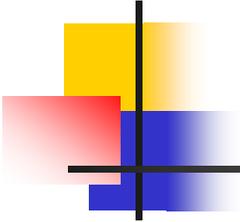


Morgan State University

Maryland's "Urban" University



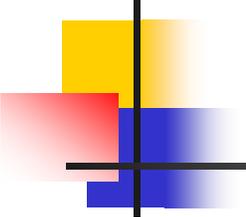
Presented at:

Modeling Scientific Workforce Diversity
National Institute of General Medical Sciences
Natcher Conference Center, Room B

<http://www.morgan.edu>

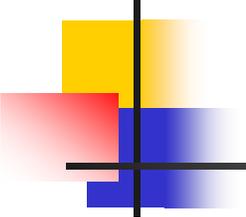


Baltimore, MD 21251



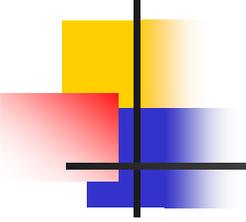
Institutional Profile

- Underrepresented Minority (URM) institutions share a common mission, i.e., to educate the growing number of racial- and ethnic-minority students and prepare them for the changing workforce.
- URM institutions structure and organize their educational experiences for students within their own social and cultural contexts.
- Many of the URM students are first generation students of low socio-economic status.
- Some matriculate with strong academic foundation, while others may need remedial assistance.
- URM institutions tend to mentor and nurture their students.
- These institutions have several programs to assist students to succeed. Some of these programs include:
 - Pre-college
 - Peer-mentoring



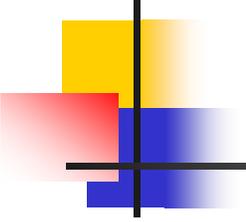
Institutional Profile Cont'd

- These institutions have heavy teaching loads.
- They all have similar funded programs to assist students to succeed.
- These funded programs include:
 - NIGMS – MARC and MBRS programs
 - NSF-LSAMP program
 - NSF – HBCU-UP
 - NCRR – RCMI
 - NCHD - RIMI



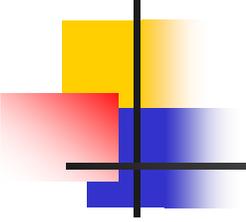
Institutional Profile - Morgan State University

- Public Comprehensive University Located in Baltimore, MD
- 6,800 Student Population
- Degrees Offered:
 - Baccalaureate – 46 Programs
 - Master's -- 27 Programs
 - Doctorate -14 Programs
- **Doctoral programs:** *Bio-environmental Sciences; Engineering; Public Health; Business Administration; Science Education; Mathematics Education; Urban Educational Leadership; Community College Leadership; Higher Education Administration; English; History, Social Work, Psychometrics, Nursing*



Institutional Profile - Morgan State University

- 2005 – Carnegie Classification: Doctoral Research Intensive University.
- Rank #1 in the State of Maryland in the production of African Americans.
- Ranks 8th in Bachelor's degrees awarded to African Americans, nationally.
- Ranks #1 in the State of Maryland in the production of African American Science and engineer graduates
- Ranks fourth in Biological/Biomedical Science degrees; 6th in Engineering; 11th in Computer and Information Science degree; 16th in Education.
- Offers 27 Master's programs and 14 doctoral degree granting programs.



Institutional Profile - Morgan State University

- Ranks 29th, nationally, in total doctorates awarded to African Americans
- Ranks 3rd-Engineering doctorate degrees
(School of Engineering is nationally one of ten engineering schools at an HBCU) ;
- 5th-Health professional; 15th-Education; 13th-Master's degrees in Engineering; 14th-Master degrees in English Language and Literature

Institutional Profile - Morgan State University Cont'd

Academic Units

- College of Liberal Arts
 - School of Business and Management
 - School of Computer, Mathematical and Natural Sciences
 - School of Education and Urban Studies
-
- School of Engineering
 - Institute for Transportation*
 - Transportation Studies*
 - National Transportation Center*
 - School of Graduate Studies
 - Institute of Urban Research*
 - School of Public Health and Policy
 - Nutritional Sciences*
 - Nursing Programs (BS, MS, PhD)*
 - Institute of Architecture and Planning



Institutional Profile – Morgan State University

School of Computer, Mathematical and Natural Sciences

Chemistry

Computational chemistry, sensors,
Organic synthesis, environmental
geochemistry, micro-gravity studies,

Physics

Condensed matter, mossbauer spectroscopy,
thin film and multi-layer magnetic materials,
digitized image processing

Biology

neuroscience, bio-informatics,
immunology, virology, toxicology,
bioenvironmental science, genetics

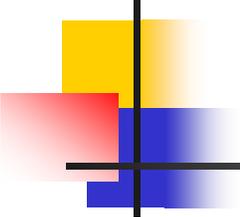
Computer Science

software engineering, computer graphics,
computer architecture, expert systems,
artificial intelligence, bio-informatics

Mathematics

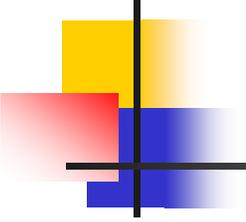
Combinatorics, topology, information theory,
mathematical modeling, formal power series,
abstract differential equations, ultra filters

- Nanotechnology is an interdisciplinary research program conducted by faculty in the disciplines of Biology Chemistry, Physics, Computer Science and Mathematics



Institutional Profile – Morgan State University -
School of Public Health and Policy

- Behavioral Health Sciences
 - Nutritional Sciences
 - Nursing Programs (BS, MS, PhD)
- Public Health Analysis
- Health Policy and Management



Institutional Profile – Morgan State University - School of Engineering

- **Civil Engineering**

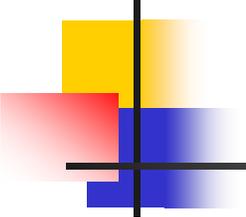
environmental, geo-technical, hydrogeology, geodynamics, traffic, highway, transportation, construction

- **Electrical & Computer Engineering**

networks, semiconductor electronics, computer, MEMS, FR & EMT communications

- **Industrial Engineering**

Manufacturing, human factors, ergonomics. Operations research, object oriented programming, MEMS

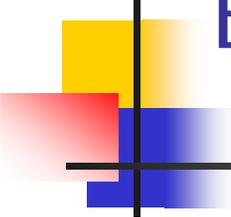


Morgan State University Research Centers

- MSU Biomedical Research Center (RCMI)
- Prevention Science Center
 - *Drug Abuse*
 - *Health Disparities Solution*
- Knowledge Management Center of Excellence
- Center for Advanced Energy Systems & Environmental Control Technologies
- Engineering Visualization & Semiconductor Group
- Advanced Engineering Design and Manufacturing
- Center for Advanced Microwave Research & Application

Morgan State University Estuarine Research Center (ERC)

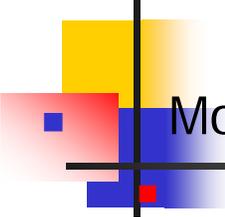




ESTUARINE RESEARCH CENTER

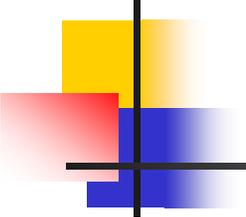
- **The Estuarine Research Center maintains excellent facilities that include:** a 28,000 square foot laboratory and office building, a fleet of vehicles for field work; and a private dock providing access to the Patuxent River. Other facilities include:
 - Outdoor and indoor facilities with flowing seawater
 - Scuba support and dive locker
 - Fleet of research vessels including 42 foot RV Leidy
 - Teaching laboratory, conference room and small library
 - Range of research laboratories, including isotope, constant temperature and image analysis labs

Research Studies at ERC



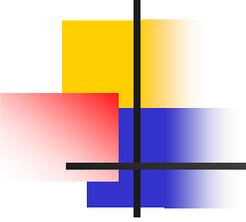
Most recent projects:

- Commercial shellfish populations (blue crabs and oysters) to determine their responses to fishing pressure and disease, the performance of disease tolerant Specific-Pathogen-Free (SPF) oysters, and the accumulation of metals by oysters
- Water quality compliance mechanisms
- Water quality monitoring to study the source of pollution on the ecology of the Chesapeake Bay and the development of harmful algal blooms.
- The response of prey to the interactions of predator and habitat variability.
- Aquatic microbial ecology and biogeochemistry in marine and estuarine environments with the focus on nutrients, Human impacts and eutrophication:
- Using GIS/remote sensing to monitor the eutrophication process



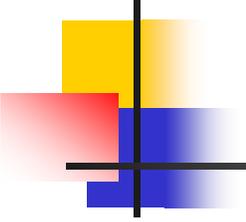
Major Funding Organizations

- o NIGMS – MARC and MBRS
- o National Center for Research Resources (NCRR/NIH)
- o National Science Foundation
- o Department of Defense
- o Army Research Lab
- o Environmental Protection Agency
- o Hewlett Packard
- o IBM
- o KCE Engineering, Inc
- o Lockheed Martin
- o Maryland State Highway Administration
- o NASA
- o NAVY
- o Northrup Grumman
- o NSA
- o Purdue (NSF)
- o U.S. Army Corps of Engineers
- o U.S. Department of Energy
- o U.S. Department of Transportation (FHWA)
- o U.S. Dept. of Education
- o Xerox Corporation



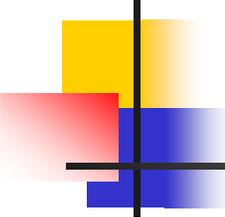
Modeling Scientific Workforce Diversity – The Problem

- Lack of research infrastructure at the underrepresented minority institutions
 - Faculty and staff resources
 - Research space
 - Supplies and Equipment
- A need to enhance the research capacity and capabilities at the underrepresented minority institutions



Modeling Scientific Workforce Diversity – Insights

- Recruitment and training
- Collaborations/partnerships
- Networking
- Outreach
- Development of community based programs
- Faculty development programs



Modeling Scientific Workforce Diversity - Recommendations

- Provide resources to enhance the research infrastructure at all underrepresented minority institutions.
- Provide support to enhance faculty development activities.
- Special emphasis should be given to building research expertise in IT, Nanotechnology at all underrepresented minority institution to meet the workforce demand for the future
- Provide support to establish state-of-the-art Modeling Core Laboratories in areas such as bioinformatics, proteomics, visualization