

Greater Philadelphia Region Louis Stokes Alliance for Minority Participation Bridge to the Doctorate Program

*Impacting the world
one student at a time.*



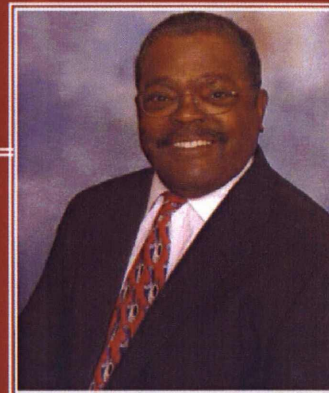
September 2008



Sponsored with funding from the
National Science Foundation
Award # HRD-0331559



Message from Project Director Stephen R. Cox, Co-PI



Seventeen years ago, a consortium of dedicated educators and scientific stakeholders came together to discuss the dire state of affairs which existed in the region and the nation regarding the participation of underrepresented students in science, engineering, mathematics and technology curricula and professions. A blueprint was developed with input from all the participating stakeholders, shaping a comprehensive pipeline from k through 16 that would mitigate the diminished scientific capacity of the region. This became the operational plan for the next 10 years. This consortium was developed through a National Science Foundation grant entitled, "The Comprehensive Regional Center for Minorities" (CRCM).

The Greater Philadelphia Region Louis Stokes Alliance for Minority Participation (Philadelphia AMP) emerged from the focus and energy of the CRCM in the fall of 1994 to sustain at the undergraduate level the increased baccalaureate degree production across a nine university consortium with geographic influences in three adjoining states: New Jersey, Pennsylvania and Delaware. Through the support of the National Science Foundation and the dedication of the presidents, faculty, students and industries in the region, the Alliance has more than doubled its minority science, technology, engineering and mathematics (STEM) BS degree production from 201 to over 500 degrees annually and produced more than 6,000 BS degrees over the last 14 years of the Alliance. In addition, the Philadelphia AMP has quadrupled the number of minority students entering graduate school, and to date, twenty-one of the Philadelphia AMP graduates have already attained STEM Ph.D. degrees. It is expected that this number will dramatically increase in the next few years with the doctoral completion of our Bridge to the Doctorate students.

The Bridge to the Doctorate Program is the transitional quantum state of the STEM (science, technology, engineering and mathematics) enterprise dedicated to the development of doctoral candidates who have been enriched in the energy matrix of the LSAMP. What was a vision has become a *strategic model* to move underrepresented students from pre-college through baccalaureate degree attainment and on to terminal degree completion. In the Greater Philadelphia Region the LSAMP Bridge to the Doctorate program is the state of equilibrium that we expect to become the norm, not the exception, when producing Ph.D. candidates in the future.

The Greater Philadelphia Region LSAMP partner institutions, faculty and students are honored to be a part of this historic initiative.

Bridge to the Doctorate Table of Content

INSIDE THIS ISSUE:

Message from Project Director, Stephen R. Cox, Co-PI	1
Program Objectives	3
Program Activities	4
Bridge to the Doctorate (Cohort I – V) Students	5-9
Student Accomplishments	10-11
Special Program Features and Program Achievements	12-13
Contact Information	14

Bridge to the Doctorate Program Objectives

The Greater Philadelphia Region LSAMP Bridge to the Doctorate (BTD) program is focused on effective strategies for recruiting, retaining, preparing and graduating its participants at the Masters level in STEM disciplines and encouraging their participation in educational pursuit at the Ph.D. level.

The program provides students with a graduate student stipend of \$30,000 per year (\$27,500 for Cohort I only), and a \$10,500 per year cost of education allowance payable to the hosting institution to cover the student's tuition, health insurance, and other normal fees. Any additional tuition, health insurance, and other normal fees associated with the student's plan of study are covered by the hosting institution. The BTD program provides support to students in good academic standing for up to the first two years of their graduate study.

The specific objectives of the program are:

First Year Objectives (The objectives stated below are meant to be minimum goals.)

- ◆ Enroll 12 BTD minority students in Master's level science, technology, engineering and mathematics programs.
- ◆ Pair students with faculty mentors and graduate advisors.
- ◆ Provide tutoring/coaching to assist students in the successful completion of first-year coursework.
- ◆ Engage students in graduate research projects.
- ◆ Allow students to attend at minimum one professional conference.
- ◆ Ensure all students have taken GRE examination by the end of the first year.
- ◆ Develop cohort study to monitor minority graduate STEM student retention at Alliance institutions
- ◆ Achieve 100% retention of enrolled students at the end of the first year.
- ◆ Assess program effectiveness and make mid-course corrections.

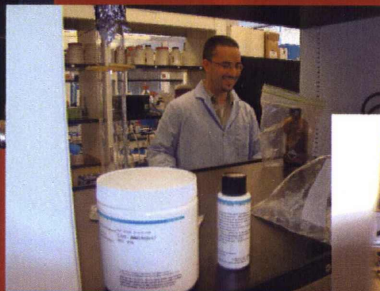
Second Year Objectives (The objectives stated below are meant to be minimum goals.)

- ◆ Produce 12 minority MS degrees in science, technology, engineering and mathematics.
- ◆ Move 12 students into Ph.D. programs.
- ◆ Ensure all students have applied for the NSF Graduate Research Fellowship.
- ◆ Assess program effectiveness, and document, publish, and disseminate effective practices, and the results of project activities.

Bridge to the Doctorate Program Activities



David Delanie, Ph.D. Candidate,
Electrical Engineering, Drexel Uni-
versity



Rafael Mulero, Ph.D. Candidate,
Mechanical Engineering, Drexel
University



Nejea Davis, Ph.D. Candidate,
Chemistry, Temple University

Research



Andro-Marc Pierre Louis, Ph.D. Candi-
date, Chemistry, Temple University

Professional Development Workshops



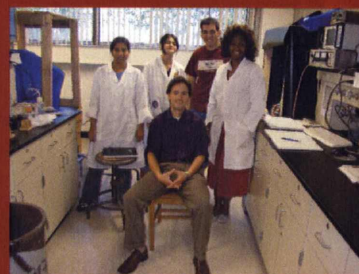
Dr. Nii Attoh-Okine, Professor, Civil
Engineering, University of Delaware
presenting a workshop to BTM Cohort I
students on selecting a faculty research
advisor during BTM Retreat.

Research Conference Presentations



Yolanda Williams-Bey, Ph.D. Candidate,
Biological Sciences, Drexel University
presenting research to peer during profes-
sional conference.

Faculty Mentoring



Dr. Jonathan Shackman, Professor
Chemistry, Temple University faculty
advisor for BTM students Johnny Perez
and Nejea Davis (right).

Cohort I

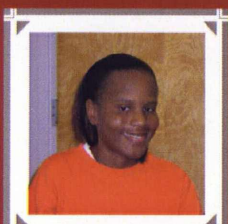
University of Delaware



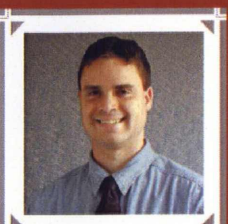
Allison Bruton
BS, Mechanical Engineering, University of Delaware
Graduate Major:
Mechanical Engineering



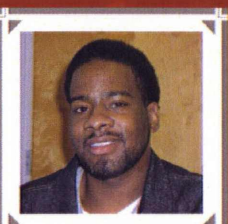
Cheryl Cannon
BS, Chemistry, Delaware State University;
Graduate Major:
Chemistry/BioChemistry



Tiffany Denny
BEE, Electrical Engineering, University of Delaware
Graduate Major:
Electrical Engineering



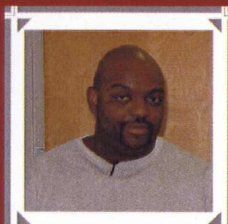
John Fader
BME, Mechanical Engineering, University of Delaware
Graduate Major:
Mechanical Engineering



Raul Jackson
BSCHE, Chemical Engineering, Drexel University
Graduate Major:
Chemical Engineering



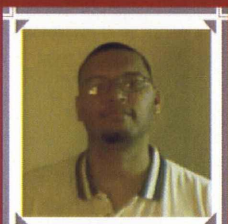
Cornelius McFadden
BS, Chemistry, Lincoln University
Graduate Major:
Chemistry / BioChemistry



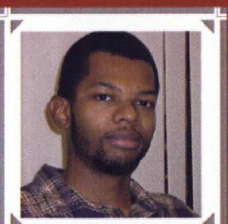
Chuck Ogbuawa
BS, Chemistry, University of Delaware
Graduate Major:
Chemistry/BioChemistry



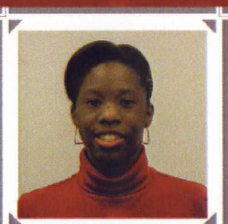
Lynnelle Thorpe
BS, Biology, Delaware State University
Graduate Major:
BioMechanics Movement Science



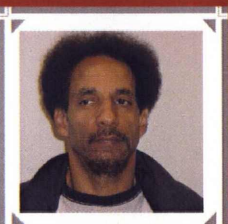
Lawrence Totty
BS, Computer Science, Lincoln University
Graduate Major:
Computer Science



Krystaufeux Williams
BS, Physics, Lincoln University / BSME, Mechanical Engineering, Drexel University
Graduate Major: Physics



Marlyse Williams
BS, Environmental Engineering, University of Delaware
Graduate Major:
Environmental Engineering



Gregory Wilson
BA, Chemistry, Cheyney University
Graduate Major:
Chemistry / BioChemistry



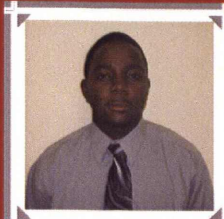
UNIVERSITY OF DELAWARE

The University of Delaware has grown from its founding as a small private academy in 1743 to a major university. As one of the oldest land-grant institutions, as well as sea-grant, space-grant and urban-grant institution, Delaware offers an impressive collection of educational resources. Undergraduates may choose to major in any one or more of over 100 academic majors. The University's distinguished faculty includes internationally known scientists, authors, and teachers, who are committed to continuing the university of Delaware's tradition in providing one of the highest quality undergraduate education available.

The University enrolls over 16,000 undergraduates and nearly 3,000 graduate students. As a state assisted, privately controlled institution, the University seeks to enroll students from diverse backgrounds and a wide variety of geographic regions. Currently, 60 percent of Newark campus undergraduates are nonresidents who represent nearly every state and several countries. The University of Delaware is strongly committed to enrolling and retaining minority students.

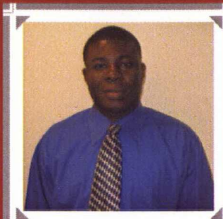
Cohort 2

New Jersey Institute of Technology



Olusola O. Abitogun
BS, Biomedical Engineering, NJIT

Graduate Major: Pharmaceutical Engineering



Kingsley Asam-Dankwah
BS, Biomedical Engineering, NJIT

Graduate Major: Pharmaceutical Engineering



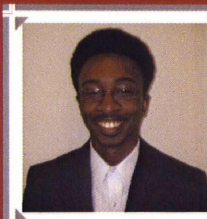
Shiyon Samantha Boodhoo
BS, Industrial Engineering, NJIT

Graduate Major: Engineering Management



Marlena Brown
BS, Biomedical Engineering, NJIT

Graduate Major: Pharmaceutical Engineering



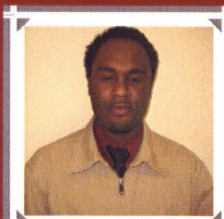
Immanuel Comer
BS, Computer Science, Drexel University

Graduate Major: Computer Science



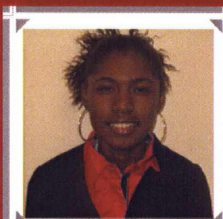
Jennifer Dorn
BS, Computer Science and Mathematics, NJIT

Graduate Major: Engineering Management



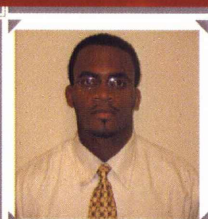
Christopher Elvin
BS, Biomedical Engineering, NJIT

Graduate Major: Biomedical Engineering and Pharmaceutical Engr.



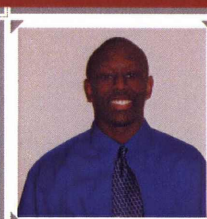
Boyenah Gaye
BS, Biotechnology, Delaware State University

Graduate Major: Pharmaceutical Engineering



Kens Josias
BS, Chemical Engineering, NJIT

Graduate Major: Chemical Engineering



Edward J. Musa Jr.
BS, in Computer Engineering, NJIT

Graduate Major: Computer Engineering



Erika Rivera
BS, Chemical Engineering, NJIT

Graduate Major: Chemical Engineering



Angela Royer
BS, Information Systems, Rutgers University & NJIT

Graduate Major: Information Systems



NJIT is a public, scientific and technological research university enrolling more than 8,800 students. The university offers bachelor's, master's and doctoral degrees to students in 80 degree programs throughout its six colleges: Newark College of Engineering, New Jersey School of Architecture, College of Science and Liberal Arts, School of Management, Albert Dorman Honors College and College of Computing Sciences.

The division of continuing professional education offers adults eLearning, off campus degrees and short courses. Expertise and research initiatives include architecture and building science, applied mathematics, biomedical engineering, environmental engineering and science, information technology, manufacturing, materials, microelectronics, multimedia, telecommunications, transportation and solar physics. NJIT ranks among the top schools of U.S. News & World Report's list of national doctoral universities.

Cohort 3

Drexel University



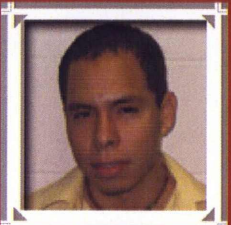
Tamika Avery
BS, Chemical Engineering,
Drexel University

Graduate Major:
Chemical Engineering



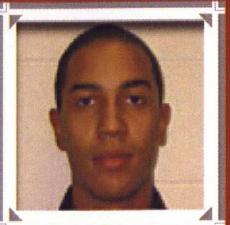
Quincy Brown
BS, Electrical Engineering,
North Carolina A&T State
University

Graduate Major:
Computer Science



Jorge Capurro
BS, Mechanical Engineer-
ing, Drexel University

Graduate Major:
Mechanical Engineering



David Delaine
BS, Electrical Engineering,
Northeastern University

Graduate Major:
Electrical Engineering



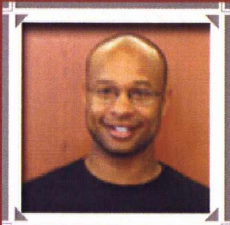
Lenora Felder
BA, Biology, Cheyney
University of Pennsylvania

Graduate Major:
Biological Sciences



Manuel Figueroa
BS, Biomedical Engineer-
ing, Tulane University

Graduate Major:
Biomedical Engineering



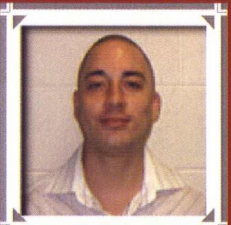
Steven Jones
BA, Psychology /
Neuroscience, Temple
University

Graduate Major:
Neuroscience



Samuel Laurencin
BS, Chemical Engineering,
Drexel University

Graduate Major:
Biomedical Engineering



Angel Lucena
BS, Biological Sciences,
Drexel University

Graduate Major:
Biological Sciences



Rafael Mulero III
BS, Mechanical Engineer-
ing, Drexel University

Graduate Major:
Mechanical Engineering



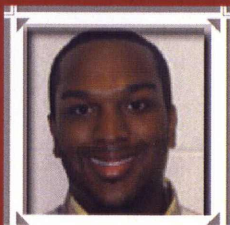
Dannielle Solomon
BS, Biomedical Engineer-
ing, Tulane University

Graduate Major:
Biomedical Engineering



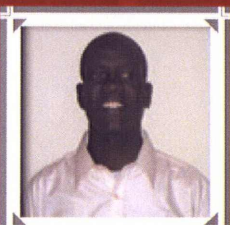
Yolanda Williams-Bey
BA, Biology, Cheyney
University of Pennsylvania

Graduate Major:
Biological Sciences



Donald Williamson
BS, Electrical Engineering,
University of Delaware

Graduate Major:
Mechanical Engineering



Non Yok
BS, Electrical Engineering,
Drexel University

Graduate Major:
Electrical Engineering

Drexel University, a private, nonsectarian coeducational university, has maintained a reputation for academic excellence since its founding in 1891. The University offers 175 degree programs to over 11,000 undergraduate and 4,200 graduate students making it the 20th largest private university in the nation. (Eighteen graduate degrees are in STEM disciplines). Drexel is home to one of the nation's oldest and most established experiential education programs, Drexel Co-op: "The Ultimate Internship".



Cohort 4

Delaware State University



Bolatito Ajayi

BA, Biology/Chemistry,
Cheyney University of
Pennsylvania

Graduate Major:
Applied Chemistry

Anwar Atif

BA, Computer Science,
Cheyney University of
Pennsylvania

Graduate Major:
Mathematics

Sami Atif

BS, Mathematics Educa-
tion, Cheyney University

Graduate Major:
Mathematics

Alma Blassengale

BS, Chemistry, Temple
University

Graduate Major:
Chemistry

Michline Brice

BA, Biology, Cheyney
University of Pennsylvania

Graduate Major:
Biology

Shannon Davis

BS, Biology, Fort Valley
State University

Graduate Major:
Neuroscience



Eric Jamison II

BS, Chemistry / Anthropol-
ogy, Lincoln University

Graduate Major:
Applied Chemistry

Carl Johnson, Jr.

BS, Chemistry, Lincoln
University

Graduate Major:
Applied Chemistry

Carmine Leggett

BS, Chemistry, Spelman
College

Graduate Major:
Applied Chemistry

Patricia Nugent

BS, Plant Science, Dela-
ware State University

Graduate Major:
Biology

Alicia Revis Mangum

BS, Environmental Sci-
ence, Delaware State Uni-
versity

Graduate Major:
Natural Resources

Bethany Smith

BS, Biology, South Caro-
lina State University

Graduate Major:
Biology

Delaware State University (DSU) is an 1890 land-grant institution, which has evolved into a fully accredited public comprehensive university focused on quality teaching, faculty research involving students, and outreach to under-

served populations. Today DSU enrolls a diverse population of 3,500 students, about 10% of whom are graduate students. From DSU, the Bridge Program leads into prestigious Ph.D. programs, such as those at Greater Philadelphia LSAMP institutions, Carnegie Mellon University, Princeton University, the University of Chicago, and the University of Washington.



Cohort 5

Temple University



Alton Allen
BS, Computer and Information Science, Temple Univ.
Graduate Major: Computer and Information Science



Shileen Bynum
BA, Chemistry, Cheyney University of Pennsylvania
Graduate Major: Microbiology and Immunology



Nejea Davis
BS, Chemistry/Biochemistry, Temple University
Graduate Major: Chemistry



Amaliris Gonzalez
BA, Biology, Temple University
Graduate Major: Biology



Keyona Gonzalez
BS, Biology, Delaware State University
Graduate Major: Biology



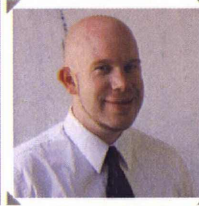
Justin Griggs
BA, Mathematics, University of California-Santa Cruz
Graduate Major: Mathematics



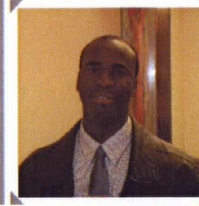
Virginia Kocieda
BS, Biology, Temple University
Graduate Major: Microbiology and Immunology



Enoch Kotei
BS, Biology, Temple University
Graduate Major: Biology



Jay Lunden
BS, Chemistry, Temple University
Graduate Major: Chemistry



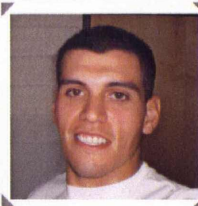
Andro-Marc Pierre Louis
BS, Chemistry, Temple University
Graduate Major: Chemistry



Rene Oats
BS, Physics, Lincoln University
Graduate Major: Civil Engineering

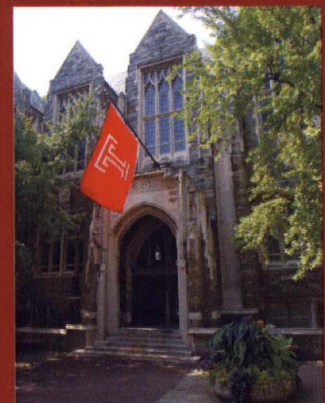


Carl Slater
BA, Mathematics, Morehouse College
Graduate Major: Statistics



Johnny Perez
BS, Chemistry, Temple University
Graduate Major: Chemistry

Temple University is a national center of excellence in teaching and research with an international presence. The University hosts eight campuses and sites in Pennsylvania, international campuses in Rome, Tokyo, and London, and programs in China, Korea, Greece, Israel, and other locations throughout the world. Founded in 1884 by Dr. Russell Conwell as an informal adult-education outgrowth of his Baptist Temple ministry, Temple College was chartered in 1888 and was incorporated as Temple University in 1907. Offering more than four dozen doctoral and more than 100 master's degree programs that contribute to research and scholarship, Temple maintains its commitment to recruiting, retaining, and supporting outstanding faculty that prize diversity of thought, excel in scholarly endeavors, and support the aspirations of capable students.



Bridge to the Doctorate

Student Accomplishments



Research Presentation

Steven Jones, Ph.D. candidate, Neuroscience, Drexel University (Cohort III) presented his research on "Possible Functional Consequences of Microgravity-Dependent Myosin II Downregulation in Neurons" at **Africa's First International Conference on Mission to MARS: The African Perspective** on October 22-23, 2007 in Nigeria.

International Experiences



Book Chapter

Rafael Mulero, Ph.D. Candidate, Mechanical Engineering, Drexel University (Cohort III)

co-authored the following book chapter:

Mulero, R. & Kim, M. J., "Design, Fabrication, and Applications of Solid-State Nanopores for Single Molecule Analysis", in *Nanobiotechnology - A New Era of Modern Science*, published by Stadium Press, LLC (Feb. 2008) invited.



Publications

Quincy Brown, Ph.D. candidate, Computer Science, Drexel University (Cohort III) has the following international publications:

- ◆ **Q. Brown, F. Lee, V. Alevan**, "Interface Challenges for Mobile Tutoring Systems", Intelligent Tutoring Systems Conference, Montreal, Canada, 2008.
- ◆ **Q. Brown, F. Lee, D. Salvucci, and V. Alevan**, "The Design of a Mobile Intelligent Tutoring System," IEEE Symposium on Visual Languages and Human-Centric Computing, Herrsching am Ammersee, Germany 2008



Research Training

During the Winter 2007, Alicia Revis-Mangum, M.S. candidate, Natural Resources, Delaware State University (Cohort IV) completed a course in Belize which trained students in tropical agriculture, ecosystems and conservation, and provided students with the opportunity to conduct small-scale research projects

Bridge to the Doctorate Student Accomplishments

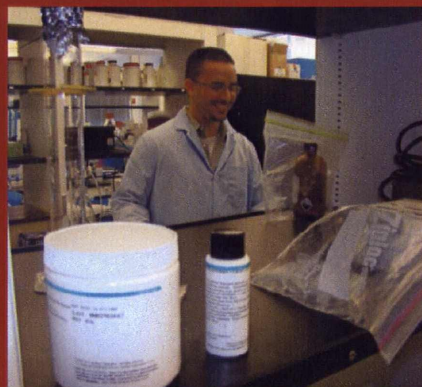
NSF Graduate Fellowship Recipient



David A. Delaine (Advisor: Dr. Adam Fontecchio) earned his BS degree in Electrical Engineering in 2005 from Northeastern University and received his MS in Electrical Engineering from Drexel University in 2007. Currently, David is a Ph.D. candidate in Drexel's Department of Electrical and Computer Engineering (BTD Cohort III). His current research includes the development of novel power generation techniques through power scavenging with Stirling Engines, and the electrical poling of polymers. David is an active member IEEE, the Society of Hispanic Professional Engineers (SHPE), the National Society of Black Engineers (NSBE), and the American Association of Blacks in Energy (AABE).

GK-12 Fellowship Recipient

Quincy Brown, Ph.D. candidate, Computer Science, Drexel University (BTD Cohort III) received her B.S. degree in Electrical Engineering from North Carolina A&T State University in 1995. Her current research is aimed at integrating the "fun" constructs of video games into educational software for K-12 students.



IGERT Fellowship Recipient

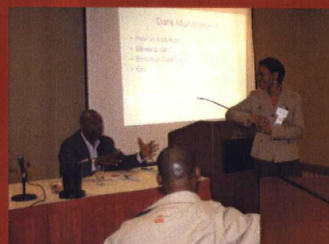
Raphael Mulero, Ph.D. Candidate, Mechanical Engineering, Drexel University (Cohort III) has also been awarded an NSF fellowship to attend the NSF Summer Institute on Nanomechanics, Nanomaterials and Micro /Nanomanufacturing at Northwestern University.

Bridge to the Doctorate Special Program Features

Retreat



Research Symposium and Mentoring Conference



A sustaining dynamic of the Greater Philadelphia Region LSAMP Bridge to the Doctorate program is the promotion of the continued interaction of new Bridge candidates with those who have experienced the program and are at different stages of doctoral development: beginning graduate students, candidates who have completed their first year, candidates preparing for comprehensive examinations and those who have transitioned to Ph.D. study. The camaraderie and peer influence have created a sense of becoming a contributor to this scientific family.

Bridge to the Doctorate Program Achievements

Philadelphia AMP Bridge to the Doctorate Ph.D. Students Distribution by STEM Category

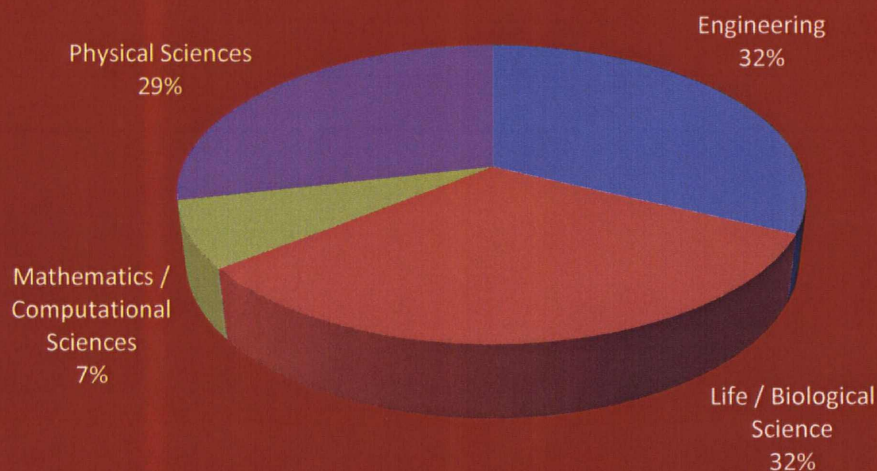


Figure 1: Philadelphia AMP Bridge to the Doctorate Productivity Rates and Commitment to Ph.D. Degree Attainment by Cohort as of Summer 2008.
(* Includes Replacements)

Cohort (Year)	Site / Funding	# of Admitted*	# Dropped or Withdrew	# Retained	# to Complete MS as of Sum 08	# Committed to complete Ph.D.	Enrolled /or Accepted into Ph.D. program
I (2003)	Delaware / \$770K	12	4	8	8	7	3
II (2004)	NJIT / \$987K	12	1	11	11	8	3
III (2005)	Drexel / \$987K	14	2	12	12	12	10
IV (2006)	Delaware State / \$987K	14	2	12	8	12	6
V (2007)	Temple / \$987K	13	2	11	N/A	11	6
Totals		65	11	54	39	50	28

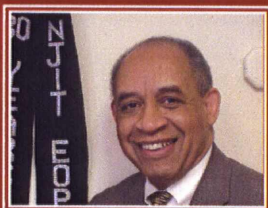
Bridge to the Doctorate Contact Information

Site Coordinators



Michael L. Vaughan

Senior Assistant Dean, College of Engineering
University of Delaware ,
102 DuPont Hall, Newark, DE 19716
Phone: (302) 831-2403, Email: vaughan@udel.edu



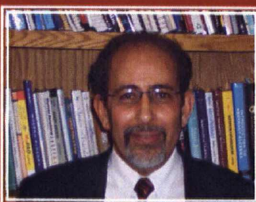
Laurence (Tony) Howell

Executive Director, Educational Opportunity Programs
New Jersey Institute of Technology, Campbell Hall - 3rd
Fl, University Heights, Newark, NJ 07102-1982
Phone: (973) 596-3686, Email: howell@adm.njit.edu



Marisol Rodriguez

Director, Alliance for Minority Participation
Drexel University, 3141 Chestnut Street,
Building 1, Room 308, Philadelphia, PA 19104
Phone: (215) 895-1641, Email: mr444@drexel.edu



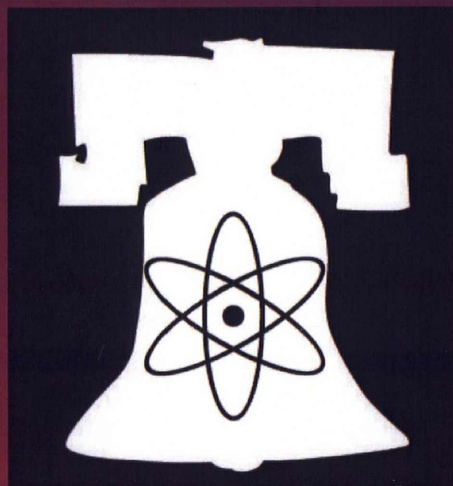
Mazen Shahin, Ph.D.

Professor, Department of Mathematics
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