- development of a computerized science-mathematics resource and learning center.
- implementation of a science and mathematics Career Seminar Series.
- increased technology exposure in all SMET courses.
- enhanced research experiences for SMET students during the academic year.
- increased Internship/COOP experiences for SMET students and faculty during the academic year and summer.
- development of a bridge program between high school graduated seniors and ASU

The courses targeted for revision and enhancement are general zoology (BIOL 2111 & 2112), general chemistry (CHEM 1211 & 1212), organic chemistry (CHEM 2301 & 2302), introductory physics (PHYS 1111 & 1112), pre-calculus with trigonometry (MATH 1113) and calculus (MATH 1211). These courses are required for the B.S. in Biology and the B.S. in Science Education (excluding calculus). Principles of physics (2221 &2222), pre-calculus with trigonometry (MATH 1113) and calculus (MATH 1211) are required for the B.S. in Chemistry as well as the pre-engineering track. Pre-calculus and calculus are required for the B.S. in Mathematics. The redesigned courses will require 14% of students final course grades to be derived from the activities implemented in this project.

The Undergraduate Program
Alcorn State University

Alcorn State University is a co-educational, land-grant, science, liberal arts and teacher education public university offering undergraduate programs through the following schools: Arts & Sciences, Agriculture, Business, Education and Psychology, and Nursing. The primary purpose of the University is to provide well-rounded quality educational programs to meet the needs of all students.

The university has an enrollment of approximately 3,000 students and is accredited by the following agencies: Southern Association of Colleges and Schools, National Association of Schools of Music, National Council for Accreditation of Teacher Education, National League of Nursing, National Association of Industrial Technology, and American Association of Family and Consumer Sciences.

Situated in a beautiful rural setting, the university attracts a diverse range of students and faculty. While challenging students with exceptional academic preparation, the undergraduate program is also sensitive to and active in educating students who suffer under the handicaps of socio-economic limitations. Through the programs of the General College for Excellence, Alcorn insures that all students are prepared to experience success in upper division courses. At the same time, the Honors Program enriches the academic experience of its talented students.

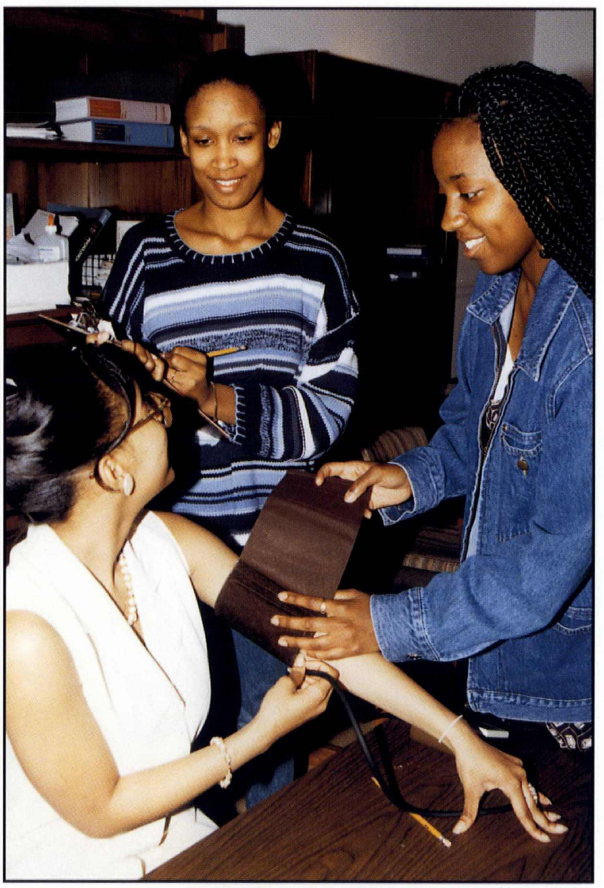
The undergraduate Science, Mathematics, Engineering and Technology (SMET) program at Alcorn State University encompasses the departments of Biological Sciences, Chemistry and Physics, Mathematics and Computer Science, and Technology. These four departments are responsible for teaching and research programs in mathematics, life and physical sciences, and technology. Each department participates in the education and preparation of students in all of the SMET disciplines, and provides basic courses for all other students at the university.

Concepts and laboratory experiences that acquaint students with laws that govern the physical world are taught in the life and physical sciences. Mathematics provides students with the language of implications that is necessary to examine and explain the concepts of science. Technology provides specific applications useful for gathering data, presenting data, and disseminating results. The SMET program is designed with the primary objective of preparing students for graduate or professional schools.

Bennett College National Science Foundation HBCU-UP Grant 1999-2004

Bennett College, a private, four year liberal arts college for women, seeks to increase the number of percentages of well-prepared graduates in science, mathematics, engineering, and technology (SMET) with assistance from funds from the National Science Foundation.

1) The NSF project will develop a Pre-freshwomen Summer Academy for approximately 50 entering first-year students to prepare them through needed course work, enrichment activities, and computer and science laboratory experiences to prepare the students for success in Calculus and General Biology, College Chemistry, or Computer Programming in the first year. Summer activities will be designed to prepare these students, called NSF scholars, as project assistants for faculty research, computer lab assistants, and cooperative learning group leaders.



2) The NSF project will provide a technology infrastructure in the form of an electronic classroom, which will serve as a testing and tutorial center; mounted projection systems for classrooms; small computer labs in dormitories, and computers and printers for the SMET Departments (Biology, Chemistry, and Mathematics/ Computer Science). The delivery system for gateway courses will include the use of multimedia electronic lecture notes with simulated lab experiments that will also be used by the students as tutorials. Additional software will include on-line testing and management programs that will provide tools for frequent quizzes and practice tests, as well as instructional software such as MathCAD, MatLab, ADAM Physiology, and SPSS. Additionally, labs specifically for instruction in Computer Science, Biology, and Chemistry will be upgraded. Training for faculty in the use of computers and the Internet in instruction will be an important component of the NSF project.

3) The NSF project will provide nurturing and longitudinal intervention. Two new courses, Multi-disciplinary Problem Solving and Research Methods, will be developed, to be offered in the sophomore and junior years and will be designed to enhance the skills that students will need to carry out research in any of the SMET disciplines. During the sophomores and junior years each NSF scholar will work with a faculty mentor, who will provide encouragement and intervention if academic problems begin to develop.

4) The NSF project will enhance students' ability to undertake research. NSF scholars will engage in summer internship projects after completing their sophomore and junior years, with stipends and travel support. During the junior and senior years, each student will work with a faculty member in a mini-research project. The nature of the project will depend on the subject matter. The student will conduct a literature search (suggested by the mentor or by the student), formulate hypotheses based on how this project differs from similar topics in a literature search, write up the project design, determine the instrument(s) to be used, collect the data, complete the analysis, and summarize her findings. All students will write a report and present their findings to their peers and mentors in April of each year. In addition, funds will be available for faculty to attend seminars, workshops, and extensive summer faculty internships, in order to enhance faculty knowledge and research skills.

Principal Investigator - Dr. Donna Oliver, Vice President for Academic Affairs
Project Manager - Dr. Ray Treadway, Professor of Mathematics

Clark Atlanta University Undergraduate Studies

CLARK ATLANTA UNIVERSITY

The University

Clark Atlanta University (CAU) incorporated in 1988, is a private, urban, coeducational, predominantly African-American institution of undergraduate, graduate and professional education. Clark Atlanta University has inherited the historical missions and achievements of its parent institutions, Atlanta University, founded in 1865, and Clark College, founded in 1869. As the only Doctoral I University among the historically black universities in the nation that offer degrees from the bachelor's to the doctorate, CAU enrolls approximately 4,000 undergraduate and 1,000 full-time and part-time graduate students from forty states and fifty countries. The University is one of six institutions (Spelman, Morehouse and Morris Brown Colleges, Clark Atlanta University, the Interdenominational Theological Center, and Morehouse School of Medicine) that make up the Atlanta University Center, the largest consortium of historically black higher educational institutions in the country.

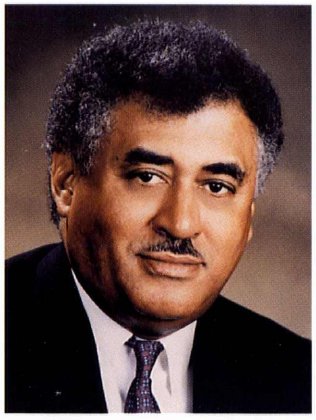
Majors and Degrees

Clark Atlanta University is made up of the School of Arts and Sciences and the professional Schools of Business Administration, Education, Library and Information Studies, and Social Work. The University offers undergraduate courses that lead to the Bachelor of Arts degree as follows: accounting, art, art education, business education, early childhood education, economics, elementary/middle grades education, English, fashion design and fashion merchandising, French, French education, general science education, German, history, history education, mass media arts, music, music education, office administration, philosophy, physical education, political science, psychology, religion, sociology, Spanish, Spanish education, and speech communication and theater arts. The Bachelor of Science degree is offered in several science, mathematics, engineering and technology (SMET) disciplines including: biology, chemistry, community health education, computer science, engineering, health information management, mathematics and physics. The Bachelor of Social Work degree and a dual-degree program in engineering are also offered.

Academic Program

Clark Atlanta University requires that each student become familiar with the technology of the future. Instructional programs in business administration make extensive use of technology, and business education programs are taught in labs equipped with the latest in office automation devices. A model quantitative skills lab has been established to expand the University's pace-setting instructional support system in mathematics, statistics, and computer science. The Mass Media Arts Department houses one of the most complete broadcast training and production facilities in higher education. Clark Atlanta University students are exposed to real-world experiences through internship and cooperative education assignments with some of the leading local and national corporations and agencies. The minimum number of semester hours that are required for graduation is 122. The normal load for a full-time student is 15 to 18 credit hours. The minimum load that a student may take to be considered full-time is 12 credit hours. A student may take more than 18 hours only if he or she has a grade point average of 3.25 or above or if the dean for undergraduate studies approves. Every student must take prescribed core courses in English, general mathematics, computer literacy, literature, and social science, as well as other courses that are included under the general education program. Army, Navel, and Air Force ROTC programs are available.

FLORIDA A&M UNIVERSITY



Dr. Frederick S. Humphries, President, Florida A&M

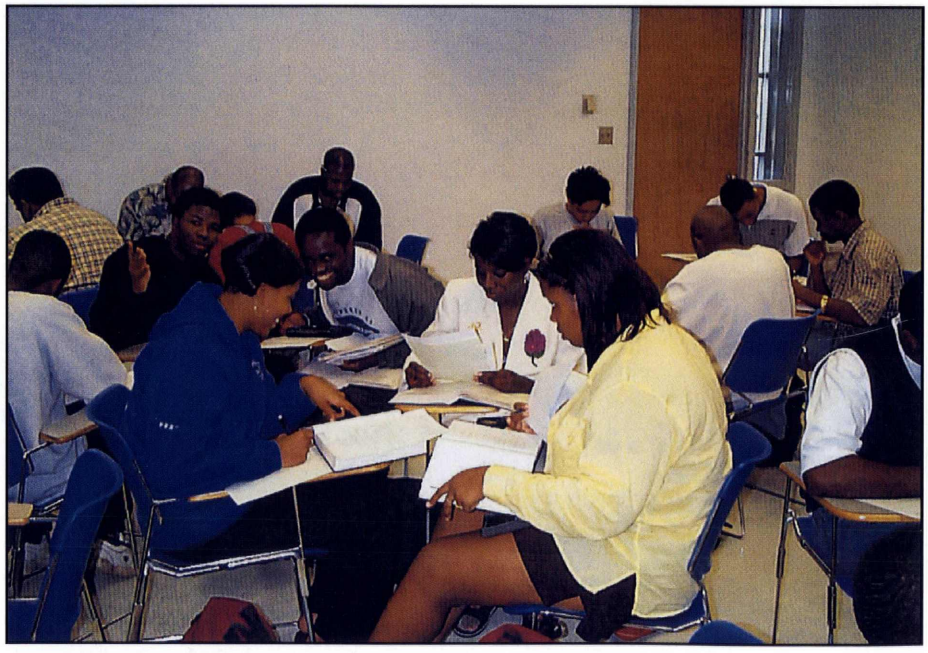
The main goal of the HBCU Undergraduate Program (HBCU-UP) at Florida Agricultural and Mechanical University (FAMU) is to significantly increase the number of African-American science, mathematics, engineering, and technology (SMET) students who will qualify for admission to graduate degree programs (particularly the doctoral degree) in SMET fields. The program also is designed to measurably increase the overall number of baccalaureate degrees awarded to SMET students by the University. The program will primarily focus on students majoring in biology, chemistry, computer and information sciences, electrical and computer engineering, mathematics and physics. However, when fully implemented it will significantly impact all SMET undergraduate students at the University.

Project goals will be achieved through a systematic adoption by the SMET university community of advances in research-based SMET teaching and learning methods, enhancements to the faculty development and reward systems and the widespread infusion of world-wide web (WWW) based technologies into the SMET curricula.

Several individual project objectives have been defined to enable the overall goals to be met. These objectives are presented as follows:

- introduction of new teaching and learning techniques that encompass an inquiry-based pedagogy into the SMET curricula;
- introduction of a freshman level SMET honors section for entry-level courses in the departments of biology, chemistry, mathematics and physics;
- providing laboratory research experiences for sophomore level honor students;
- support faculty development of world-wide web (i.e. web) based courseware for entry-level "gatekeeper" courses within the departments of biology, chemistry, computer and information sciences, mathematics and electrical engineering;
- implementation of an Academic Learning Center that includes workshops, tutorials, peer mentoring, and career counseling for all SMET students;
- increasing the number of student teaching assistants assigned to support faculty teaching critical entry level SMET courses;
- upgrading of computing resources available to SMET faculty so that all faculty within the primary focus departments have adequate Internet connectivity.

Undergraduate Program



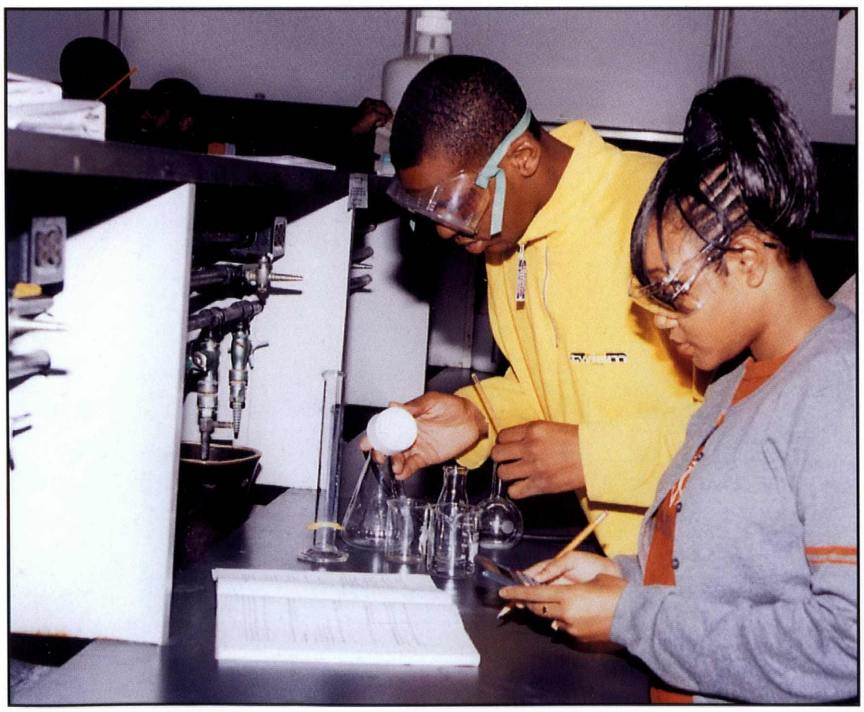
HAMPTON UNIVERSITY

Hampton University has established a five-year program directed at increasing the number of minorities entering, completing and successfully pursuing careers in the science, mathematics, engineering and technology (SMET) areas with an emphasis on training in the interdisciplinary sciences. These include training for potential careers in biophysics, bioengineering, computer engineering, environmental toxicology, bioinformatics, computational biology, bioengineering, and biochemistry. An important feature of this program is to enable a high proportion of the program participants and other students at the University to enroll in and obtain advanced degrees in these disciplines. The program will make available to the student a continuum of learning experiences and the support systems to develop those skills and characteristics identified as being most important for success in SMET areas.

The primary goals of the program are: (1) to develop a sustained framework for providing the educational and learning environment and activities in mathematics and the sciences necessary for the minority student to enroll, excel and complete degrees in mathematics, computer science, the physical and natural sciences and the interdisciplinary sciences; (2) to insure that students are sufficiently prepared to be viable and competitive candidates for higher degrees in these disciplines; (3) to reduce the attrition rate for minority students who desire to major in these areas; and (4) to create a model program oriented toward getting more minority students to enter and successfully complete undergraduate and advanced degrees in these areas – the model having the added dimension of easy replication for other underrepresented groups and in other institutions.

The program will provide training and educational opportunities that will serve to bridge at one end the pre-freshman and the freshman years and, at the other, the undergraduate and graduate school years. The program should lead to an increase not only in the number of minority students in the SMET areas, but also the rate of graduation. In this connection, the university has developed a comprehensive program to encourage and motivate large numbers of minority and female students to become interested in SMET areas through activities such as information fairs, faculty and student speakers, faculty and student research, summer science enrichment and bridge programs and participation at professional conferences..

The comprehensive plan for these science areas ensures that formal student support services are in place: (1) to raise the academic competency level; and (2) to improve the performance of students on professional examinations and other departmental competency examinations. It is expected that this program will also increase the level of technical and productive competency of the students beginning at the pre-freshman level and throughout the undergraduate program. Hampton University is, by experience, a viable resource and is uniquely qualified to carry out such a program. The specific objectives of the program are: (1) to provide integrated learning activities in the SMET areas; (2) to provide opportunities to educate students to effectively use modern instructional and learning technology in their work; (3) to provide activities that will enhance analytical skills and improve critical thinking; (4) to inculcate in the students the skills of cooperative learning which will form an important part of their college study strategies and team-oriented activities on the job; (5) to provide continued support of enrichment and advocacy for the student throughout his/her undergraduate career; and (6) to make available to the student meaningful research participation and other aspects of professional training for graduate school or the job market. It is expected that this unique program will impact an excess of one thousand students.

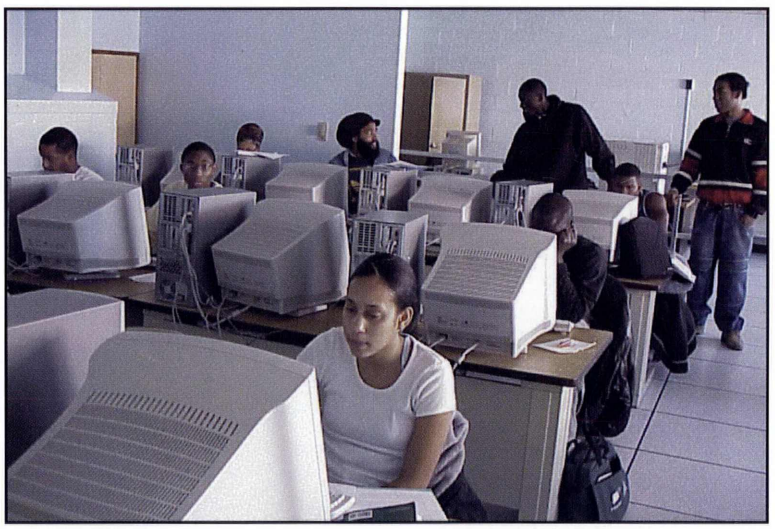


Howard University
HUSEM
Physics
Chemistry
Mathematics
Civil Engineering
Electrical Engineering
Chemical Engineering
Mechanical Engineering
Systems and Computer Science
Science, Engineering and Mathematics Program

HOWARD UNIVERSITY RECEIVES NSF GRANT TO DOUBLE SCIENCE, ENGINEERING, AND MATH DEGREES

WASHINGTON, D.C. (Oct. 14) -- Howard University has been awarded a $2,999,908 grant from the National Science Foundation (NSF) to double the University's production of bachelor of science degree recipients in sciences, engineering, and mathematics (SEM) over the next five years.

The Howard University Science, Engineering, and Mathematics (HUSEM) program will integrate enhanced educational activities and focused mentoring and advising activities with existing curricula. HUSEM will introduce and facilitate the use of web-assisted and computer-aided instruction in all introductory science, engineering, and mathematics courses.



Other activities will include for-credit undergraduate research experiences, and a mentoring, advising and retention component that will engage faculty and graduate student mentors in support of undergraduate students. The largest portion of the funds will be used to provide scholarships for talented first-time-in-college and transfer undergraduate students who choose science, mathematics, or engineering majors.

Through HUSEM, faculty will be introduced to emerging science, engineering and mathematics training in formalized seminars, workshops and short courses in the Howard Center for Excellence in Teaching and Learning. In addition, HUSEM will collaborate with the NSF-supported Minority Graduate Education Program, based in the University's Graduate School, to provide a natural transition in preparing students for doctoral degrees in the SEM fields.

"This grant will allow us to expand our efforts in preparing more minority scientists, engineers and mathematicians for graduate level degrees," said University provost and chief academic officer Dr. Antoine M. Garibaldi, the grant's principal investigator. "It will also help our faculty enhance their proficiency with emerging technologies."

Co-principal investigators are Dr. Lorraine Fleming, chair of the Department of Civil Engineering, and Dr. Jesse Nicholson, chair of the Department of Chemistry.

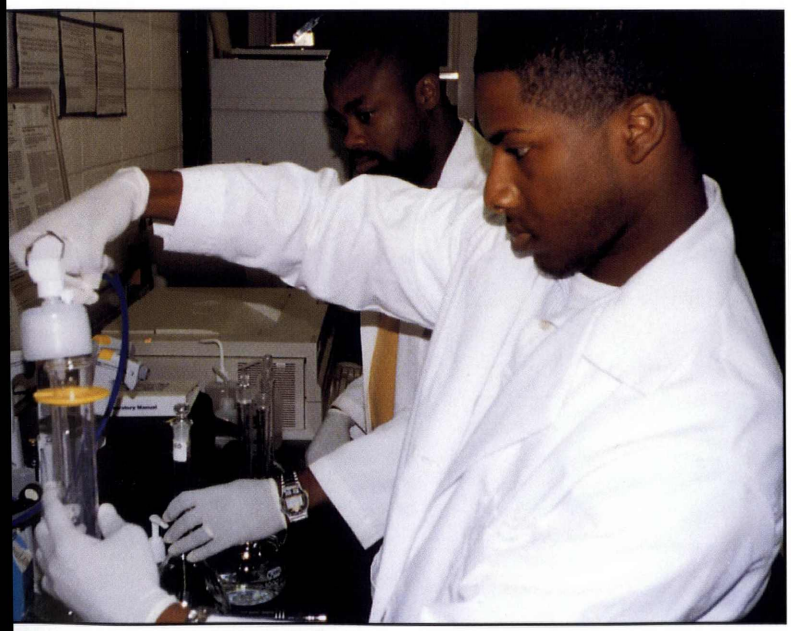
Howard University is a private, comprehensive Research I institution. Founded in 1867, the University is comprised of 12 schools and colleges, and offers undergraduate, graduate and professional degrees to students from more than 50 states and more than 100 foreign countries.

The University continues to rank first among all American colleges and universities in conferring on-campus doctoral degrees to African Americans.

JSU SCIENCE AND TECHNOLOGY ACCESS TO RESEARCH AND GRADUATE EDUCATION

Several sources indicate that HBCUs have been the major source of B.S. degrees awarded to African-Americans in Science, Engineering, and Mathematics (SEM) disciplines. But the situation is rapidly changing. Several data also suggests that SEM bachelor degrees awarded to African-Americans by HBCUs have been declining since 1987. Jackson State University (JSU) has been awarded a grant by the NSF-HBCU-UP program, the focus of which will be to enhance existing programs and to promote the integration of teaching and research. The plan will provide resources to greatly improve, throughout the School of Science and Technology (SST), the processes and activities that are being used in the recruitment, retention and graduation of students, in SEM areas. Enhanced/corrective strategies will be implemented using known models which have proven to be successful. JSU envisions the implementation of this project to be a mechanism for fostering the transformation and integration of research and education in SEM fields.

The overall program goal is to enhance and strengthen JSU's SEM degree-producing capacity at all levels and increase the number of SEM graduates, especially qualified minority scientists/engineers who can contribute to advancing the state of SEM knowledge and address the technical problems of society. Specific focus will be directed toward enhancing faculty development, the curriculum and student development. Activities being implemented in support of the project goals include: curriculum restructuring, implementation of a comprehensive SEM student support center, integration of information technology into the curricula, enhancement of the educational/research support infrastructure, and faculty development.



The expected outcomes of this project will be improvement in the overall programmatic course offerings, enrollment and research activities in SEM fields. Through a strong partnership that already exists between JSU and various national labs, industry and other universities, significant opportunities for quality undergraduate student research and training in SEM fields will be available. Other benefits will include:

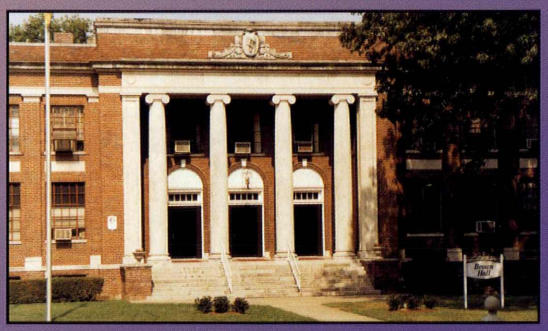
- Strengthening the program of instruction in the core SEM courses.
- Revision and updating of curriculum as needed, incorporation of Information Technology (IT) in the curricula.
- Expansion and upgrading of educational resources including teaching facilities and laboratories.
- Increase in faculty research involvement, publications and grantsmanship.
- Educating and training significant numbers of minority students for successful careers in SEM fields to met the needs of related institutions including governmental agencies, the academia and the booming demands from industry.
- Formation of creative partnerships with local, state, federal and private institutions, and the opportunity for faculty and students to participate in formal internship programs at these institutions.
- An increase in the number and motivation of minority students pursuing undergraduate and graduate degrees in SEM fields.

MILES COLLEGE

Historically Black Colleges and Universities Undergraduate Program

Twenty-First Century Integration of Science and Mathematics

Training Great Minds for the Future



Miles College is a four year, accredited, liberal arts College that enrolls more than 1200 students. It is located in Fairfield, Alabama, six miles west of the downtown Birmingham area. Miles College is a fully accredited member of the Commission on Colleges, Southern Association of Colleges and Schools for the award of baccalaureate degrees and is a member of the United Negro College Fund.

The Miles College Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) is designed to enhance the preparation of underrepresented minority science, engineering, and mathematics (SEM) students for graduate school attendance. This is accomplished by the implementation of the following:

- A science inquiry (research) component for all junior and senior level SEM courses
- The introduction of a computer technology major involving the integration of computer technology into other disciplines
- The implementation of a junior/senior research project as part of the degree requirements for all SEM majors

- An HBCU-UP Scholars Program providing support for highly qualified students interested in graduate school
- An annual HBCU-UP Research Conference providing an opportunity for minority undergraduate SEM students to gain experience through the presentation of research findings
- An annual High School Research Day for high school students interested in science careers

Miles College HBCU-UP Administration

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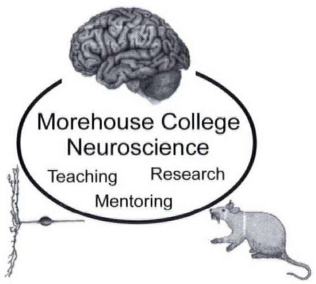
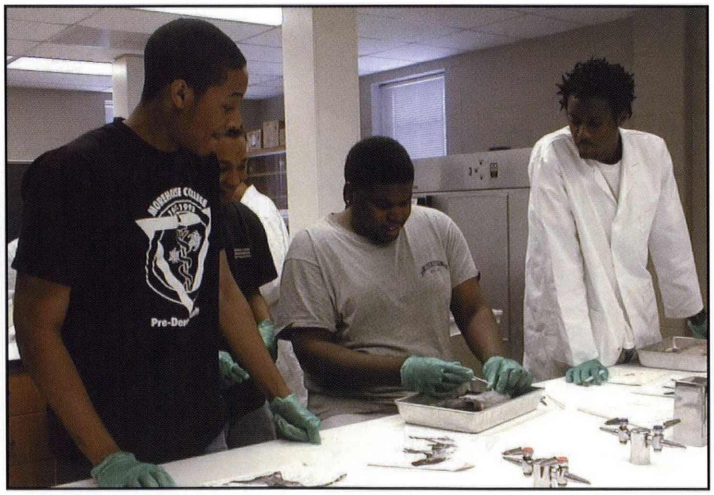
Promoting Excellence in Teaching and Research in the Neurosciences: A Collaborative Project of Morehouse College and Atlanta University Center Colleges



Co-Principal Investigators: Melissa A. Harrington and Margaret L. Weber-Levine

As part of its HBCU-UP project, Morehouse College is in the process of developing an undergraduate neuroscience program that will be the first undergraduate neuroscience program in a historically black institution. The Morehouse Neuroscience Program is inter-disciplinary and involves all of the HBCUs at the Atlanta University Center (AUC). This program will involve research and instructional activities designed to foster cross-school research and educational collaboration. The eventual goal of the project is to motivate African-American students toward careers in scientific research by providing experience in research laboratories and fostering mentoring relationships with established scientists. We hope to use student's natural curiosity about how the brain works to develop their interest and appreciation in science as a challenging and exciting career.

The centerpiece of our proposal is a plan to develop research and educational opportunities in the neurosciences to enrich the academic preparation of students at Morehouse College, and stimulate interest in research as a career. To implement this first objective we are expanding the role of neuroscience in the academic and research program at Morehouse College. We have introduced new undergraduate classes in neurobiology and developmental biology involving both lecture courses and investigative laboratories. The development of laboratory exercises for the courses was a collaborative effort drawing on the experience of faculty at colleges and universities throughout Atlanta. In addition to developing new laboratories, we are upgrading existing laboratory classes and facilities at Morehouse College in psychobiology, and in General Biology, a"gatekeeper" class. The new laboratories and modules we develop will use computers and modern techniques to enhance the teaching potential of the labs to make them more investigative and more engaging for students.



We are extending and reinforcing classroom experiences by involving undergraduate students in faculty research at Atlanta area colleges and universities during the academic year as well as in summer programs. The two-year old Morehouse College Summer Neuroscience Research Program places up to 20 students in faculty research labs for a ten-week research experience. At the end of the summer, students present their research in a final symposium of posters and short talks. In addition to the summer program, students can receive supply money and stipend support to continue their research during the academic year.

To support this effort to involve more students in research, we are hiring a new faculty member with research expertise in neuroscience and offering release time to young faculty in the Biology and Psychology Departments to increase their research productivity and give them more time to supervise student research.

Other programs designed to stimulate minority interest in careers in science include the E.E.Just Summer Research Program for high school students. In this program academically qualified high school students from across the country are invited to the campus for a seven-week summer program involving supervised research in faculty laboratories, academic classes and field trips. This and other research programs are administered by the Office of Research Careers at Morehouse an office that has the mission of counseling students about careers in science as well as coordinating programs designed to increase minority participation in science careers.

The development of a neuroscience program at Morehouse College with curricular enhancements and augmented research and teaching linkages will be of lasting value to students as well as contributing to increasing diversity in the science community.

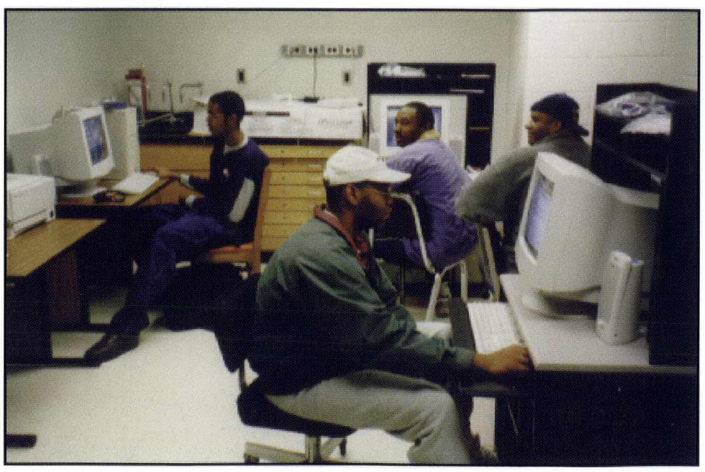
Morgan State University

As the Nation grows increasingly dependent upon science and technology, undergraduate education in science, engineering and mathematics has become critical. Concurrently, changes in economic and social policies are generating a potential workforce in need of skills to compete successfully in the high technology enterprise. Projections indicate that these trends will directly effect African Americans and other minorities, who will ultimately represent a significant segment of the future technological workforce. Moreover, the contribution of the underrepresented minorities to the scientific and technological effort is needed in order for the United States to retain its competitive edge among the nations of the world in the twenty-first century. Educating this population in the science, engineering and mathematics disciplines and preparing them to take leadership roles in graduate school and technologically-driven industry, helps to ensure that the Nation will compete successfully in the global marketplace of the future. Morgan has a record of achievement that is unsurpassed in the State of Maryland in producing African American SEM majors and bringing academically deficient students to par with academic achievers and into the professional labor force.

In anticipation of increased demands for a workforce grounded in the science, engineering and mathematics (SEM) disciplines, Morgan State University seeks to take advantage of the gains that it has made in preparing African Americans (and other minorities) for success in graduate school and careers in the SEM industries. The University will employ innovative strategies to enroll and retain SEM majors and thereby increase the number of underrepresented graduates in these disciplines. In addition, Morgan will develop broader, more in-depth experiential learning environments for its SEM majors. The University will equip its laboratories with state-of-the-art instrumentation to ensure that SEM graduates are knowledgeable and skilled in the more recent scientific techniques. In so doing the University will produce individuals who are holistically prepared to navigate successfully post-graduate education and to compete in the high technology enterprise.

Morgan will enhance its pre-college bridging programs and institute a post-baccalaureate bridge with graduate institutions. SEM faculty will develop interdisciplinary courses geared to enhance the understanding and relevance of the interconnectedness of SEM disciplines specifically for freshmen. Coordinators will be assigned to freshman and sophomore SEM majors, to assist these students in navigating the financial and academic obstacles they may encounter. Morgan will institute on-campus employment, and other incentives, for SEM majors to assist them in focusing on academic achievement.

Each SEM department will institute reforms that will creatively integrate teaching and research. Discovery-based learning will be supported by computer/technology enhanced classrooms. The University will conduct research to determine the best delivery system for SEM course content. Faculty will also conduct research and develop partnerships to broaden their knowledge base, enabling students to have more meaningful research experiences. In addition, essential reforms in gatekeeper courses will be instituted to increase retention in upper level SEM courses.



NSF HBCU-UP Awardee: North Carolina A&T State University

TALENT-21: Gateway for Advancing Science and Mathematics Talent

SUMMARY

TALENT-21: Gateway for Advancing Science and Mathematics Talent, at North Carolina Agricultural and Technical State University is funded by the National Science Foundation HBCU Undergraduate Program (HBCU-UP). The TALENT-21 project is a comprehensive academic enhancement project encompassing curriculum development and reform, integration of technology in teaching, infrastructure improvement, faculty development, and student learning and research development. The specific goals of the program are:

- To improve learning in the SMET "gate keeper" courses: calculus, chemistry, and physics.
- To significantly increase the number of minority students graduating from mathematics, chemistry, biology, and physics.
- To increase the number of minority students with research training and experiences who earn baccalaureate degrees and pursue graduate studies in SMET disciplines or enter SMET careers.
- To support the systematic development of student research and technology skills.
- To develop collaborative programs among North Carolina A&T State University colleges and schools, other institutions of higher education, industry, and governmental laboratories that strengthen the SMET academic infrastructure for undergraduate education.

PROGRAM FEATURES OF THE TALENT-21 PROJECT

1. Simultaneously reform of physics, chemistry, and calculus courses in a consistent manner using common objectives and common tools, including specific web-based tools.
2. Equipment support to configure the physics, chemistry, and calculus lecture rooms as "Smart Plug-&-Show Presentation Classrooms" to permit active-engagement lecturing.

3. Faculty development including release time, summer salary, a summer workshop, and a variety of seminars and workshops during the academic year.
4. Scholarship awards targeted to directly increase the number of minority science and mathematics majors. Book scholarships, research incentive stipends, and independent research achievement stipends for SMET majors.
5. Student development including travel, workshops and seminars, a summer institute, and paid research experiences.
6. Structured research training to SMET students to increase the number earning the baccalaureate degree, as well as the number going on to graduate study in SMET disciplines. The research training program configures a seismic physical modeling system, a seismic processing facility, and a data visualization/imaging facility at NC A&T to permit studies in geophysical/environmental science on projects that are highly interdisciplinary in nature.
7. Outreach for high school students in grades 9-12 from minority groups to participate in science and mathematics academic enrichment and development activities at NC A&T through Saturday Academy and a Summer Scholars Program.

OAKWOOD COLLEGE

Oakwood College's HBCU Undergraduate Program, Active Chemical Education Through Research (ACER), is a multi-disciplined program designed to strengthen the College's science, math and technology (SMT) programs and achieve the following goals:

1. Increase the number of non pre-med students receiving undergraduate degrees in natural sciences (chemistry/biology)
2. Increase the number of students who go to graduate school
3. Increase the number of students who obtain Ph.D. or MS degrees in chemistry and biosciences.
4. Increase the Institution's research infrastructure and modernize teaching methods

The ACER Program integrates SMT curriculum reform, research opportunities, faculty development, student financial support, and increased technology to achieve its goals. Additionally, it provides for a visiting scientist program to bring new teaching methodologies, enhanced academic enrichment, and opportunities for networking and information about a number of graduate schools across the country.

ACER will take curriculum revision at Oakwood College to the next level by converting a research lab into a classroom setting where students will have one-on-one access to computers enhanced with data acquisition capability and appropriate software to perform real-time experiments. Students will be able to individually collect and manipulate real-time data in experiments using the program/methodologies described above in general chemistry and organic chemistry, which are gatekeeping classes that all SMT students are required to take. A professional Educational Technologist will work directly with SMT faculty to strengthen SMT instruction by infusing technology into the curriculum, classroom, and laboratories to reach higher, more effective levels in research-based teaching and learning methodology.

Implementation of the ACER visiting scientist component will allow for infusion of in-depth academic material on subjects that are not available now or only covered in less detail in general chemistry and biological science classes. Material presented by visiting scientists will be incorporated into existing courses, and classes and lectures, where possible, will be videotaped for future use.

The program will provide financial support to over 90 students, allowing for summer research opportunities at Oakwood or other institutions, and travel to scientific conferences/meetings. The funding will also provide support during the academic year.

ACER also includes a strong mentoring approach and will provide individual assistance with graduate school testing preparation and the application process.

The Program Director is Dr. Delbert W. Baker, President of Oakwood College. The Program Manager is Dr. Alexandre G. Volkov.

National Science Foundation
Prairie View A&M University
SMET Enhancement Program

The National Science Foundation (NSF)-Prairie View A&M University (PVAMU) Science, Mathematics, Engineering and Technology (SMET) Enhancement Program has the goal of increasing significantly the number of students enrolling and successfully completing an undergraduate degree within the SMET related disciplines. The primary objectives of the program are to:

(1) Develop and maintain successful recruitment and retention programs for underrepresented groups within the SMET disciplines;
(2) Increase partnerships with high schools, academic institutions, corporations and industrial/government laboratories;
(3) Strengthen the current PVAMU SMET education and research infrastructure;
(4) Ensure students are informed and prepared to transition from high school, through the undergraduate curricula, to graduate schools and industry; and
(5) Complement the HRD Comprehensive Partnership for Mathematics and Science Achievement (CPMSA) at the Beaumont Independent School District in Beaumont, Texas.

PVAMU students conducting research within the PVAMU-NASA Center for Applied Radiation Research.

Personnel, processes, and appropriate evaluation strategies will be established to ensure success of the overall program. Major program components include recruitment and retention, student development and support, and entry into SMET graduate study or workforce. The following activities will be instituted:

(1) Collaborating and synchronizing university recruitment activities;
(2) Establishing and maintaining tutorials and mentoring sessions;
(3) Integrating and facilitating student learning enrichment opportunities within the university research and corporate partnership programs;
(4) Enhancing faculty skills in teaching, research and service;
(5) Establishing and utilizing steering committees and advisory boards from the SMET community; and
(6) Conducting program reviews to assess the progress and success of NSF and PVAMU program objectives.

Overall, the program will enhance the human and resource development infrastructure throughout the SMET disciplines at Prairie View A&M University and the associated communities. The partnerships and synergism between high schools, universities and the SMET workforce will be of mutual benefit to all. The target infrastructure will provide great potential for increased student enrollment and success by fostering faculty development and curriculum alignment to better serve the various SMET communities. Finally, the established system of processes and evaluation procedures will continue beyond the proposed life of the cooperative agreement and remain as permanent components of the SMET environment at Prairie View A&M University and the SMET associates.

Historically Black Colleges and Universities-Undergraduate Program (HBCU-UP) "Strengthening Minority Access to Research and Training" (SMART)

Southern University at Baton Rouge (SUBR) proposes "Strengthening Minority Access to Research and Training" (SMART) as its three-year HBCU-UP long-range strategic plan of action which addresses the historical under-representation of minorities in baccalaureate and doctoral ranks of science, mathematics, engineering, and technology (SMET) disciplines. This long-range strategic plan has the overall objective of strengthening and expanding systemic approaches in such a way as to: (1) develop and maintain a diverse and intellectually vigorous faculty committed to the improvement of undergraduate education; (2) strengthen curricula, courses, and laboratories through incorporation of advances in research-based teaching and learning in SMET disciplines; (3) develop appropriate partnerships with other academic institutions and industrial laboratories, as well as NSF-supported research centers, to ensure quality research experiences that complement academic studies; and (4) ensure that students are aware of, and well prepared for, graduate school matriculation, including an understanding of non-academic factors that are critical to success in graduate school.

The SMART program intends to accomplish these objectives by creating and institutionalizing an effective program of faculty development; by expanding its partnerships with other universities, agencies, and industries; by improving the general infrastructure for teaching, learning, and research (this will be made possible through special seminars, technical workshops, collaborative research projects, released time sabbaticals, etc.,); by developing an inquiry-based interdisciplinary undergraduate curriculum that will be research training-oriented; and by providing departmental mentoring and collaborative hands-on research experiences for minority SMET majors of all classifications.

This program includes all SMET majors in biology, chemistry, computer science, physics, urban forestry, agricultural sciences, mathematics, engineering (chemical, civil, electrical, and mechanical), engineering technology, and English (oral and written communication). It proposes to close the loop by targeting a large population of SMET students and faculty not being served by other programs. The plan's design, however, is to reinforce the goals and objectives and strengthen the outcomes of similar programs such as the NSF sponsored Louis Stokes Alliance for Minority Participation.

As part of the undergraduate research experience component, SMART provides stipends and scholarships to full-time SUBR undergraduate students (U.S. citizens and permanent residents) to support their hands-on involvement in research and educational activities in SMET areas during summers and academic semesters.

The SMART program proposes that, by the second semester of the junior year, 75% of SMET majors will have applied for admission to graduate school. By the second semester of the senior year, no less than 50% of SMART students will be admitted to at least one graduate school. By graduation, at least 75% of all SUBR minority SMET undergraduates will have had access to a minimum of four semesters of experiential learning enhanced by up-graded instructional and research facilities, research experiences, modern instrumentation and technology, support programs, a faculty constructed inquiry-based undergraduate interdisciplinary curriculum, supplemental instructional and learning materials, and systemic departmental mentoring.

Tuskegee University
NSF HBCU-UP Program

Through this initiative, entitled "Preparing for the Future: Strengthening Basic Science, Mathematics and Biochemistry at Tuskegee University," a broad range of activities will occur to enhance the success of students in science mathematics, engineering and technology (SMET). Specifically, this central goal will be addressed through

1- establishing a summer program for rising college sophomores who are highly motivated but have weak backgrounds in science and mathematics;

2 - strengthening of the first year college chemistry and mathematics courses, through tutorials and establishing a Math Lab;

3 - expanding and enhancing the biochemistry curriculum, 300- and 500-level, including an interdepartmental lecture/lab on the "Biochemistry of Cell Regulation";

4 - developing partnerships with academic institutions having strong and multidisciplinary programs in Biochemistry, especially Georgia State University, Iowa State University, and Michigan State University;

5 - strengthening industrial partnerships through an external advisory board, with the goal to develop a source of scholarships for promising undergraduate students; and

6 - establishing a resource center/classroom available for mentoring activities, contacting Tuskegee graduates and others who are currently in graduate school, and generally solving problems which are not directly academic but are part of the student's future.

The summer program for college sophomores, CReATE (Chemistry and Research for the Advancement of Tuskegee-Educated Scientists), will involve, each summer, 20 science majors from the various SMET disciplines in a research-oriented approach to the teaching of General Chemistry and the opportunity to be involved in research on the Tuskegee campus.

The Math Lab will be designed to assist students in the basic college math courses as well as the three semesters of calculus offered at Tuskegee University. The Math Lab will be networked throughout campus and will maintain an interactive WEB site.

The 300-level biochemistry course will link students to the more advanced courses, while building on the chemistry and math backgrounds of the students.

The partnerships, academic and industrial, are essential to the development of the students and faculty. Additionally, the strong connections existing between Tuskegee University and the Alabama Alliance for Minority Participation (AAMP) will be integral to this effort. The NSF/CREST grant on the Tuskegee campus, which supports an initiative to assist in the development of the Ph.D. in Materials Science and Engineering, provides a setting for the involvement of CReATE students in research, as does the NSF supported initiative in high performance computing at Tuskegee University. Other non-NSF programs provide similar opportunities. The infusion of motivated, qualified students to these programs will provide a synergistic enhancement of the students and the programs.

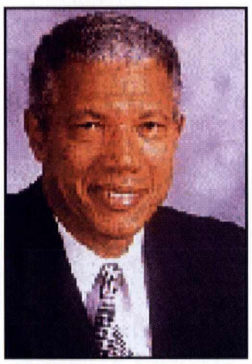
University of the Virgin Islands

Science and Mathematics: Research Throughout the Curriculum

Principal Investigator: Orville Kean, Ph.D.

Project Director: Camille McKayle, Ph.D.

The University of the Virgin Islands was founded as a College in 1961. It is the only institution of higher learning in the United States Virgin Islands, and is the primary source of higher education for the Virgin Islands community.



UVI President, Dr. Orville Kean

Our Mission

The Division of Science and Mathematics aims to become a center for excellence for the preparation of minority scientists, mathematicians and engineers.

Goals

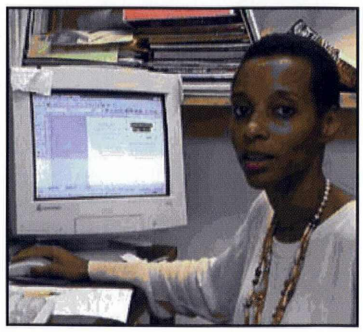
- To increase the number of under-represented minority undergraduate students majoring in Science, Mathematics, Engineering and Technology disciplines.
- To increase the number of under-represented minority students that successfully enter and complete Ph.D. programs in Science, Mathematics, Engineering and Technology disciplines.

Visit the University of the Virgin Islands on the World Wide Web at www.uvi.edu

Methods

- Junior High and High School summer enrichment programs and Saturday Academies.
- Innovative research-infused undergraduate curriculum to introduce all science and mathematics students to the rewards of research.
- Introduce exciting research projects in astronomy, chemistry and physics to provide out of classroom research experiences for students.
- Support undergraduate student research in off-campus facilities.
- Increased undergraduate mentoring by faculty.
- GRE preparation support.

The Division of Science and Mathematics at the University of the Virgin Islands will be a model for successful science and mathematics programs. The Division is committed to being at the forefront of pedagogical issues in science and mathematics and will make research the unifying theme throughout the undergraduate experience.



Dr. Camille McKayle

Dr. Roosevelt Calbert Retires from NSF

25 Years of Service Committed to a Strategy of Full Participation

Dr. Calbert received the Masters and Ph.D. degrees in physics from the University of Kansas in 1969 and 1971, respectively. In 1975, Dr. Calbert joined the National Science Foundationís Directorate for Science Education.

His career at the Foundation includes a position as Senior Program Analyst, Office of Planning and Resources Management, Agency Representative for the White House Inittiative on Historically Black Colleges and Universities, and Program Director for several NSF initiatives. Currently, he is Director, Division of Human Resource Development in the Directorate for Education and Human Resources.

Prior to joining the Foundation, Dr. Calbert was Director of the Cooperative Academic Planning Program at the Institute for Services to Education in Washington, D.C. He has held faculty positions at Alcorn State University and Alabama State University.

He has presented more than 50 papers at professional association meetings and conferences, and has published in professional journals.

In 1987, he received the NSF Directorís Equal Opportunity Achievement Award for demonstrating an exceptionally high commitment to developing the research capabilities of young minority investigators and enhancing the scientific research capabilities of minority-serving institutions.

During his nearly 25-year tenure at the Foundation, Dr. Calbert established several programs in the 1980s for the science, engineering, and mathematics education of minority groups that are underrepresented in these fields. These programs are Research Improvement in Minority Institutions; Minority Research Initiation; Minority Research Centers of Excellence; and Research Careers for Minority Scholars. Although some of these programs are no longer in existence, they form the conceptual basis of the Foundationís current efforts in the science and engineering education of minority students.

HBCU–UP Winter Research Conference

Hosted by the Miles College HBCU-UP

February 16 - 17, 2000

Conference Dates: February 16-17, 2000

Conference Schedule:

Wednesday, February 16, 2000: Registration and Welcome Reception

Thursday, February 17, 2000: Breakfast; Project Set-up; Project Judging; Workshop Sessions; Lunch; Invited Address; Awards Ceremony

Conference Arrangements:

The conference hotel is the Sheraton Birmingham, located at 2101 Civic Center Boulevard, Birmingham, Alabama. For reservations call (205) 307-3000 and indicate that you will be attending the HBCU-UP Winter Research Conference hosted by Miles College. The conference rate is $105.00 for a standard double.

Conference Registration:

The conference registration fee is $75.00 for students and $90.00 for non-students. Make checks payable to Miles College Research Conference. The registration fee includes conference meals, the cost of awards, conference t-shirts, and other incidentals.

A completed registration form with registration fee should be mailed no later than Monday, January 24, 2000 to:

Dr. Bernice Cobb
HBCU-UP Project Manager
Miles College
P.O. Box 3800
Birmingham, Alabama 35208

Please note the conference research competition will involve poster/ project presentations only.

Historically Black College and University Undergraduate Initiative

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NSF HISTORICALLY BLACK COLLEGES & UNIVERSITIES

UNDERGRADUATE PROGRAM