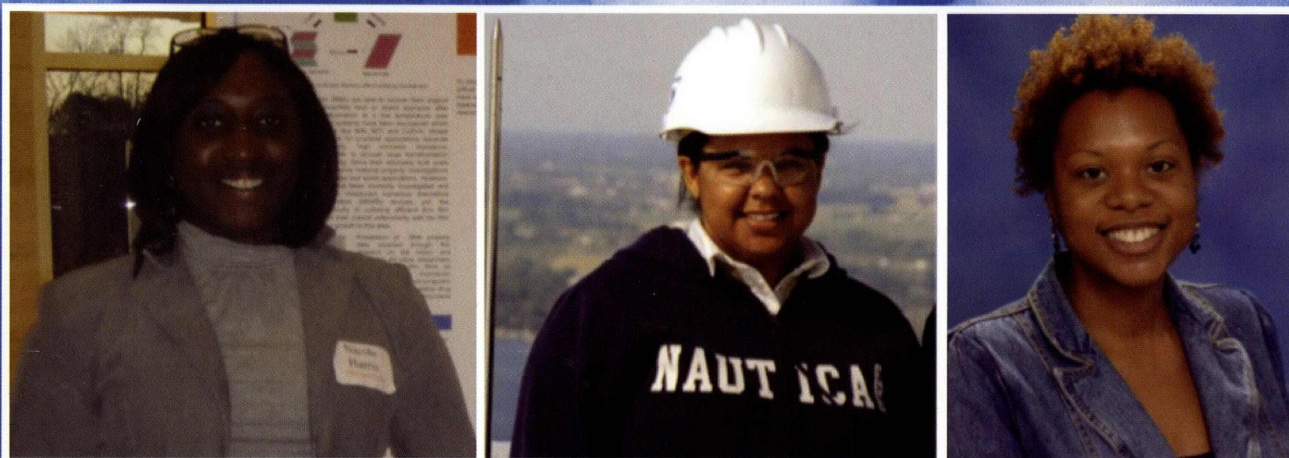


**The National Science Foundation**

**Alabama Louis Stokes Alliances for Minority Participation  
(ALSAMP)**

**Bridge to the Doctorate Activity**



**IMAGES OF SUCCESS IN STEM:**

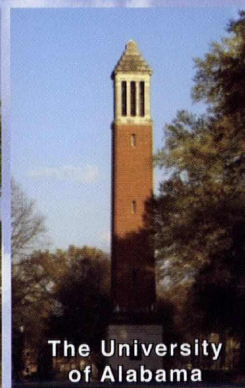
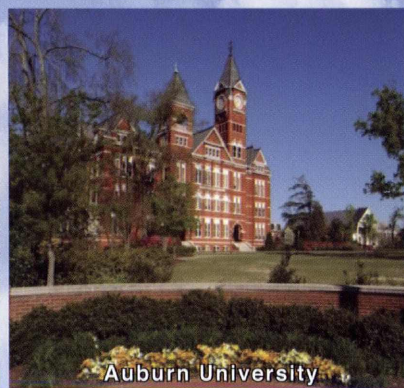
**Institutions and Students**

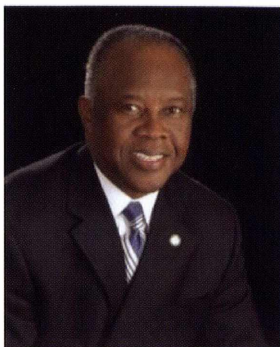
**2011-2012**

**June 2011**

## Table of Contents

Bridge to the Doctorate (BD) Activity, Dr. A James Hicks .....	1
Images of Success in STEM: BD Institutions and Students, Dr. Louis Dale .....	2
The University of Alabama at Birmingham (UAB) .....	3
UAB BD Students .....	4
Auburn University .....	13
Auburn University BD Students .....	14
Tuskegee University .....	24
Tuskegee University BD Students .....	25
The University of Alabama (UA) .....	32
UA BD Students .....	33
University of Alabama in Huntsville (UAH) .....	44
UAH BD Students .....	45





*Dr. A. James Hicks*

## **BRIDGE TO THE DOCTORATE (BD) ACTIVITY**

Dr. A. James Hicks, Senior Program Director  
The National Science Foundation (NSF)

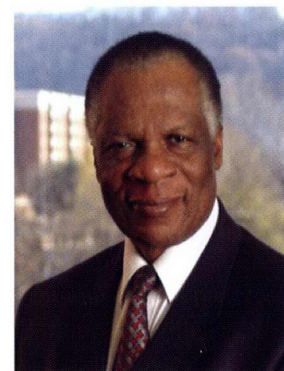
Senior-level LSAMP alliances are eligible for Bridge to the Doctorate (BD) support. BD funding provides eligible students with financial support for two years of graduate study. Programmatic activities for BD support must describe effective recruitment and retention strategies in STEM graduate education and must be based on current research for attracting, retaining, educating and graduating the participants. Proposers must provide documentation of past performance at the designated graduate institutional site of retaining, graduating and placing significant numbers of LSAMP graduates into STEM doctoral-degree programs. A plan for formally connecting a significant number of newly matriculated LSAMP students, including master's degree graduates to doctoral degree programs is expected.

Successful projects must demonstrate substantive and formal connection to other NSF-funded programs, such as CREST, NSF research centers, Integrative Graduate Education and Research Traineeship Program (IGERT), Graduate Teaching Fellows in K-12 Education Program (GK-12) and AGEP. Successful BD projects must ensure that a substantive number of first year BD participants apply to NSF's Graduate Research Fellowship Program (GRFP). Similarly, BD applicants must present an action plan describing dollar support and sources for continuing students in years three and beyond towards doctorate degrees. Action plans identifying strategies for connecting the transfer of third-year BD recipients interested in and eligible for admission to AGEP graduate programs, if available, or other graduate programs are required.

### **IMAGES OF SUCCESS IN STEM; BD INSTITUTIONS AND STUDENTS**

Dr. Louis Dale, Principal Investigator  
Alabama LSAMP

Student success in science, technology, engineering and mathematics (STEM) is a function of many factors. These include ability, motivation, family support, secondary school preparation, economic factors, college or university and STEM faculty. While all of these factors are important, the opportunities available at the selected institution can be a make or break factor for many students. "Available opportunities" means a solid curriculum, state of the art facilities and a well-prepared and caring faculty. For some underrepresented minority students and some institutions, these factors may vary.



*Dr. Louis Dale*

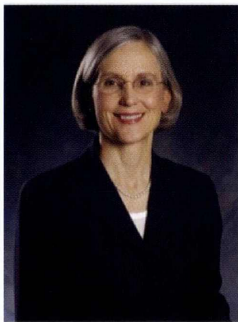
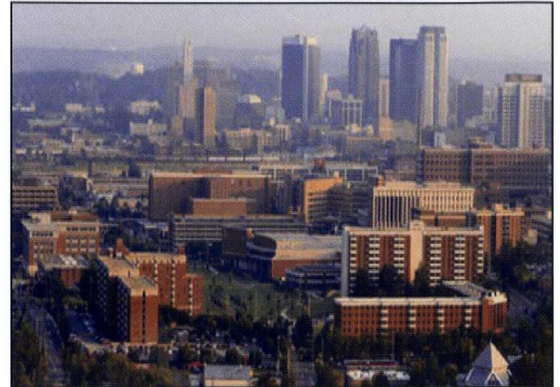
NSF's "Bridge to the Doctorate" activity has leveled the playing field for such students. The BD activity provides the selected host institution with support for twelve LSAMP graduates to receive two years of support including tuition, fees, health insurance and a stipend. The Alabama LSAMP program is a participant in the BD activity and has produced students with STEM Ph.D. degrees while a large number of other students are in varying stages of STEM Ph.D. degree programs. The Alabama LSAMP institutions selected to host a BD activity are UAB (Lead Institution), Auburn University, Tuskegee University, UA and UAH. Each of these institutions has a solid curriculum, state of the art facilities and a well-prepared and caring faculty.

The purpose of this publication is to provide information about these institutions and the status of BD students that are currently or previously enrolled at these institutions.

## THE UNIVERSITY OF ALABAMA AT BIRMINGHAM



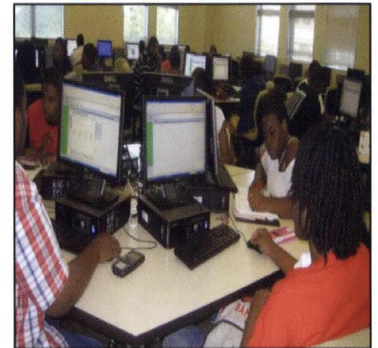
The University of Alabama established in 1936 a modest extension center in a two-story clapboard house in Birmingham, Alabama, with an enrollment of 116 students. In 1945, it became the Medical College of Alabama. The college successfully sought to recruit some of the brightest scientific and medical minds from around the globe and in 1969, these and other programs were merged into the autonomous campus of UAB. In the four decades since, this young university has thrived on that same boldness and innovation to continue pushing the frontiers in science, medicine, the arts and the humanities – and has garnered national and international respect.



Dr. Carol Z. Garrison,  
President

*The Princeton Review* has called UAB “truly a great American melting pot of different cultures, religions and races” and ranked the university third nationally in “diverse student population.” At UAB there is a sense of genuine community and appreciation for a student’s individuality and its environment mirrors today’s world and prepares students for a successful and meaningful career—and life—that benefits society.

UAB has a longstanding commitment to diversity among its student body, faculty and staff. For example, over the past five years, the number of degrees awarded to African Americans has increased by 29% (547 to 707).



Other notable recognitions include:

- Ranked among the top 15 percent of U.S. colleges and universities by *The Princeton Review*.
- Attracts over \$400 million annually in external research funding and ranks consistently in the top 25 nationally in funding from the National Institutes of Health.
- Named among the Top 5 Best Places to Work in Academia by *The Scientist* in 2008.
- Among 96 public and private universities (and the only Alabama University) classified as an institution of “very high research activity” and “community engagement” by the Carnegie Foundation.



UAB has also reached out and partnered with its community and state, sharing a vision and progress over a half century. UAB’s growth as a world-renowned research university and medical center has driven the social, cultural and economic revival of Birmingham. From the beginning, UAB’s character and culture have been about breaking through and transcending traditional boundaries among disciplines, to conduct intensely collaborative research and scholarship. Visit us at [www.uab.edu](http://www.uab.edu).



Dr. Carolyn Braswell, ALSAMP  
Co-Principal Investigator

## UAB BD Students

### Engineering



**Mellany George, BD Program (2005-2007)**

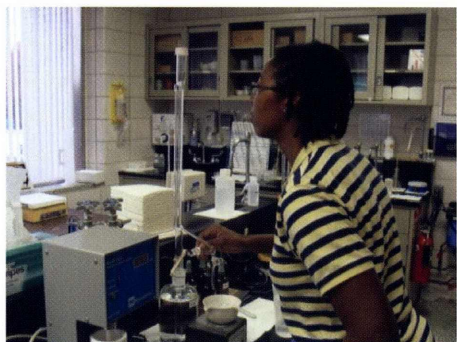
Mellany received her Bachelor of Engineering degree from Auburn University and a master's degree from UAB. She is currently working in industry.



**Melody George, BD Program (2005-2007)**

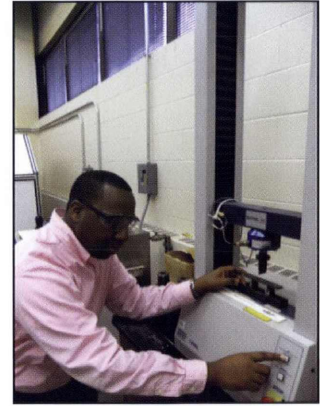
Melody received her Bachelor of Engineering degree from Auburn University and a master's degree from UAB. She is currently working in industry.

**Jaquice Danyelle Hughes** is a doctoral graduate student in the Department of Civil, Construction and Environmental Engineering at UAB. During her first year of graduate studies, she was inducted into Chi Epsilon, the National Civil Engineering Honor Society. She has maintained a perfect 4.0 grade point average during her two years in the program. Jacquice has visited Egypt as part of a joint program with her department. While there, Jacquice studied international engineering practices and the advantages and disadvantages when compared to U.S. practices. Jacquice recently began her dissertation research with the Birmingham Water Works Board (BWWB), researching the best corrosion control inhibitor for their distribution system.



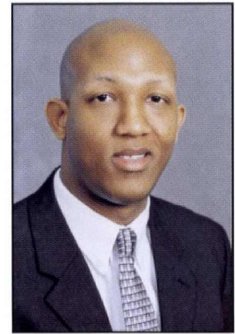
This opportunity has given Ms. Hughes the resources to combine her love for advanced water quality treatment and laboratory analysis. Her research will ultimately give BWWB suggestions to optimize their water quality and duration of their piping system. She has recently been accepted to present her research to experts in her field at a national conference. Jacquice has proven to be both a resourceful and hardworking individual, and her priorities reflect the desire to do what is right, not what is quick. She has a unique spirit and is truly passionate about her research and its potential impact on the environment.

**Samuel Jasper** is a Ph.D. student in the Department of Materials Science and Engineering at UAB. His research involves finding possible radiation shielding properties and techniques for materials used in space applications. He also conducts characterization studies on long-fiber thermoplastic materials, analyzing the damping properties and vibration response. His research efforts will give key insight into multi-functional space materials that exhibit radiation-shielding properties. He also works on various collaborative industry projects including: Navy, Army, DOD, and mass transit in conjunction with the MPAD (Materials Processing and Applications Development Lab). In May 2009, Samuel was inducted into the Golden Key Honor Society. He has been active in mentoring high school students interested in materials engineering research, through the composites group at UAB. He is a member of the Society of Plastics Engineers and assists with planning various outreach activities in the local Birmingham high schools. Upon completion of his Ph.D., he plans to work in the aerospace industry to implement design and develop future space exploration initiatives.



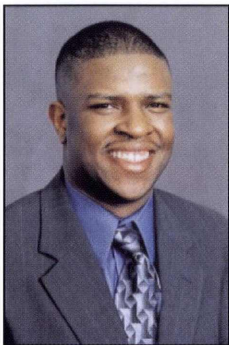
**Christopher Lindsey, BD Program (2005-2007)**

Christopher received a Bachelor of Engineering degree from Tuskegee University and a master's degree from UAB. He is currently working for the government at the Savannah Nuclear Facility.



**Lindsey McCall, BD Program (2005-2007)**

Lindsey took a very unique path in the pursuit of his doctorate. After graduating magna cum laude in metallurgical engineering from UA, he took a job in Atlanta. After working for two years, he wanted to return to graduate school but did not think he would be able to support his family in the process. After applying to UAB, he was informed about the BD program and was accepted. He went to school full-time for his first year in the program and has since worked at ACIPCO as a manufacturing engineer in the melting department and currently as a quality assurance engineer for the steel pipe division while still going to school part-time. The BD program provided Lindsey with not only the necessary funding, but with the support and motivation he needed to succeed in graduate school after taking a three-year break from academia. While in the program, Lindsey maintained a 3.6 GPA. He has obtained his professional engineering license from the state of Alabama, passed the comprehensive exams for the doctorate program in materials engineering and is currently researching his dissertation project. Lindsey is very active in the ACIPCO Explorers program which introduces high school students to engineering. He also volunteers with Junior Achievement of Birmingham, a program that introduces students to economics and the importance of STEM disciplines.



**Karmen McPherson** is a first year BD fellow enrolled in materials science and engineering at UAB. Her research is centered on drug delivery platforms. She plans to focus her studies in the area of mucoadhesive polymer systems. Karmen has attended the Alabama Composites Conference to learn more about different projects in the materials field. She has also attended Graduate Research Days at UAB to discover what her peers are researching. Karmen is a hard-working and persistent individual. She is focused and determined to achieve her goals and will not let anyone deter her from them. Upon completion of the graduate program, she hopes to work closely with physicians and scientists in the field of medical research.



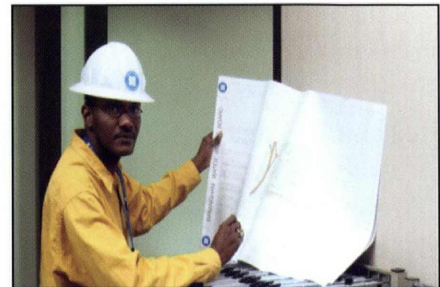
**TaShundra Robinson**, a Ph.D. student in the Department of Civil Engineering, is conducting research on the impacts of amended soil on plant growth and water retention. Autoclaved Aerated Concrete (AAC) will be used in intervals ranging from 0 to 40% to create a substrate



and the response of three plant species, bunch-grasses, succulents and herbaceous plants, is being observed. AAC is an environmentally-friendly building material that is designed to save embodied energy while enhancing the overall quality of the structural member. In this study water retention capabilities will be determined to allow a recommendation to be made for matrixes that encourage plant growth using AAC, a recycled building material. Interested in international applications of concrete and endeavors of sustainable practices, TaShundra was granted the opportunity to travel to Cairo, Egypt with the UAB Study Abroad Program. There she studied sustainable

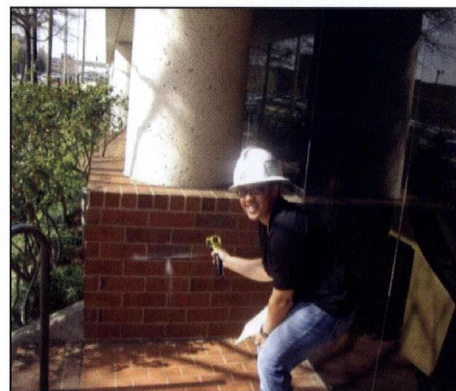
techniques practiced in Egypt and the ancient infrastructures. Upon completing this program she earned a certificate of construction engineering management. During the 2010 Alabama Water Resources Conference, she was awarded second place in the poster competition. Upon completing her doctoral degree, she aspires to impart the sustainable methods with the community and work as an environmental engineering professor encouraging other minorities to obtain Ph.D.'s in their desired field of studies.

**Glenn Terrell** is a Ph.D. student in interdisciplinary engineering at UAB. His goal is to produce a mathematical model to predict finished water corrosion potential, given the use of southeastern raw water. His research analyzes how the chemicals used to control water quality in addition to naturally occurring parameters such as raw water alkalinity, pH, dissolved oxygen and total dissolved solids, combine to promote distribution pipe corrosion. Included in his research efforts is an analysis of whether two well-known indicators, the Langelier Saturation Index (LSI) and the Ryzner Stability Index (RSI), are applicable for use in the southeastern United States, given the differing natural raw water profiles found in U.S. surface waters. As a



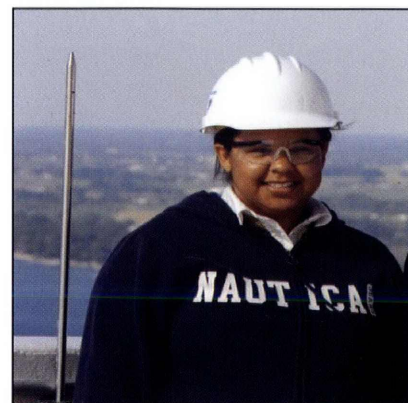
member of the Golden Key International Honor Society, Glenn was recently selected as an International Scholar Laureate (ISLP). He will visit Beijing, China and Shangri, China in June 2011 as part of the U.S. delegation on engineering. Glenn has presented papers at various professional conferences including the American Water Works Association, the premier peer-reviewed research organization for the water industry. Glenn recently received Grade I Water Certification and is under review for Grade IV Water Certification by the Alabama Department of Environmental Management (ADEM) after passing the required state examinations. After completing all Project Management Institute education and experience requirements in 2010, Glenn is a Project Management Professional (PMP) candidate and due to receive PMP certification in the Fall of 2011. Glenn is active on campus in many engineering organizations such as American Society of Mechanical Engineering (ASME), American Institute of Chemical Engineering (AIChE), as well as serving as treasurer of the American Society of Safety Engineers (ASSE). Upon completion of his doctoral degree, he plans to continue research in potable water quality and raw water pollution control.

**Candace Watson** is a doctoral candidate in civil engineering at UAB, anticipating graduation in July 2011. She is in the final stage of her dissertation research on sustainable design techniques and aspects of improved urban/city design methods that will reduce energy consumption through renewable energy potential. Her research analyzes how city planning directly correlates with energy consumption in the city of Birmingham. Included in her research efforts is a detailed analysis of how different surface types absorb heat energy from the sun and how that impacts energy use, and how city blocks can take advantage of site elements that have the potential of reducing energy consumption. Candace was selected to participate in a study abroad program in Cairo, Egypt, where she studied sustainable engineering techniques to improve energy performance of Cairo's built infrastructure. She has authored and presented papers at fourteen various professional conferences, both nationally and globally, traveling to Xi'an, Shaanxi, China in 2010. A recipient of both the UAB School of Engineering Outstanding Graduate Student Award - 2010 and Department of Civil, Construction, and Environmental Engineering Outstanding Graduate Student - 2010, she has received a number of awards and honors recognizing her research efforts and academic achievement. In June 2009, Candace received the Leadership in Energy and Environmental Design (LEED) accreditation from the United States Green Building Council (USGBC). Upon completion of her doctoral degree, she plans to work with global leaders to improve how energy is extracted, produced and consumed, focusing on the built environment.



**Stephanie Watson, BD Program (2005-2007)**

Stephanie completed her Ph.D. in Civil Engineering degree from UAB in August 2010. She had come to UAB after receiving her Bachelor of Science degree in civil engineering from Lawrence Technological University in Michigan. Her graduate research focused on pre-disaster planning on the state level for natural and man-made disasters and the need to communicate this information to citizens for

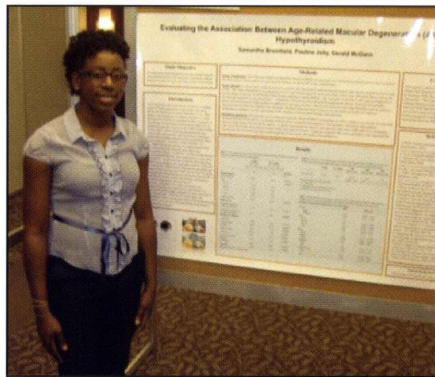




emergency preparedness. These research efforts allowed Stephanie to collaborate with numerous emergency managers across the United States. She has made many research presentations and received numerous awards while completing her graduate education, the most notable among them, being named Alabama's *University Transportation Center Student of the Year*. She recruited her younger sister, Candace, to UAB before graduating. Currently, Stephanie is employed at Michigan Electric Utility Company, working as an environmental engineer focusing on EPA proposed regulations related to the classification of coal combustion byproducts, handling of coal combustion byproducts and coal combustion residuals from coal-fired power plant operations. She also prepares comments to the EPA on the proposed regulations and works to ensure maintained environmental stewardship through proper coal waste management. She has received performance merits for her work related to coal ash management and works with minority high school students motivating them to work toward a four-year degree in STEM disciplines.

## Life Sciences

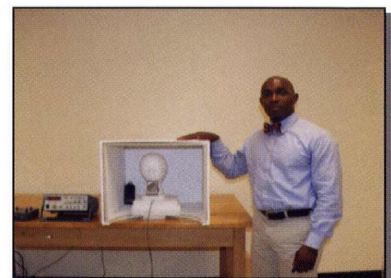
**Samantha Bromfield** is an aspiring epidemiologist at UAB. Throughout her graduate studies, she has developed an interest in infectious diseases and international health research. Her most rewarding research experience to date is a prior study that she conducted while at the University of Wisconsin - Madison under the direction of Dr. Sethi, which assessed psychosocial correlates of HIV-infection in pregnant women in Kampala, Uganda. The study helped her to realize the effect of factors such as social support and depression, on the health outcomes of HIV positive women and their children. Samantha has been truly inspired by this research experience and her dissertation is designed to test the efficacy of social support on alleviating depression and anxiety during pregnancy in HIV-positive



women in Kumasi, Ghana. This will allow Samantha to pursue her passions, gain invaluable experience and cultivate the research skills she will need to become a successful epidemiologist. In her two years at UAB, she has had the privilege of collaborating with fellow colleagues in various areas of epidemiologic research. Her most recent study was on the association between age-related macular degeneration (AMD) and hypothyroidism, which won her first place at the 2010 Alabama LSAMP spring conference and has recently been submitted for publication. Samantha seeks to make an impact on the health of society as a future epidemiologist.

### **Christophe Jackson, BD Program (2005-2007)**

Christophe is currently doing graduate research in physiology and otolaryngology on the role of vocal endurance in trained and untrained singers. With a double major in biology and music, Jackson blended his love of music and his fascination with science with his goal of becoming a doctor. With careful planning, he managed to divide his time between the concert hall and the biology lab and even continued performing with the RJS trio in Birmingham and, on occasion, with friends in New



Orleans. Today, Jackson is pursuing a Ph.D. in biology at UAB while working on a master's degree in music and focusing on piano at Samford University. It's part of his effort to explore—and expand—the field of performing arts medicine. So far, Jackson's main contribution has come in the form of a small wooden box, just large enough for a human head, lined with acoustical tiles and frequently occupied by a foam wig form. This unassuming piece of hardware could be the future of performing arts medicine as the field's first effective portable sound booth, bringing the equipment to the singer to get more accurate measurements of the biomechanics of the human voice. Recently Christophe was awarded a Ford Foundation fellowship.

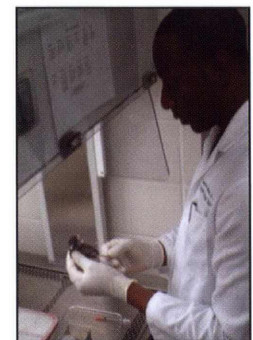
**Alicia Kindred** is a former BD fellow, currently serves as the genotyping technician for the Neuroscience Blueprint Core B in the Department of Neurobiology at UAB. During her first



years, Alicia maintained a GPA of 3.5 or higher. While in the program, Alicia was given the opportunity to become a research intern for Dr. Candace Floyd in the Department of Physical Medicine and Rehabilitation. During this internship, Alicia studied traumatic brain injuries and aided in developing new restorative therapies for victims of central nervous system injuries. From this internship, Alicia was given the opportunity to develop more research techniques in molecular cloning, DNA sequencing and genotyping which greatly expanded her knowledge base in genetics and molecular biology. Alicia also serves as a research technician for Dr. Scott Wilson and aids graduate students and

fellow staff in identifying genes, specifically Usp 14, involved in neuro-degeneration using the ataxia mouse model. Alicia is very passionate about science and her efforts to gain more experience in research demonstrates her passion. She is very hard-working and continues her efforts in pursuing a Ph.D.

**Dennis Steverson Jr.** is a doctoral student in the Department of Pathology at UAB. He currently researches metabolic syndrome that involves looking at genes that are involved in the formation of foam cells, which are the progenitor cells of the disease atherosclerosis. In addition to looking at the genes involved in the formation, he is also investigating the inflammatory responses caused by oxidized low-density lipoprotein, which is necessary for the formation of foam cells. Dennis chose his research in metabolic syndrome because he has always had the desire to work on diseases and conditions that disproportionately affect rural and lower socio-economic populations in Alabama. Dennis is a true believer in translational research and in his career he hopes to be an integral part of translational research. In the future, he plans to pursue a Hughes Med-Grad fellowship, a fellowship to cultivate the realization of translational research, which is only offered at a few select schools in the U.S. He has already been involved in the publishing of one paper and hopes to be involved in at least two more before he graduates. In addition to his laboratory bench work, Dennis is involved in clinical research and involved within in his community. He is an active member of his church and participates in the Blazer Men of Excellence (BMEN) mentoring program at UAB. His ambitions reach beyond a Ph.D.,



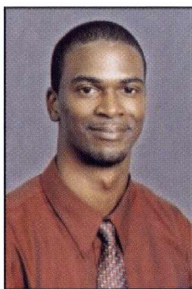
with plans to attend medical school once he has completed the requirements for his current program. His ultimate goal is to embody the idea of “*bench to bedside*,” and his character, work ethic, and intelligence will give him the tools to do it.

## Mathematics and Computer Sciences



**Ajai Cribbs** received a Bachelor of Mathematics degree from UAH and a master’s degree from UAB. She is currently a math instructor for Folsom Lake College, Cosumnes River College, and Heald College in California. Her goals are to pursue her doctorate in applied mathematics and become a full-time professor at a four-year university, eventually becoming head of diversity for the campus.

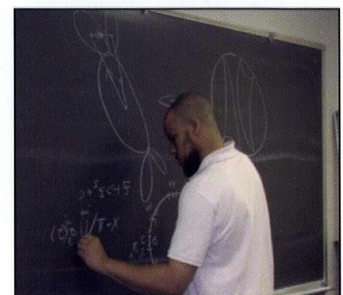
**Aqueasha Martin** received a Bachelor of Computer Science degree from Tougaloo College and a master’s degree from UAB. She completed one year of graduate study toward a Ph.D. in computer science at Auburn University before transferring with her advisor, Dr. Juan E. Gilbert, to Clemson University to continue her Ph.D. studies. She is currently working towards a Ph.D. in computer science with a specialization in human-centered computing.



**Hugh Percy**, BD Program (2005-2007)

Hugh received a Bachelor of Computer Science degree from Oakwood University and a master’s degree from UAB. He is currently working at UAB as a computer technician in the Department of Gerontology, Geriatrics and Palliative Care.

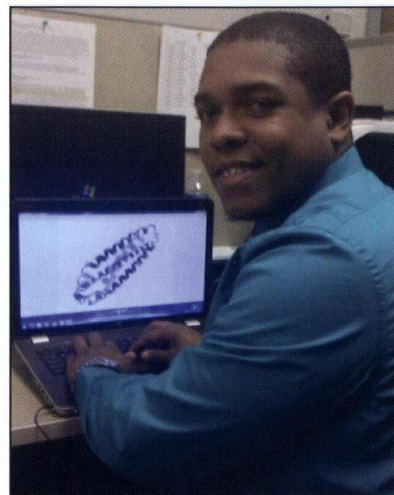
**Kendrick White** is a Ph.D. student in applied mathematics whose research interest lies in the areas of dynamical systems and continuum theory. In particular, his research is focused on developing topological models of Julia sets associated with holomorphic functions. The Julia set is the location in a system's phase space where chaotic dynamics occur, characterized by sensitivity to initial conditions. The study of chaotic dynamics and the Julia sets in which they occur are of practical interest because of many naturally occurring phenomena such as weather patterns, chemical reactions and mechanical devices. In addition, the structure of Julia sets has been exploited to devise control strategies that have been used in the positioning of satellites



and stabilization of heart rates. Kendrick has a broad range of intellectual interests and plans to teach in a university setting after completing his dissertation. He is a member of the Society for Industrial and Applied Mathematics (SIAM) and the Golden Key Honor Society.

## Physical Sciences

**Cordero Derrell Core** is a second year doctoral graduate student in the Department of Chemistry at UAB, using molecular dynamics (MD) simulations to investigate neurodegenerative diseases. His research analyzes the role of apolipoprotein E (apoE) and other influential proteins in the development of Alzheimer's disease (AD) and Parkinson's disease. Included in his research are various computational methods such as atomistic simulations, course-grained simulations and molecular docking. In collaboration with Dr. Karl H. Weisgraber, he strives to elucidate the mechanisms key to initiation and augmentation of the protein aggregations prevalent in the brains of dementia patients. Cordero has been active in the community as a mentor for the Blazer Male Excellence Network (BMEN) and tutored for undergraduate chemistry students. In addition, he is currently the public relations chairman for the Black Graduate Student Association (BGSA), an organization whose purpose is to assist in the assimilation of black graduate students into the UAB community. Cordero has proven to be innovative in his approaches, industrious on his projects and dedicated to producing quality research. He hopes that this passion for his craft will enable him to secure a career as a computational biophysicist at a research university.



**Sheritta Cooks, BD Program (2005-2007)**

Sheritta received a Bachelor of Chemistry degree from Tuskegee University and a master's degree from UAB. She is currently pursuing a Ph.D. degree in chemistry at UAB.

**Hadiyah-Nicole Green** graduated with a 4.0 grade point average from the Department of Physics at Alabama A&M University before enrolling at UAB. She is currently a doctoral candidate in the Department of Physics, conducting interdisciplinary research with the School of Medicine, Department of Surgery. Her dissertation is entitled “*A Minimally Invasive Multifunctional Nanoscale System for Selective Targeting, Imaging, and Near Infrared Photo*

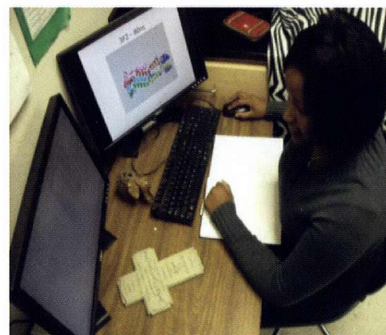


*thermal Therapy of Malignant Tumors.*” She is making gold rod-shaped nanoparticles and attaching them to fluorescently labeled antibodies to target tumors. She uses a near infrared laser to activate the fluorescence of the antibody and to heat the nanorods enabling imaging and treating of the cancer. She is passionate about this research because it could possibly provide an alternative to chemotherapy and radiation as a first line of defense against cancer. After the BD Fellowship ended, she won the National Physical Science Consortium Fellowship to continue this work. She has trained at the Laboratory of Physical Science at the University of Maryland with the Department of Defense and presented her research at several

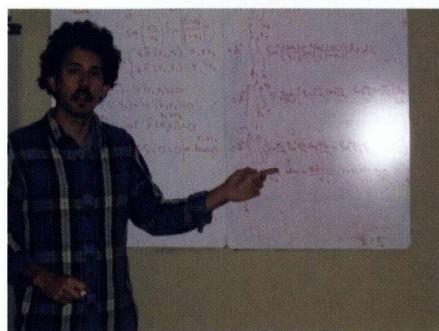
conferences in her field and received several awards. She recently presented some of her results at an international conference and was invited to be the SPIE Student Representative to Congress. In addition to being a published poet, Hadiyah has a long track record of community service. With a servant’s heart, it is no surprise that she has devoted herself to a cause as noble as finding the cure for cancer even as a physicist.

**Amanda Plain** is a BD fellow in the Department of Chemistry at UAB. During her first two

years of graduate school, she worked in an organic synthesis lab where she synthesized potential neuraminidase inhibitors. In this research group, she was given the opportunity to do molecular modeling. Realizing her passion for this field, she decided to continue her doctoral work in the area of computational biophysics. Currently, her research projects are focused on studying the dynamics of protein-lipid binding interactions. These simulations will give rise to structural and functional information that can be used to develop therapeutics for atherosclerosis. She has presented her research at regional and national conferences. Amanda also tutors 7<sup>th</sup> – 12<sup>th</sup> grade students at a local church. She has held offices in the Black Graduate Student Association and Graduate Student Association and has served on several planning committees for potential grants and programs to help future minority graduate students.

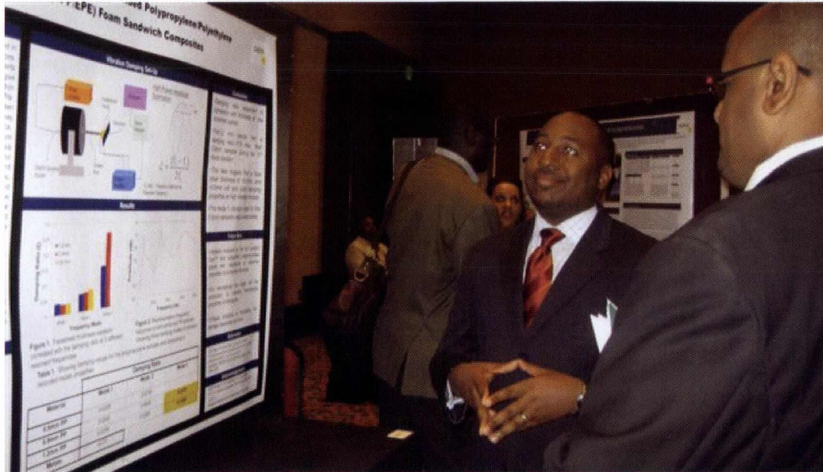


**Desmond R. Villalba** is a Ph.D. graduate student in the Department of Physics at UAB. He is a driven individual who seeks to further understand the inner workings of nature on a mesoscopic



scale. Desmond is currently working on optimizing an engine which operates within the mesoscopic regime. He is studying the effect on the efficiency of the engine when it operates at maximum power. The optimization procedure is being carried out with the use of FORTRAN. After completing his degree, Desmond plans to seek a postdoctoral position at a research

institution overseas. Eventually, he desires to become involved in academia, where he can continue to perform research and presumably inspire the next generation of young physicists. Outside of his research, Desmond is also interested in how physics can aid in the mitigation of damage to, and the preservation of, the environment.



UAB BD student Samuel Jasper discusses research with projects judge



UAB BD students present research at Alabama LSAMP/BD Research Conference, left to right back row: Dennis Steverson Jr., Glenn Terrell, Kendrick White, Cordero Core, Samantha Bromfield, Desmond Villalba, Jaquice Hughes, Samuel Jasper, front row – Karmen McPherson, TaShundra Robinson and Candace Watson

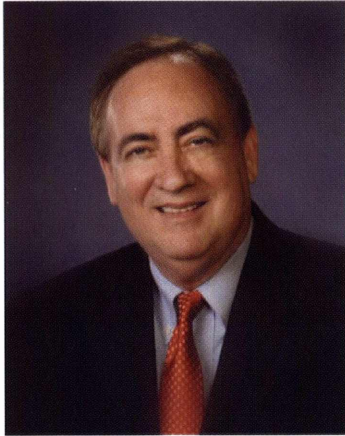
# AUBURN UNIVERSITY

[www.auburn.edu](http://www.auburn.edu) [www.auburn.edu/diversity](http://www.auburn.edu/diversity)

Auburn University today is a comprehensive land, sea and space grant institution – among the few that hold that distinction – occupying more than 1,840 acres and helping fulfill the dreams of over 25,000 students. Auburn University was established in 1856 as the East Alabama Male College. In 1960 the name of the school was changed to Auburn University, a title more in keeping with its location, and expressing the varied academic programs and larger curriculum of a major university.

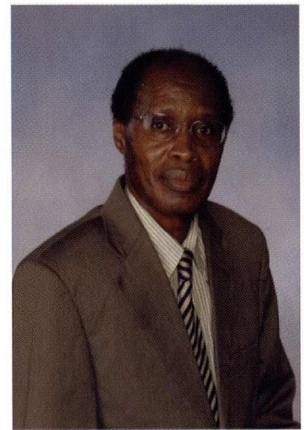


Auburn University is ranked among the nation's top 50 public universities for the 18th consecutive year by U.S. News & World Report. Students can choose from more than 140 degree options in 13 schools and colleges at the undergraduate, graduate and professional levels.



*Dr. Jay Gogue, President*

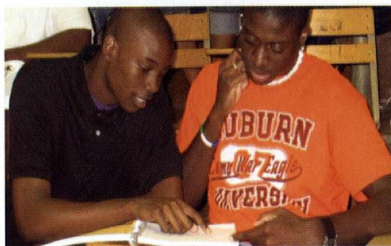
Auburn University has developed into one of the largest universities in the South, remaining in the educational forefront with its traditional blend of arts and applied science and changing with the needs of today while living with a respect for the traditions and spirit that are Auburn.



*Dr. Overtoun Jenda,  
ALSAMP Site Coordinator*

Diversity serves as a core value at Auburn University. Auburn University recognizes and values the considerable educational benefits

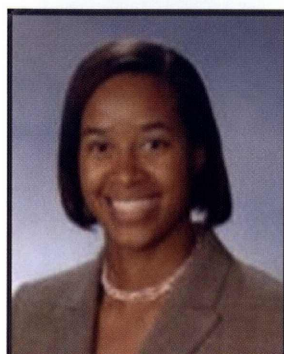
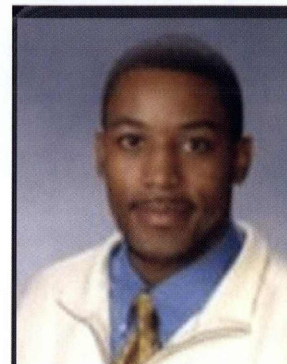
emanating from diversity as we prepare our students for life and leadership in a multicultural world. In this context, diversity is aligned with Auburn University's land grant mission of providing its students with a superior education in service to the needs of Alabama, the nation and the world. Thus Auburn has a number of opportunities for underrepresented students through programming efforts such as the Minority Drop-In Center, Minority Engineering Program, the Future Science, Engineering, and Mathematics Faculty Club, National Society for Black Engineers, Society for Women Engineers, the Society of Hispanic Professional Engineers, the National Science Foundation for Research for Students with Disabilities, and much more.



## Auburn University BD Students

### Engineering

**Michael Grady** received a Bachelor of Science and a Master of Science in Electrical Engineering in 2008 and 2010, respectively from Auburn University. He was awarded the Bridge to the Doctorate Fellowship in 2008. Michael's research while at Auburn focused on the design and construction of a stainless steel coaxial probe used to find the radio frequency properties of materials at high temperatures. Michael gave numerous research presentations on this work and also served as the President of the Black Graduate and Professional Student Association and a mentor and tutor for the Minority Engineering Program. He obtained a research internship with Corning, Inc. during the summer of 2010 and worked with multipath effects of 60 GHz Radio-over-Fiber networks. In the fall of 2010, he was accepted into the University of South Florida's (USF) electrical engineering doctoral program. At USF, Michael has been awarded the GEM Doctoral Fellowship, the McKnight Doctoral Fellowship, the Sloan Fellowship, and an NSF Graduate Research Supplement. Michael's research focus at USF involves miniaturizing radiometric sensors for biomedical applications. He plans to propose in the spring of 2012 and complete the program in the spring of 2014.



**Brittany Green**, 2008–2010 Bridge to the Doctorate fellow. She received a Bachelor of Science in Mathematics from Birmingham Southern College and is currently a graduate student in industrial engineering at Auburn University.

**Nicole Harris**, Ph.D., Mechanical Engineering. Nicole produced and characterized thin film nickel titanium shape memory alloys using equipment specialized for microelectromechanical systems (MEMS) during her career. She also developed a novel technique to investigate the resistivity of the thin film nickel titanium shape memory alloys. In addition to the Bridge to the Doctorate award, she was also a recipient of Auburn University's Presidential Graduate Opportunity Program Fellowship and the Southern Regional Educational Board's Dissertation Fellowship. She currently works at ThyssenKrupp Steel USA in Calvert, Alabama in the Quality Assurance Department as a developmental engineer on their product and process technology team. Her position requires the analysis of the processing techniques and mechanical properties of the manufactured steel, as well as acting as a technical liaison between the QAD and automotive customers. At present, she also serves as the interim clerk at her church in Mobile, AL and continues to develop educational seminars for the attending youth. Dr. Harris was an Alabama Louis Stokes Alliance for Minority Participation (LSAMP) scholar during her undergraduate studies at Auburn University.





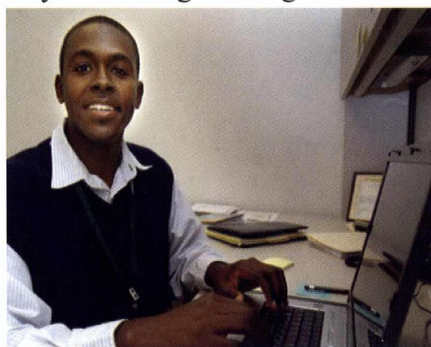
**Jarrett Chapman** attended North Carolina Agricultural and Technical State University (NC A&T), where he received a Bachelor of Science and Master of Science in industrial engineering. His thesis was



a stochastic linear program that repositioned and redistributed supplies surrounding a disastrous or catastrophic event. After several years at A&T, Jarrett was accepted into the industrial and systems engineering Ph.D. program at Auburn University in the spring of 2008. In fall 2008, Jarrett was awarded the Bridge to the Doctorate fellowship. This support enabled him to complete all of his course work, develop relationships needed for his current research, and transition to a new environment. Currently, Jarrett is a teaching assistant and is also working on his dissertation. Extending the work of his advisors' previous students, Jarrett is developing ways to use predetermined routing information in

maintaining connectivity in mobile ad hoc networks. Because of the opportunities offered, Jarrett is on course to propose during either the summer or fall of 2011, and complete the program within a year following the proposal.

**Moses Davis** is a doctoral student in the Department of Industrial & Systems Engineering at Auburn University. After receiving his Bachelor of Science degree in mathematics in May 2009, Moses was awarded the Bridge to Doctorate Fellowship. He plans to focus his studies in the area of occupational safety & ergonomics with a minor in statistics. While at Auburn University, Moses has participated in a number of research conferences. Since his entrance into Auburn, Moses has become an active member in the American Society of Safety Engineers Auburn Chapter, earned a 30-hour General Industry Occupational Safety & Health Certification and was appointed team leader in the 4<sup>th</sup> Annual Ergonomics Design Competition where the team placed 3<sup>rd</sup> nationally. Moses recognizes that continuous learning is a strategy that is essential to his success. He is taking the initiative in becoming accountable, keeping his knowledge base current and continuing to make use of the tools that have a proven track record in this competitive world.



**Kevin Simmons** was a 2008-2010 recipient of the Bridge to the Doctorate Fellowship at Auburn University. He completed his Master of Software Engineering degree at Auburn in August 2010. His research was centered on creating an educational tool for teaching students how to calculate area and perimeter. Kevin received his Bachelor of Science degree in computer science from Alabama A&M University. As an undergraduate student, Kevin was selected to participate in the Summer Undergraduate Program Engineering Research at Berkeley (SUPERB), where his research was in the area of computer graphics. Kevin is currently employed as a Research Scientist-I at the University of Alabama in Huntsville working at Redstone Arsenal. He plans to pursue a Ph.D. in Systems Engineering at the UAH.



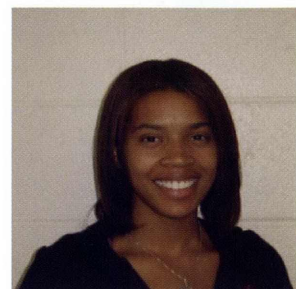
Kevin's goal, after attaining his Ph.D., is to continue advancing his career while working at Redstone Arsenal.

## Life Sciences



**Derek Fortson**, 2003-2005 recipient of the Bridge to the Doctorate Fellowship at Auburn University, currently works as a business analyst for Wellpoint Blue Cross Blue Shield. Derek received a Bachelor of Science degree in biomedical science and a Bachelor of Arts degree in Spanish, both from Auburn University.

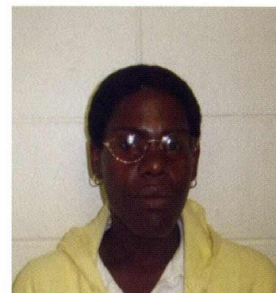
**Iris Hill**, 2003–2005 recipient of the Bridge to the Doctorate Fellowship at Auburn University, received a Bachelor of Science degree in life sciences and a Master of Science degree in biology from Auburn University. She currently works in industry.



**Charmaine Porter O'Reilly**, Ph.D., was a Bridge to the Doctorate fellow from 2003 to 2005 at Auburn University, where she completed her Master of Biological Sciences degree. She received her Doctorate in Dental Surgery (DDS) from the University of North Carolina in 2009. She was one of three students to graduate with honors and distinction. Since then, she has been pursuing an advanced training program in Pediatric Dentistry at Baylor College of Dentistry where she is concurrently working on receiving a Master of Science in Health Professions Education. Dr. Porter O'Reilly is scheduled to complete both programs the summer of 2011. Her plans include dividing her schedule where she will work partly teaching in the health professions and partly with direct patient care.



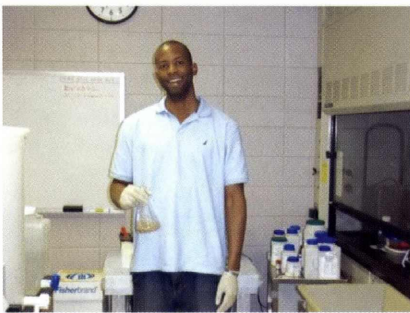
**Jana Smith** received a Bachelor of Science degree in Biology from the University of Missouri-St. Louis. She was a Bridge to the Doctorate fellow at Auburn University from 2003-2005 while studying molecular biology.



**Lenese Grant** graduated from Alabama Agricultural and Mechanical (Alabama A&M) University in 2008 with a Bachelor of Science in Food Science and Technology and minor in Chemistry. As a part of LSAMP during her undergraduate studies, she participated in colon cancer research and received her first publication for her efforts. As a Bridge to the Doctorate fellow, she continued her studies at Auburn University earning a Master of Science in Nutrition and Food Science with an emphasis in food chemistry in December 2010. Her research focused on ingredient stability, specifically physical and chemical stability when subjected to various temperatures and relative humidities. She has presented at the Institute of Food Technologists (IFT) Conference as well as the Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) conference. She is currently working at Kraft Foods-Oscar Mayer as a research and development scientist.



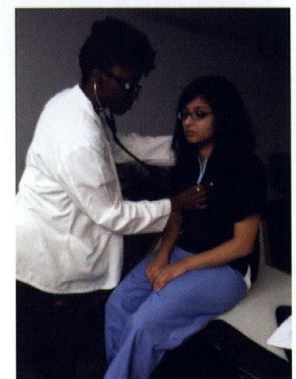
**Colby Hunter** received a Bachelor of Science degree in Microbiology from New Mexico State University, where as an undergraduate student, he worked in Dr. Kathryn Hanley's virology lab. After graduation from NMSU, Colby worked as a lab tech in Phoebe Putney Memorial Hospital. In 2008, he began his graduate studies as a Bridge to the Doctorate fellow at Auburn University. His research interests include the length of time that pathogenic bacteria can survive on surfaces in airplane cabins. As one example of his research activities, E. coli, MRSA, Bacillus anthracis and Mycobacterium smegmatis were inoculated on surfaces commonly found in airplane cabins and after a set time period, the survivors were quantitated.



**David Laurencio** is a third year Ph.D. student and former Bridge to the Doctorate fellow studying Biological Sciences at Auburn University. His research focuses on the phylogeny and phylogenetics of a small group of stream dwelling “aquatic” anole lizards. He is utilizing genetic markers to test questions regarding the relatedness, dispersal and genetic structure of these species both proximally and historically. During his tenure at Auburn, David has traveled both nationally and internationally to present his research, visit important natural history collections and conduct field research. Another important aspect of his work has been the dissemination of knowledge through both teaching and public outreach. David has also started collaborations with newfound colleagues, both at Auburn and extramurally, that will allow him to gain new knowledge, learn new techniques, conduct additional field research and share his knowledge and experience. Upon completion of the graduate program, he hopes to continue his research on the ecology, evolution and conservation of amphibians and reptiles both locally in Alabama and in the new-world tropics.



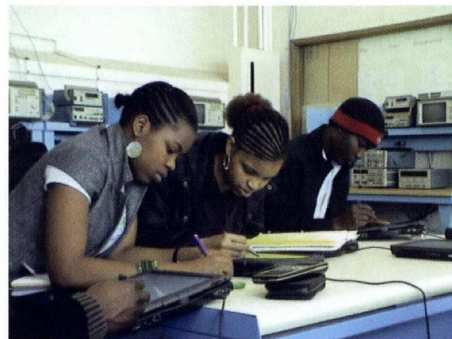
**Camille Okekpe** was a Bridge to the Doctorate fellow from 2005 to 2006 at Auburn University, where she completed her Master of Biological Sciences degree. She is currently a second year osteopathic medical student (OMS-II) at Pikeville College of Osteopathic Medicine (PCSOM) in Pikeville, KY. Camille has continued to remain active during her medical school career. In the summer of 2010, she was a part of a mission team that traveled to the Dominican Republic for a week to provide treatment, medicine, and fellowship with the residents of some of the Dominican’s most impoverished communities, the bateyes (a



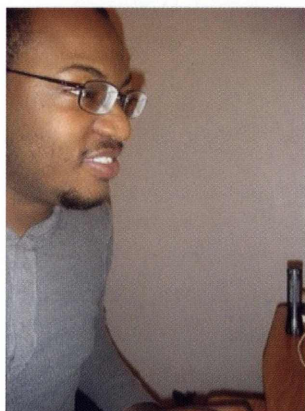
company town where sugar workers live). She has also held offices in two organizations on campus. Camille served as secretary of the Student National Medical Association (SNMA) and president of Sigma Sigma Phi National Honor Society from 2010-2011. She was recently named “*Most Distinguished Student*” at an awards ceremony at PCSOM. In August of 2011, she will begin her rotations at Norton Community Hospital in Norton, Virginia. Camille is scheduled to graduate May 2013.

## Mathematics and Computer Sciences

**Nia S. Bradley** is currently a Ph.D. student in computer science and software engineering at Auburn University. As a recipient of the National Science Foundation Louis Stokes Alliance for Minority Participation (LSAMP) BD fellowship, Nia has been afforded the opportunity to immerse herself in graduate studies by joining a research lab, attending and presenting at conferences associated with her research interests, and completing required coursework towards her degree. Currently, she is working with the Intelligent and Interactive Systems lab. Her research is focused on eye tracking technologies that emphasize Gaze-Contingent Display Control (GCDC) systems for learning and educational technology primarily targeted towards software programming and debugging. Nia has presented at the fall LSAMP conference in Birmingham, Alabama,

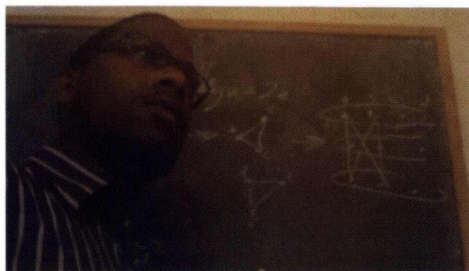


and spring conference in Montgomery, Alabama, on Cooperative Communication in Wireless Networks. She was also a Tapia Conference for Diversity in computing scholarship recipient and attended the Tapia Conference in San Francisco, California, in April 2011. With the continued financial support from the LSAMP fellowship program, Nia is confident in her abilities to not only continue her matriculation through her Ph.D. program, but also to take advantage of the many opportunities available for her development as a well-rounded graduate student equipped with the resources to address today’s societal issues.



**Curtis Cain** is a doctoral student in the college of information sciences and technology (IST) at Pennsylvania State University. He completed the Master of Science degree in computer science and human computer interaction in 2010 at Auburn University. He received his Bachelor of Science degree in computer engineering from Johnson C. Smith University, where he graduated with honors. He is a recipient of the 2008-2010 LSAMP Bridge to the Doctorate Fellowship at Auburn University, 2010 recipient of Penn State's Africana Research Center Grant and 2011 recipient of the NSF Graduate Research Fellowship. Curtis has authored and presented papers at many conferences, including The Association for the Advancement of Computing in Education (AACE), Human Computer Interaction International (HCII) and The Emerging Researchers National Conference (ERN).

**Cadavious Jones** is a doctoral student in the Department of Combinatorial Design and Graph Theory at Auburn University. He is the first member of his family to graduate with a college degree. Cadavious continued to motivate his younger siblings by attaining a master's degree and now is working toward his Ph.D. He was inducted into both Delta Epsilon Iota Academic Honor Society and Pi Mu Epsilon National Honorary Mathematics Society, and is also a member of the American Mathematical Society. He has authored and presented several papers nationally and plans to approach the



global stage through multidisciplinary research. Most recently, his research for applying Hamiltonian graphs to disaster situations for computer network systems won him first place in the Alabama LSAMP Doctoral Research Competition for mathematics. Currently, he is in the process of developing this concept further so that one day it can be a valuable tool for hospitals, schools and perhaps even the Department of Defense during critical times of disaster when a digital lifeline is needed. While continuing on the arduous road toward his goals, Cadavious still volunteers at local schools in Montgomery, Alabama as a math tutor for middle school children to help correct deficiencies in math. Upon completion of his doctoral degree, he plans to continue his research while teaching on the collegiate level so that he can motivate the next generation of eager mathematicians.

**Kimberly Kendricks, Ph.D.** graduated from the University of Pittsburgh in Pittsburgh, PA with a dual degree in Mathematics and Business in 2003/2004 and earned a Master's and Ph.D. in Mathematics from Auburn University in 2006 and 2007, respectively. She is currently an associate professor of mathematics at Central State University, a Historically Black College and University, located in Wilberforce, Ohio. Since joining Central State University in 2007, she has served as the principal investigator or co-principal investigator for over \$1.5 million internally to the university and a sum total of \$3.5 million collaboratively with neighboring institutions. For the mathematics classroom, she has increased the success rate of students taking College Algebra, Trigonometry, and Differential Equations by over 20%.

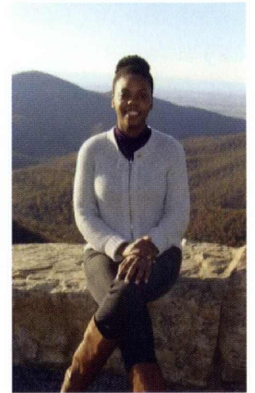


Dr. Kendricks has a sincere passion for mathematics and mathematics education. By sharing her joy of mathematics, she aims to increase the success rate of students in mathematics, particularly minority students, thereby, increasing the number of students earning a degree in STEM. Through her success in the mathematics classroom, Dr. Kendricks now oversees a National Science Foundation (NSF) grant program to guide the success of high achieving students in STEM and has published the results of this program in the *Journal for College Science Teaching*.

For her research, which is supported by NSF, the American Society for Engineering Education, the National Signature Program, and Clarkson Aerospace Engineering she takes mathematical theories and applies them to real world problems in robotics and gait analysis. For the past two summers, for example, she applied Groebner Basis Theory to a U.S. Department of Defense gait study project at Wright Patterson Air Force Base in Dayton, Ohio and has expanded her studies to path planning and robotic motion on a separate project at the Institute of Mathematics and Its Applications at the University of Minnesota, MN. Past results have been published in the *Battle Space for Acoustics and Military Science Journal* and recent results are being prepared for submission to IEEE's *Transactions for Pattern Analysis and Machine Intelligence*.

Dr. Kendricks also serves on the governing board of the Dayton Regional STEM School and collaboratively works with the Air Force Institute of Technology, Wright State University and the University of Dayton to promote the advancement of women faculty in STEM through an NSF-ADVANCE program. In 2009, she was selected to participate in the National Science Foundation's Leadership Development Institute which shaped and supported her future pursuits in the academy, and in 2010, was selected to participate in the American Association for Colleges and Universities' Preparing Critical Faculty of Color Project, to develop her leadership skills particularly for undergraduate STEM education and as a result was promoted last fall at Central State University to an Associate Professor of Mathematics.

**Cheryl Milton** graduated from Florida A&M University with a Bachelor of Science degree in Mathematics. While there, she was a Louis Stokes Alliance for Minority Participation scholar and a 2006 Ronald E. McNair Post-Baccalaureate Achievement Program scholar. She also conducted research in the area of computational science. In 2008, she was accepted into the Applied Mathematics Ph.D. program at Auburn University and was awarded the Bridge to the Doctorate fellowship. Currently, Cheryl is in the Mechanical Engineering Ph.D. program at Virginia Commonwealth University in Richmond, Virginia.



**James Morris-King** received a Bachelor of Science degree in Computer Science from Rensselaer Polytechnic Institute. He was a Bridge to the Doctorate fellow at Auburn University from 2008-2010, where he is currently pursuing a Ph.D. in Artificial Intelligence.

**Angela Peterson** received a Bachelor of Science degree in Mathematics and a Master of Science degree in Mathematics from Alabama State University. She was a Bridge to the Doctorate fellow at Auburn University from 2003-2005. She currently teaches mathematics in Montgomery, Alabama.



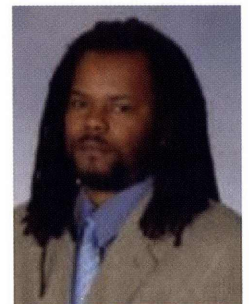
**Carl S. Pettis, Ph.D., Mathematics** was the first graduate of the Alabama Bridge to the Doctorate Program. He received his doctorate degree in Mathematics from Auburn University in 2006. He is also a proud alumnus of Alabama State University (ASU). Dr. Pettis was awarded the Bachelor of Science degree (2001 major – Mathematics and minor – Computer Science) and the Master of Science degree (2003 Mathematics) from ASU.

After returning to his alma mater in 2007, Dr. Pettis did not shy away from getting involved in numerous scholarly campus and community activities. He currently serves as the chair of the Department of Mathematics and Computer Science at ASU. Dr. Pettis is the principal investigator for three federally funded initiatives including the Alabama Louis Stokes Alliance for Minority Participation (ALSAMP). He also serves as the director of Youth Programs for the ASU Division of Continuing Education. As a researcher, Dr. Pettis is a published author of several mathematical papers. His hard work has certainly not gone unnoticed. He was named the 2010 STEM Faculty of the Year by his colleagues and the students from the college of science, mathematics, and technology. Additionally, he receives frequent requests to speak at various regional and national programs and conferences.

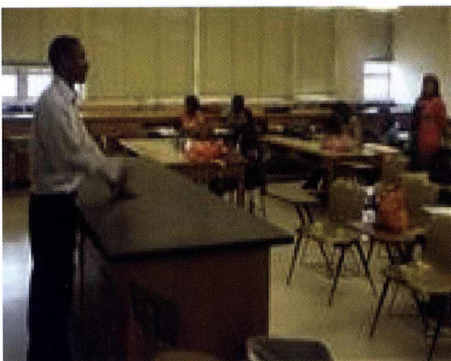


Dr. Pettis enjoys molding young minds and working with youth to enhance their STEM aptitude. He believes that the bridge program served as a profound catalyst in his career as a mathematician. The financial support he received as a bridge scholar enabled him to focus and immerse himself in academic endeavors. The Bridge program provided an opportunity to broaden his exposure in the field of mathematics by attending important conferences and connecting with aspiring scientists throughout the country.

**Timmy Sanders** received a Bachelor of Science in Mathematics and a Master of Science in Mathematics from Alabama State University. He is currently pursuing a Ph.D. in Mathematics at Auburn University, where he was a Bridge to the Doctorate fellow from 2008-2010.



**Derek Jermaine Simon** is a doctoral graduate student of the Department of Mathematics & Statistics at Auburn University. He is pursuing a doctoral degree in mathematics, specializing in combinatorial design, under the research advisement of Dr. C.C. Lindner. He received both a Bachelor's and a Master's degree from Alabama State University. Derek taught for three and a half years at ASU as well as five years with the Montgomery Public School System (MPS). His duties and responsibilities as an educator included teaching assigned classes, holding office hours, preparing course syllabi and objectives in conjunction with the core curriculum within both the university and State Department of Education and utilizing instructional technology to enhance the teaching and learning process of many students. Also, during his employment with MPS, Derek served as head of the Mathematics Department and as a member of the Southern Association of Colleges and Schools committee. His hard work, determination and lifelong goals as a student and as an educator have prepared him to enrich the lives of students, who are tomorrow's future. Throughout his journey, he has received several awards, such as: the National Science Foundation Bridge to Doctorate Fellowship, Montgomery Public School Scholarship for Teacher Education,



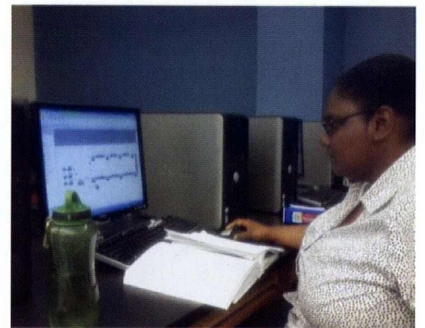
Alabama Minority Graduate Education Scholarship, The Heart of Education Award from MPS, Alabama State University, Graduate Assistantship Scholarship Program for Advancement in Computer Science, Mathematics and Engineering, and others. Upon completion of his doctoral degree, Derek plans to continue research in discrete mathematics and utilize his knowledge, experience, passion, and understanding of mathematics on the collegiate level.



**Kevin Tolliver**, Ph.D., mathematics (statistics) completed his Ph.D. in Mathematics with a concentration in Statistics at Auburn University in December 2009. After receiving his Bachelor of Science degree in Mathematics from Morehouse College in Atlanta, GA, he was awarded the Bridge to the Doctorate Fellowship at Auburn. His research focused on sequential estimation, specifically determining the appropriate sample size for estimating a Gamma mean that should ultimately reduce the cost of experiments. He has presented his research in such notable conferences as the Joint Statistical Meetings in Denver (2008) as well as the International Workshop of Applied Probability in Compiegne, France (2008). Currently, Dr. Tolliver is employed with the United States Census Bureau, Office of Statistical Methods and Research for Economic Programs, Time Series Staff, where he researches analytical methods in time series as well as reviews papers in other economic areas of the

Census Bureau.

**Clarisa Victoria Williams** was a Bridge to Doctorate fellow from 2008 to 2010 in the Department of Mathematics and Statistics at Auburn University. In 2010-2011, she became one of only 150 NASA GRSP fellows in the country and the only GRSP at Auburn University. In May 2011, she will perform on-site research at the NASA Ames Center in Moffett Field, California. She has attended three professional conferences this year. Two of the conferences were NSF funded SAMSI (Statistical and Applied Mathematics Science Institute) whose theme is complex networks. The third conference was the International Combinatorics, Graph Theory, and Computing Conference. She presented a poster at the August 28, 2010 SAMSI meeting and gave a talk at the Combinatorics, Graph Theory, Computing Conference on March 7, 2011, about her preliminary findings in air traffic control. She and her advisor are in the process of working on a publication about the findings gained thus far. Air Traffic Management will continue to be an issue since more air travel and deliveries are anticipated in the future. In her research, she is looking at how to better manage air space in order to meet increasing demands.



**Michele Williams** was a Bridge to the Doctorate fellow at Auburn University from 2003-2005. She received a Bachelor of Science degree in Computer Science from Boise State University and a Master of Science degree in Computer Science from Auburn University. She is currently working in industry.





## Physical Sciences

**Carma Cook, Ph.D.**, chemistry, conducted enzyme kinetics research that was presented at several conferences and meetings and published in peer-reviewed international biochemistry/biophysics journals during her Ph.D. training in the Department of Chemistry and Biochemistry at Auburn University. She was a Bridge to the Doctorate fellow during the first two years of her graduate studies. During her third year of study, she was awarded a NSF GK-12 Fellowship as well as a College of Sciences and Mathematics Graduate Research Award at Auburn University. She held a post doctorate research associate position in the Department of Chemistry and Biochemistry at Auburn University from June 2009 – June 2010 conducting membrane protein expression research. She simultaneously taught general chemistry lecture and laboratory courses at Southern Union State Community College in Opelika, Alabama. She is currently a post doctorate research specialist in the Biology Department at Auburn University Montgomery where she is designing immunoelectrochemical bioassays and biosensors for the detection of bacterial pathogens, cancer biomarkers and chemicals that pose environmental and biodefense hazards. She is also teaching microbiology and general chemistry courses at Auburn University Montgomery, writing research grants to fund her biosensor research and advising/mentoring undergraduate students in biosensor research. Her future goal is to obtain an assistant professor position in Biochemistry at a university where she can make a positive impact in teaching and research at the undergraduate and graduate level.



**Angela Bell-Taylor** was a Louis Stokes Alliances for Minority Participation (LSAMP) scholar at Alabama State University, where she received her Bachelor of Science degree in Chemistry (minors in Mathematics and Biology) with honors. After some duration in the petrochemical industry, she continued her pursuit for higher education through the support of two other National Science Foundation programs, Bridge to the Doctorate and GK-12 Fellowships, at Auburn University. During her tenure, she has instructed and tutored many students. She has also received several academic awards and anticipates the completion of the Ph.D. in Organic Chemistry in summer 2011.



## Tuskegee University

Tuskegee University is an independent and state-related institution of higher education. Its programs serve a student body that is coeducational as well as racially, ethnically and religiously diverse. With a strong orientation toward disciplines which highlight the relationship between education and work preparation in the sciences, professions and technical areas, Tuskegee University also emphasizes the importance of liberal arts as a foundation for successful careers in all areas. Tuskegee University is located in Tuskegee, Alabama which is 40 miles east of the Alabama State Capital in Montgomery, Alabama and 20 miles west of the city of Auburn, Alabama. It is also within easy driving distance to the cities of Birmingham, Alabama, and Atlanta, Georgia. The academic programs are organized into six colleges/schools: (1) the College of Agricultural, Environmental and Natural Sciences; (2) School of Architecture and Construction Science; (3) College of Business and Information Science; (4) College of Engineering and Physical Sciences; (5) College of Liberal Arts and Education; and (6) College of Veterinary Medicine, Nursing and Allied Health. The curricula for the six colleges currently offer 49 degrees including 39 bachelors, 13 masters, two Doctorates of Philosophy (one in Materials Science and Engineering and one in Integrative Biosciences) and the Doctorate of Veterinary Medicine.

Graduate instruction leading to the master's degree and Doctor of Philosophy degree is offered in three of the six colleges. The university is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS); and the following programs are accredited by national

agencies: architecture, business, dietetics, education, engineering, clinical laboratory sciences, nursing, occupational therapy, social work, and veterinary medicine. Of special note is the fact that Tuskegee University is the only independent, Historically Black College and University (HBCU) with four engineering programs that are nationally accredited by the Accreditation Board of Engineering and Technology (ABET), the major accrediting body for the engineering sciences. Also, Tuskegee University's chemistry program is one of only a few among HBCUs that is approved by the American Chemical Society. Furthermore, the food science program is approved by the Institute of Food Technologists. Tuskegee University was the first Black college to be designated as a Registered National Historic Landmark (April 2, 1966), and the only Black college to be designated a National Historic Site (Oct. 26, 1974), a distinction administered by the National Park Service of the U. S. Department of Interior.

Special features in Tuskegee University's program include: the General Daniel "Chappie" James Center for Aerospace Science and Health Education, honoring America's first black four-star general who was a Tuskegee University graduate, and housing the nation's only aerospace science engineering program at an HBCU; the media center in the School of Veterinary Medicine, with state-of-the-art video up-link and down-link, intra-school communications, audio/visual, graphics,

photography and document production; the Kellogg Hotel and Conference Center, a state-of-the-art hotel and meeting facility for educational, business and cultural events; and the Tuskegee University National Center for Bioethics in Research and Health Care, a distinctive research, teaching and outreach program that addresses issues of ethics and public policy in the treatment of people of color and rural Americans in health care.

Other special features which enhance the educational and cultural environment of the university include; the Booker T. Washington Monument, "Lifting the Veil," which honors the university's founder; George Washington Carver Museum (named for the distinguished scientist who worked at Tuskegee), which preserves the tools and handiwork of Carver; Tuskegee Archives, a chief center for information on the challenges, culture and history of black Americans since 1896; Tuskegee Airmen's Plaza, commemorating the historic feats of America's first black pilots, who were trained at Tuskegee University; Reserve Officers Training Corps (ROTC) Center, and Center for Continuing Education---a nucleus for continuing adult education.

Over a century since it was founded by Booker T. Washington in 1881, Tuskegee University has become one of our nation's most outstanding institutions of higher learning. While it focuses on helping to develop human resources primarily within the African-American community, it is open to all. Tuskegee's mission has always been service to people, not education for its own sake. Stressing the need to educate the whole person, that is, the hand and the heart as well as the mind, Washington's school was soon acclaimed---first by Alabama and then by the nation for the soundness and vigor of its educational programs and principles. The solid strength has continued through the subsequent administrations of Dr. Robert R. Moton (1915-1935), Dr. Frederick D. Patterson (1935-1953), Dr. Luther H. Foster (1953-1981) and Dr. Benjamin F. Payton (1981-2010). On Nov. 1, 2010, Dr. Gilbert L. Rochon took office as the university's sixth president.



*Dr. Gilbert L. Rochon, President*

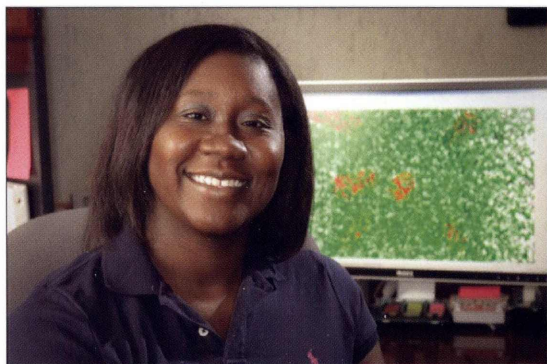


*Dr. Shaik Jeelani,  
ALSAMP Site Coordinator*

## Tuskegee University BD Students

### Engineering

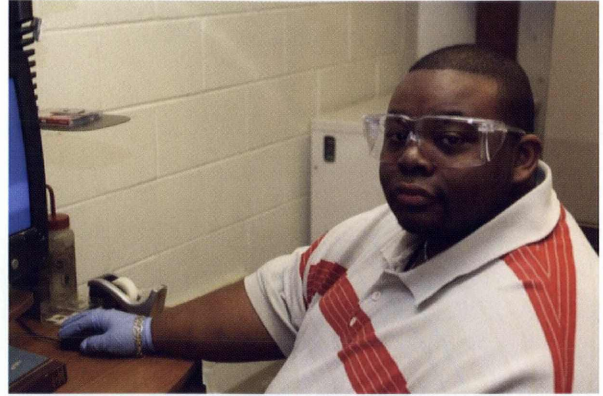
**Sandra Brundidge-Young** is a doctoral student at Tuskegee University in the materials science and engineering program. She recently earned her Master's degree from Tuskegee University in Mechanical Engineering and holds a Bachelor of Physics (with honors) from Talladega College. Prior to joining the doctoral program, she was a Bridge to Doctorate student in the first cohort at Tuskegee University (2006-2008). Her research interests include durability, impact responses, and failure analysis of advanced polymers and their composites. She is currently analyzing degradation mechanisms of selective advanced materials (metals, ceramics, and polymeric nanocomposites), upon exposure to ultraviolet radiation, laser radiation, and hypervelocity impacts. Sandra has presented some of her recent findings at TechConnect World Conference and Expo (Anaheim, California, June 2010) and BEYA (Black Engineer of the Year Award) STEM Global Competitiveness Conference (Washington, DC, February 2011). Upon completing her doctorate, she plans to seek a position in research and development in an industrial or government setting.



**Rozlyn N. Chambliss** is a doctoral candidate in Material Science and Engineering program at Tuskegee University, anticipating graduation in May 2012. She is developing the topic: *A Molecular Dynamics Study of Tensile and Compression Deformation of Polyethylene and Polyethylene Composites with Varying Temperature and Strain Rates*. While pursuing her graduate studies, Rozlyn has presented her research at more than five national conferences where she authored conference-preceding papers. She has also received the NASA Ames Graduate Student Research Project (GSRP) and the NSF-LSAMP

Bridge to the Doctorate (BD) fellowships. While working toward her doctoral degree, the three-year GSRP fellowship afforded her the opportunity to enhance her technical skills through interning, which helped her grow as a researcher. Rozlyn has had an opportunity to work with experts in her field who have inspired her to see her potential as a scientist. She received her post-secondary education from Tuskegee University where she received both Bachelor (2006) and Master of Science (2009) degrees in Chemistry. While pursuing her Master of Science degree, she received the BD fellowship that allowed her to be mentored by doctoral students and professors. The BD program encouraged her to continue her studies at the doctoral level. Rozlyn is an active member of several professional organizations such as: the American Chemical Society, the National Organization for Black Chemists and Chemical Engineers and the Materials Research Society. She also has enjoyed volunteering as a tutor and mentor for local high school students over the past four years. After completing her Ph.D., Ms. Chambliss plans to seek employment either in a governmental facility or in industry.

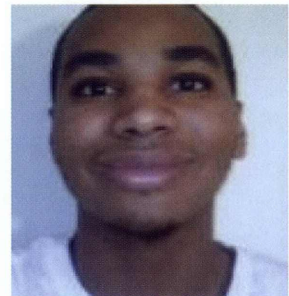
**Morgan Perry Davis Jr.** was accepted into the Ph.D. program in Materials Science and Engineering at Tuskegee University in August 2010, and is a first year Bridge to the Doctorate fellow. He earned a Bachelor of Science degree in Mathematics from Morris College in Sumter, SC. Morgan has participated in Research Experiences for Undergraduates (REUs) at the University of South Carolina for summers 2007 and 2008. He received the Excellence in Undergraduate Research Award in spring 2009, for his research presentation at the South Carolina Academy of Science Conference in Columbia, SC. His latest research experience was at the University of Connecticut in summer 2010, where he conducted research on underwater sensor networks. However, most of his undergraduate research was conducted at Morris College and this research was a departure from previous research experiences. His research at Morris was on synthesizing an adipocyte binding protein or aP2, inhibitor in hopes of utilizing it as a new treatment for diabetes. As a doctoral student at Tuskegee University, his research focus is on Dynamic Characterization of High Performance Carbon/Epoxy-CNF Laminated Composites. During his first year at Tuskegee, Morgan has attended a number of seminars and also the BD Winter Conference to learn what research his peers are conducting in the field. Currently, Morgan is focused on completing his Ph.D. and is looking forward to the opportunities it creates for him.



His latest research experience was at the University of Connecticut in summer 2010, where he conducted research on underwater sensor networks. However, most of his undergraduate research was conducted at Morris College and this research was a departure from previous research experiences. His research at Morris was on synthesizing an adipocyte binding protein or aP2, inhibitor in hopes of utilizing it as a new treatment for diabetes. As a doctoral student at Tuskegee University, his research focus is on Dynamic Characterization of High Performance Carbon/Epoxy-CNF Laminated Composites. During his first year at Tuskegee, Morgan has attended a number of seminars and also the BD Winter Conference to learn what research his peers are conducting in the field. Currently, Morgan is focused on completing his Ph.D. and is looking forward to the opportunities it creates for him.

**Charles Doxley**, BD Program (2006-2008), Electrical Engineering.

He received his master's degree in Electrical Engineering from Tuskegee University in May 2009. He then joined NASA Glenn Research Center where he is currently employed. He plans to start his doctoral studies fall 2011, under a NASA fellowship.



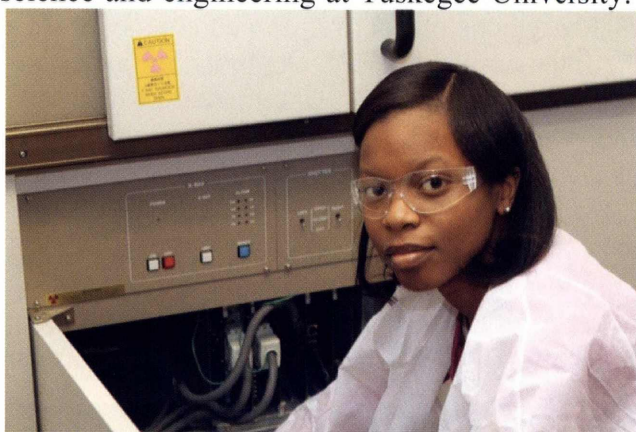
**Justin O. James** graduated with both a Bachelor and Master of Science degree in Electrical Engineering from Tuskegee University. He left to pursue Ph.D. studies at Prairie View A&M University. At PVAMU, Justin is enrolled in the Department of Electrical and Computer Engineering where he is currently conducting research related to tactical and emergency wireless networks. Justin is under the co-advisement of Dr. D. R. Vaman and Dr. A. A. Annamalai. Currently in his third year of doctoral studies, he has finished all required coursework and is vigorously working on his dissertation. Since arriving at PVAMU, Justin has been deployed twice to the Army Research Laboratory (ARL) in Adelphi, MD to be a guest researcher. At the ARL, Justin was offered mentorship, conducted research, made several presentations, and authored numerous technical note documents. Research papers written by Justin have been submitted and accepted by various IEEE conferences (CCNC, MILCOM, and GLOBECOM). Currently, he is composing a journal paper version of his research which should be ready for publication soon. Research conducted by Justin is sponsored in part by the ARL and National Science Foundation (NSF).



**Vertonica Powell** is a first year Bridge to the Doctorate fellow enrolled in the doctoral program in Materials Science and Engineering at Tuskegee University. She earned a Bachelor of Science degree in Mathematics with a minor in Physics from Fayetteville State University in North Carolina. Her research is on processing and performance of nanocomposites made of bio-renewable resources. She plans to use her research to find more bio-renewable resources that can be used in more commercial environment. While at Tuskegee, Vertonica attended the Alabama LSAMP Bridge to the Doctorate Fall Conference at UAB. There she learned valuable information about current research projects by different universities in the state.



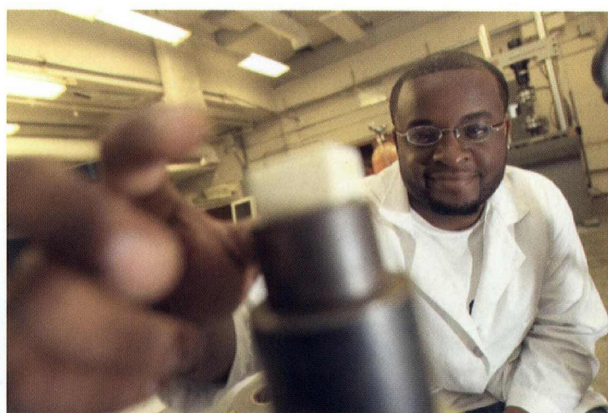
**Diane Render** is a first year Bridge to Doctorate fellow enrolled in the doctoral program in materials science and engineering at Tuskegee University. She earned a Bachelor of Arts degree in Mathematics from Albany State University. During her summers at Albany State, she conducted undergraduate research on education, antioxidant activity and Game Theory. She also served as president of the Florida-Georgia Louis Stokes Alliance for Minority Participation, reporter for the Alpha Kappa Mu Honor Society and member of the math and computer science club. Her doctoral research is on “*Synthesis and Characterization of Toughness Increase by Addition of Fractionalized Additives Coated Nanoparticles*”. While at Tuskegee, she attended the ALSAMP BD Winter Conference,



where she presented an oral presentation on thermal & mechanical properties of SiC and SiO<sub>2</sub> coated - thermoplastic microsphere nanocomposites. Diane plans to graduate with her Ph.D., and find a career in research, hopefully, continuing what she has already started at Tuskegee University.

where she presented an oral presentation on thermal & mechanical properties of SiC and SiO<sub>2</sub> coated - thermoplastic microsphere nanocomposites. Diane plans to graduate with her Ph.D., and find a career in research, hopefully, continuing what she has already started at Tuskegee University.

**Gregory Strawder** is a doctoral graduate student in Materials Science and Engineering at Tuskegee University. Upon receiving his Bachelor of Arts degree in Mathematics from Albany State University, he was awarded a Bridge to the Doctorate Fellowship (2006-2008) at Tuskegee. He is persistently working towards the completion of dissertation research efforts, which is tentatively scheduled to be completed by December 2011. His research focus includes the enhancements in mechanical and thermal properties of sandwich composite structures with synthetic and natural fillers, as well as hybrid sandwich composite structures. His research efforts have granted him the opportunity to author and present papers at national conferences, most notably the Society for the Advancement of Material and Process Engineering (SAMPE) Fall Technical Conference in 2009 and the American Society for Composites



His research efforts have granted him the opportunity to author and present papers at national conferences, most notably the Society for the Advancement of Material and Process Engineering (SAMPE) Fall Technical Conference in 2009 and the American Society for Composites

(ASC) in 2010. Upon completion of his doctoral degree, he hopes to do research and development in aerospace and defense with the government or contracted through the government.

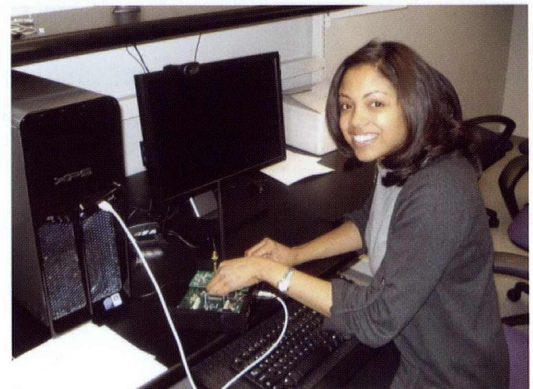
**Garry Ware** enrolled in the Material Science and Engineering doctoral program at Tuskegee University in August of 2010 and also became a first year Bridge to the Doctorate student. He earned an



undergraduate degree in Industrial Engineering at Florida A&M University and his master's degree in Materials Engineering at the University of Dayton, Ohio. As a graduate student at Dayton University, he was afforded the opportunity to work as a contractor within the Air Force Research Laboratory (AFRL) at Wright Patterson Air Force Base (WPAFB). He conducted research on various dispersion techniques and characterization of carbon nanotube in an epoxy-amine resin matrix and the production of carbon nanotube/resin films used for the fabrication of carbon fiber reinforced nanocomposites in

order to introduce the carbon nanotubes into the inter-planer regions of fiber reinforced composites. He received awards from research presentations made at the International SAMPE Student Competition in May 2008 and the Midwest SAMPE Student Competition in February 2008. His graduate work at the University of Dayton led him to co-author several publications. Now, it is his ambition to earn a Ph.D. in Materials Science with a research emphasis on the "*Characterization and Reinforcement of Nylon 6 Polymer Blend via Single Screw Extrusion*".

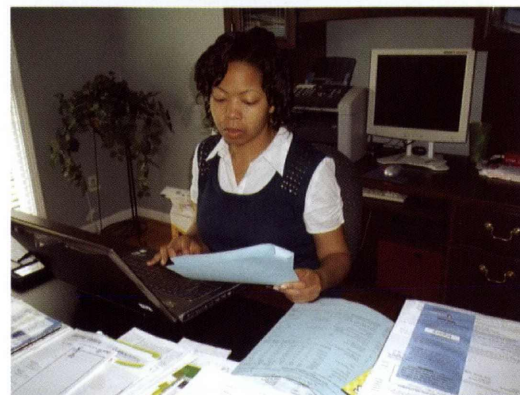
**CaLynna Sorrells**, a third year doctoral student, is a member of the Center for Battlefield Communications at Prairie View A&M University. She received a Bachelor of Science degree in 2005 and a Master of Science degree in 2008 in Electrical Engineering with a concentration in call admission control (CAC) in mobile ad hoc networks (MANET) from Tuskegee University. While pursuing her master's degree, she received the Bridge to the Doctorate Fellowship, which served as a platform for developing students' interest in doctoral studies. She is currently investigating spectrum situational awareness in cognitive radio ad hoc networks to prevent and detect attacks security enhancement. She also conducts research with GNU Radio with Universal Software Radio Peripheral (USRP) and Crossbow Sensors with Zigbee Radio. While matriculating at Prairie View A&M University, CaLynna received an Army Fellowship from an ARO grant, a NSF Fellowship from a NSF grant and the HBGI Fellowship.



CaLynna has had the opportunity to intern at the Army Research Lab (ARL) as a guest researcher and an electronics engineer where she submitted and presented two technical reports: 1) The Primary User Emulation attack in Cognitive Radio and 2) Client/Server Implementation Modeled with Rational Rhapsody. She has participated in the STEAM Research Symposium at Prairie View A&M University and submitted papers to several conferences, including the Sarnoff Symposium and Globecom Communications Conference. After her anticipated graduation in May 2012, CaLynna plans to start a career in research and development in which her studies in wireless communications and cognitive radio will be an asset.

## Life Sciences

**Jennifer Cunningham** is a doctoral student in the Department of Human Studies at UAB. Jennifer's current research interests are human papillomavirus and cervical cancer. Her current work investigates perceptions related to HPV and uptake of HPV vaccination among college students, as well as the development of health promotion programs and evaluation of health communication messages for increasing HPV and cervical cancer awareness. Jennifer chose her research on HPV and cervical cancer because she has always had the desire to work on diseases that disproportionately affect women, particularly African American women. Jennifer promotes health education/health promotion research in her career, hoping to provide education to our communities to increase the overall health status of Americans, particularly African Americans. In addition to her community based participatory research, she is actively involved in her community. She is currently a content reviewer for the *Journal of Health Care for the Poor and Underserved*. She has demonstrated leadership as President of Beta Chi Chapter of Eta Sigma Gamma a national health education honor society for the 2009-2010 academic term. She also volunteers for the UAB 1917 Clinic, serving as an Ora Quick Counselor and Sexual Health Awareness Peer Educator. Recently, she accepted a position as an advisory board member of *A Better Me, Inc.* foundation. Promoting health awareness particularly among African American women is a major objective for her. Thus, she promotes health awareness and prevention among African American women via provision of information on health related problems as well as preventative methods for those problems. Jennifer's ultimate goal is to be a consultant to other health education/health promotion programs, as well as begin her own health promotion practice via the provision of health clinics to underserved communities.



**Erica Hudson**, BD Program (2006-2008), Nutritional Sciences. She received her Master of Science degree in Food and Nutrition Sciences from Tuskegee University, May 2009. Currently, she is working in her field.

**Tracey Mindingall**, BD Program (2006-2008), Food Science.

Tracey received her Master of Science degree in Food and Nutrition Sciences from Tuskegee University in May 2009. Currently, she is working in her field.



**Sharina Richards**, BD Program (2006-2008), Animal Science.

Sharina transitioned to the doctoral program in integrative biosciences at Tuskegee University. After two years, she took a leave from the program.

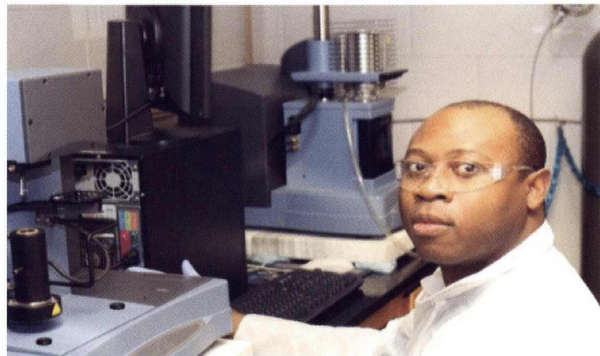
## Physical Sciences

**Kellee L. Jamerson**, BD Program (2006-2008), Environmental Science.

Kellee was enrolled in the Master of Environmental Science program. She discontinued her studies to seek other opportunities.



**Twaskia S. Johnson** completed his Bachelor of Science in Chemistry at Columbus State University in the spring of 2000. He chose a career path in toxicology working in a pesticide residue lab



determining the cause of death of domesticated animals using various instruments. In the summer of 2007, he returned to school to further his education under the Alliance for Graduate Education and Professoriate (AGEP) at the UAH. He was awarded a scholarship through NSF and the Bridge to the Doctorate Fellowship at Tuskegee University in material science and engineering. His research is centered on solar cell

applications. The title of his dissertation is the *Synthesis of Quantum dots using Cads by Microwave Irradiation*. His research involves the collaboration of other schools working on similar projects



concerning solar cells with the use of semiconductors. The synthesis of nanoparticles will be done in the processing lab at Tuskegee University. The fabrication process for these synthesized nanoparticles will be provided by one of the following schools: Stanford University, MIT and the University of California in Berkeley.

**Tiffany Taylor**, BD Program (2006-2008), Chemistry.

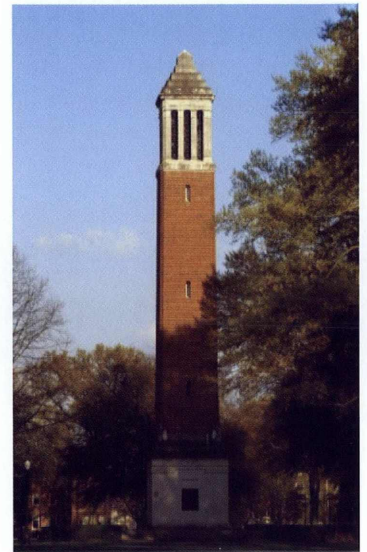
Tiffany received her Master of Chemistry degree from Tuskegee University in May 2008. She then joined the medical program at Baylor School of Medicine. She plans to earn a doctorate (Ph.D. /M.D.) in Medical Sciences.



Tuskegee University BD students attend the Alabama LSAMP / BD Spring Research Conference

## THE UNIVERSITY OF ALABAMA

The University of Alabama (UA) is a major, comprehensive, student-centered research university founded in 1831 as Alabama's first public college. Dedicated to excellence in teaching, research and service, we provide a creative, nurturing campus environment where our students can become the best individuals possible, learn from the best and brightest faculty and make a positive difference in the community, the state and the world. Not only is UA the oldest public university in the State of Alabama but also, in 1837, UA became the first in the state to offer engineering classes. It was one of the first five in the nation to do so and one of the few to have maintained accreditation continuously since national accreditation began in 1936. The University of Alabama is the largest university in Alabama with an enrollment of 30,232, which includes **4,869 graduate students**.

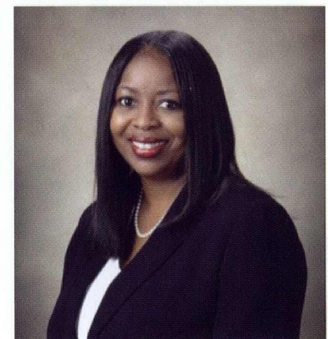


*Dr. Robert E. Whitt, President*

The University of Alabama is ranked among the top 50 public universities in the nation for the ninth consecutive year in *U.S. News and World Report's* annual college rankings, for fall 2009. The University of Alabama ranked 10th in the nation among public universities in the enrollment of National Merit Scholars in the 2009 freshman class and led the nation with a record 10 students named to *USA Today's* 2010 All-USA College Academic Team. UA is also a leader in the enrollment of National Achievement Scholars, a recognition awarded to top African-American students, ranking 3rd among public universities and 16th among all universities. UA is #1 in the nation in enrollment and graduation of minority doctoral students under the Southern Regional Education Board's (SREB) Minority Doctoral Scholars Program. A total of 66 SREB fellows have completed their doctorates at UA and 20 SREB doctoral fellows are currently enrolled in this program that encourages minority students to pursue doctoral degrees and become college-level professors.



Our world-class faculty, staff and students are leading the way as we work to make sure that our research efforts continue to make a hands-on difference in the lives of the people we serve. In doing so, we are transforming our state's oldest and largest university into one of the nation's premiere student-centered research institutions.



*Dr. Viola Acoff,  
ALSAMP Site Coordinator*

## University of Alabama BD Students

### Engineering

**Tarrell Ezell** is a first year master of engineering student at The University of Alabama. He received his Bachelor of Science degree in Electrical Engineering from Alabama Agricultural and Mechanical (Alabama A&M) University and while in attendance there, he was able to travel to The University of Arizona and Vanderbilt University to perform research with their school's brightest scientist. Currently Mr. Ezell is working on the advancement of fully electric vehicles so that they will be more viable for day to day travel. His research is focused on the improvement of an induction motor drive, where he is testing new and older algorithms to try and formulate a method that will allow maximum efficiency at all loads. One day he hopes to see his research implemented into commercial vehicles. After completing his Ph.D., Tarrell plans to become a faculty member at an esteemed university, so that he can pass his wisdom on to younger generations.



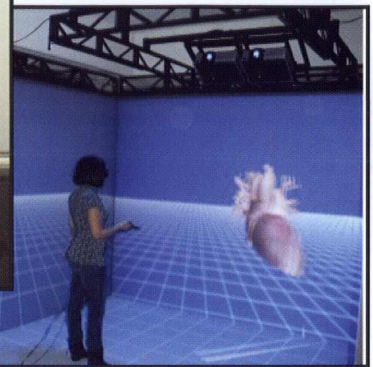
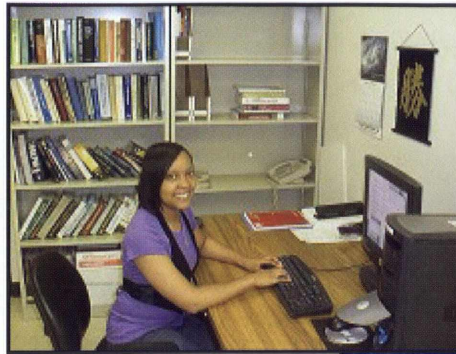
**Alanzo Granville** is a doctoral graduate student in the interdisciplinary engineering program within the Mechanical Engineering Department at UAB. He works in the Enabling Technology Laboratory with a current focus that pertains to Virtual Reality and Visualization. While attending UAB, Alanzo has had the opportunity to experience using high-end state-of-the-art visualization equipment; develop a strong background in the area of computer science in conjunction with his mathematical background from Alabama State University and UA, as well as serve in a leadership role in visualization workshops dedicated to enhancing youths' knowledge base in computer science and mechanical engineering.



Alanzo's research focus is: "*The Automatic Configuration of Virtual Environments with Pattern Card Associations.*" He uses Geographical Information Systems (GIS) data to assist in the development of virtual terrain and the automatic placement of three-dimensional (3D) models throughout the virtual environment. This, coupled with simulation software such as fluid flow solvers, will provide an easy to understand approach to developing virtual environments for the general user. This concept provides a preventative measure to bio-chemical attacks, air borne chemicals, multiple forms of pollution, natural disasters such as the tsunami in Japan, etc., and will allow for the propagation of these events to be quickly simulated in a virtual environment throughout an area of interest averting or reducing military and civilian casualties. Alanzo is hoping that his research leads to working in a governmental agency such as the Department of Defense and allow him to use his interdisciplinary knowledge of virtual reality/visualization as a form of defense for the unexpected.

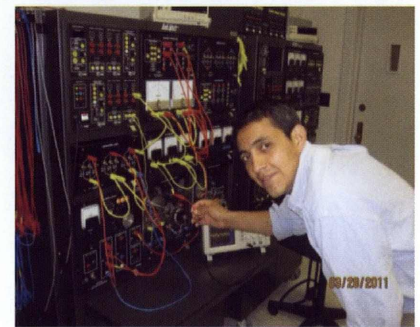
**Nicole D. Gray** is an interdisciplinary engineering Ph.D. graduate student at UAB in the Department of Mechanical Engineering. She has managed to incorporate her desire of conducting research and being able to see first-hand how it could influence not only her life but lives of others as well. Her research focus is on “*The Development of a Knowledge-Based Data Correlation Tool for Medical Science Data*”.

Her research will not only benefit the medical field but transform the way in which students, professors, and scientists derive critical knowledge. The current general search engines by Google and Microsoft base their relevance on user input and therefore the user has to comb through hundreds of links to decipher which data is relevant.



Therefore, by using a domain-specific knowledge search engine, it can allow students and researchers to decipher relevant data in a more efficient and effective manner. Although her background is in analytical chemistry, since coming to UAB her major focus has evolved into an interdisciplinary approach. This is due to her numerous research experiences in public health, chemistry and engineering. These experiences taught her that modern research no longer focuses solely on one scientific field, but requires a broad perspective of multiple disciplines to advance our understanding in the sciences. Since her future career goal is to become a researcher, her research will give her the opportunity to gain a better knowledge into a researcher’s atmosphere and be a contributor to the medical community.

**Julio Proaño** is a graduate student in the Electrical and Computer Engineering Department at UA. Currently, Julio is working under the supervision of Dr. Shuhui Li in the area of control and management of microgrids. His research focuses on the efficient integration of small-scale distributed generation units (DGs) into low-voltage (LV) systems to facilitate the supply of electrical power to local customers. He works on integrating small-scale power systems (like solar cells, wind turbines, fuel cell and batteries) into larger electric utility grids. Such integration is a necessary prerequisite for diversifying the nation’s energy sources and diminishing our dependency on fossil fuels. Widespread implementation of microgrids has far-reaching consequences including: 1) enabling development of sustainable and green electricity, 2) enabling larger public participation in investment of small-scale electricity generation, 3) reducing the numbers of marginal central power plants, 4) improving the security of power supplies, 5) reducing power losses in long transmission lines, and 6) enabling better management and control of electrical network congestion. Using professional power analysis software, Julio is evaluating various effects on the microgrid from system long-term dynamics such as power flow, voltage enhancement and active power loss saving. At the same time, he is developing new control methods to facilitate efficient operation of power transmission networks. Upon completion of his doctoral degree, he plans to work with utility companies in the planning and implementation of a complete end-to-end microgrid.



**Rachel Roberts**, Metallurgical and Materials Engineering  
BD Program (2007-2009)



**Lyndon Smith Jr.** is a graduate student of the Department of Metallurgical and Materials Engineering at UA. Although, he has only been with the department since August 2010, he has maintained a 4.0 GPA and is now working in Dr. Nitin Chopra's group on three projects. The first two involve the sputtering of tantalum films on copper (II) oxide nanowire substrates followed by annealing and etching of the



nanowires to arrive at a variety of different nanostructures. The third project is a team effort with another member of Dr. Chopra's group involving the growth and characterization of silicon nanowires on silicon substrates using chemical vapor deposition (CVD). These nanoscale structures all require a considerable amount of characterization, so Lyndon has learned X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), sputter deposition and scanning electron microscopy (SEM). Nanomaterials research is a rapidly growing field and this research grants Lyndon the opportunity to participate in very unique and demanding research. These nanostructures have numerous potential applications including biosensing, photo-hydrolysis/-degradation and photocatalysis. Dealing with bottom-up synthesis and characterization of nanoscale materials has proven

to be a singular challenge, but after only a semester and a half of work, Lyndon has proven to be a quick study and a patient researcher.

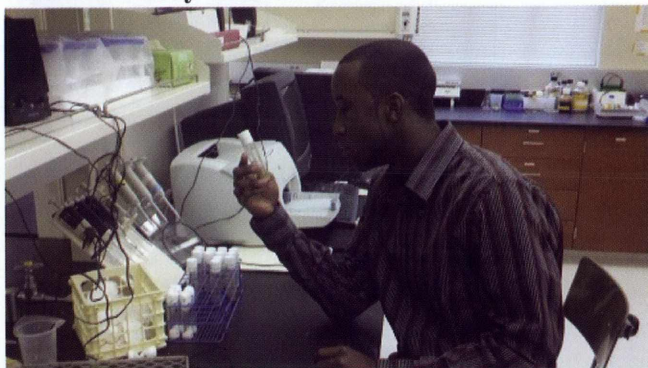
**Derrick D. Stokes Jr.**, is a first year doctoral graduate student majoring in materials science within the Department of Metallurgical and Materials Engineering at UA. During his first semester of graduate studies, he earned a perfect 4.0 grade point average (GPA). Derrick is also a National GEM Consortium Fellow (and Alumni), with his corporate sponsor being Corning Incorporated. Derrick is currently working on developing Ti-TiAl<sub>3</sub> metallic-intermetallic alloys for various structural, defense and aerospace applications.



Derrick has recently presented some preliminary data for his Ph.D. research at the National Black Graduate Student Association Conference in Columbia, South Carolina. His work has also been accepted for presentation at the Structural Materials for Aerospace and Defense Symposium that will be held at the Materials Science & Technology 2011 Conference in Columbus, Ohio in October 2011. Derrick has already had some of his previous research published and he has given a number of presentations at scientific meetings. Derrick is involved with a number of activities

that foster outreach. He speaks Mandarin conversationally and spent the summer of 2009 in Taiwan working with Taiwanese youth. He realizes the importance of understanding other cultures and how this will help him continue to develop professionally. He has also spent a number of summers working with underprivileged youth in Memphis, Tennessee and in Jackson, Mississippi. It is Derrick's long-term goal to give back to the community by encouraging youth to pursue science and engineering majors.

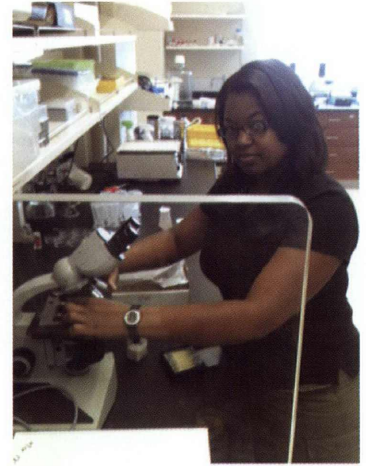
**James Wesley Anderson** is a second semester graduate student in the biological sciences master's program at UA. He is currently working on two projects in the O'Donnell Lab. His first project deals with investigating the roles that the various isoforms of 14-3-3 zeta proteins have in regulating Tyrosine Hydroxylase (TH) activity in *Drosophila* (fruit flies). TH is the rate limiting enzyme in the dopamine biosynthesis and by studying the regulation of the dopamine biosynthesis pathway. James's project could provide more insight into possible genetic therapeutic targets for curing Parkinson's disease. His second project involves studying the effects that exposing juvenile flies to paraquat (a neurotoxin) has on those flies in adulthood. James is a devoted researcher with a strong interest in contributing new information to the scientific community. He enjoys his research and takes it very seriously. Upon completion of the master's program, he plans to pursue a Ph.D. in the biological sciences.



**Cassandra Lynn Coleman** is a first year master's graduate student in the Department of Biological Sciences at UA. She is specializing in systematics within the ecology, evolution and systematics concentration. During her first semesters she was accepted for membership into the Gesneriad Society, American Society of Plant Taxonomists, Botanical Society of America, Society of Systematic Biologists and Sigma Xi. She has received numerous travel awards to present her research and plans to attend the Botany and Mycology 2011 conference this summer. Also this summer, Cassandra will be returning to Ecuador to finish conducting the field aspect of her research. She is currently constructing a revised phylogeny with multiple genetic markers for the genus *Gasterathus* under the guidance of Dr. John L. Clark. Her field work is an extension of this phylogeny and she is studying the pollination and pollinators associated with these flowering plants to better understand co-evolution and changes in floral morphology. This research has allowed Cassandra to work with undergraduates and scientists not only in the U.S., but also in South America. Her research also illuminates the problems associated with deforestation, especially in areas of intense biodiversity that have had little or no exploration. Cassandra has shown to be a dedicated and hardworking student. When not putting in long hours preparing her specimens for DNA sequencing or running analyses, she can be found deep in the rainforest battling the elements to better understand the unique characteristics and diversity in multiple plant families. After earning her Ph.D., her ultimate hope is to create a better understanding of evolution of pollination systems and plant diversity in remote and poorly understood tropical areas. She has a profound passion for her work and its potential to benefit the preservation of the world's rainforests.

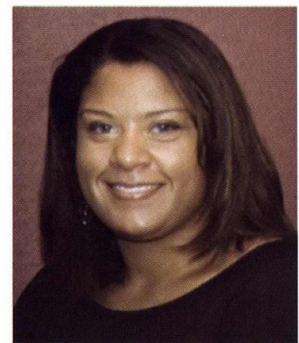


**Marleshia Hall** is a Ph.D. student in cell and molecular biology at UA. She was awarded the Bridge to the Doctorate Fellowship from 2007-2009. During her tenure as a Bridge fellow, she conducted research that is now the basis for her doctoral work. She is currently conducting research in a laboratory in which the main focus is determining the genetic and environmental factors of Parkinson's disease and the roles of the dopamine pathway genes in *Drosophila melanogaster* (fruit fly). Her particular interests, however, have centered on the role of dopamine in the migration of glial and tracheal cells. Unlike humans, fruit flies do not have a circulatory system. They do, have a tracheal network that provides oxygen to the tissues. This system is analogous to the vessels of the circulatory system and is a model for areas of study such as angiogenesis in cancers. Glial cell migration is also important as the determination of factors that motivate their migration can shed light on the mechanism by which highly incurable gliomas persist. Marleshia is in the process of packaging her findings into publications. She is a recent recipient of the Ronald E. McNair Graduate Fellowship and plans to pursue a career as a college professor.



**Haylee M. Hinz**, Biology  
BD Program (2007-2009)

**Cortessa Majors**, Cell Biology and Neuroscience  
BD Program (2007-2009)



**Ebony Hodges** is a third year biology Ph.D. student at UA and a 2007 Cohort Bridge to the Doctorate fellow. She was awarded the Bridge to the Doctorate Fellowship after receiving her Bachelor of Science degree in Biology from Alabama State University. Ebony has presented her research at the International Herpesvirus Workshop and is planning to give a presentation at the American Society for Virology Conference in July 2011. She has several publications and collaborations in the works due to her recent research findings. In addition to research, Ebony also finds ways to give back by volunteering as a peer mentor in the Tide Together Mentoring Program and the Departmental Biology Outreach. Her Ph.D. research focuses on viral protein 22 (VP22) of the Herpes Simplex Type 1 virus and examining its role in productive infection. Upon completion of her doctorate in biological sciences, Ebony hopes to enter into the field of academia and work closely with students seeking to pursue careers in STEM fields.



**Sharmeka La'Shea Lewis** is a doctoral student of the Department of Biological Sciences at UA. After more than 10 years away from the field of biology, Sharmeka courageously and eagerly reentered the field and began work in Dr. Martha Powell's lab with the goal of becoming a Chytridiomycologist. Sharmeka is currently working on a developmental study to compare the process of operculum formation versus inoperculate discharge in Chytrids. Sharmeka collects water and soil samples and baits the samples with pollen to stimulate Chytrid growth. Sharmeka routinely checks the samples using light microscopy to identify zoospore release. After the zoospores are released they are isolated and cloned to grow on chitin. The chitin is then fixed for Scanning Electron Microscopy (SEM). Sharmeka uses SEM techniques to observe the discharge pore formation in two different Chytrids: Inoperculate and Operculate. Her next task is to create a timeline for development. Sharmeka will then probe the specimens to identify carbohydrates and proteins using methods such as Acid Phosphates. This preliminary study will aid Sharmeka's dissertation research: "*Exploration of the Role of the Zoospore Fenestrated Cisterna in Calcium Sequestration Using the Marine Chytrid Fungus Rhizophydium littoreum.*" The purpose of this study is to isolate the fenestrated cisterna from a chytrid zoospore and to probe membrane fractions for calcium-containing proteins. This study will be submitted for publication. Upon completion of her doctoral program, Sharmeka plans to continue research with Chytrids and teach at a research based university.



**Ekaette Francis Mbong** was a part of the LSAMP Bridge to the Doctorate program from 2007-2009 at UA. She did her studies in biological sciences (BSC) focusing on herpes simplex virus type one (HSV-1). In her first semester in the program, she was inducted into the Golden Key National Honor Society for maintaining a 4.0 GPA. After completing her master's research in 2009, she was admitted into the BSC Ph.D. program. Though she continues to study HSV-1, her focus for her dissertation research has shifted to areas outside of her master's research. Apart from research, Ekaette has become quite involved with her surrounding community by bringing science to area afterschool programs. She joined forces with Dr. Kim Lackey, who heads the undergraduate research program in BSC, to form a graduate student outreach program. The program that Ekaette helped form has a primary focus of making science fun in



the hopes that the younger generation will have a desire to enter STEM fields later on in life. Ekaette was also elected by her fellow peers in the spring of 2010 to be Forum Convener for the BSC graduate students. In this position, she services her fellow peers by being a liaison between the graduate students and faculty. She is also responsible for organizing the annual graduate student colloquium, inviting guest speakers and organizing graduate student lunches with job candidates among several other duties. Ekaette is not only passionate about her community and her fellow peers, but also about the work she does in the laboratory. She was awarded the ASM Robert D. Watkins Graduate Research Fellowship in the Fall of 2010 and was honorable mention for the Ford Foundation Diversity Fellowship in the same year. She has presented her research at several international conferences to the experts in her field and has also added to her field by publishing in the *Journal of Virology*, the top journal in her field. Recently, Ekaette attended the ASM Writing and Publishing Institute in Washington, DC, to gain the necessary tools to become a more effective communicator of her scientific works. Ekaette has successfully passed her comprehensive exams and is now working on completing her dissertation research.

**Kathryn Picard** is currently a second-year doctoral student in the Department of Biology at Duke University. Kathryn earned her bachelor degrees in biology and philosophy from UA prior to being awarded a Bridge to the Doctorate Fellowship to continue her master's studies in evolutionary biology at UA (2007-2009). During her tenure as a master's student, Kathryn's research focused on reconstructing the relationships of extant chytrid fungi using molecular phylogenetic tools. As a Bridge fellow, Kathryn undertook fieldwork in Scotland, presented her research at 11 national and international conferences and authored three peer-reviewed articles. In her final year of the Bridge to the Doctorate Program, Kathryn was awarded a National Science Foundation Graduate Research Fellowship, a Ford Foundation Pre-Doctoral Diversity Fellowship and Duke University's Dean's Graduate Fellowship for matriculating students. As a graduate student at Duke, Kathryn is investigating the genetic mechanisms underlying early fungal-phototroph symbioses using a comparative transcriptomic and genomic approach. Kathryn serves as secretary of the Duke Chapter of Sigma Xi and the Duke Biology Department graduate liaison, wherein she helps the Duke University Graduate School recruit other Latinos to the university for graduate study. In addition to her research and university service, Kathryn participates in science outreach programs geared toward encouraging children in Durham's growing Latino community to pursue STEM fields in high school and beyond.

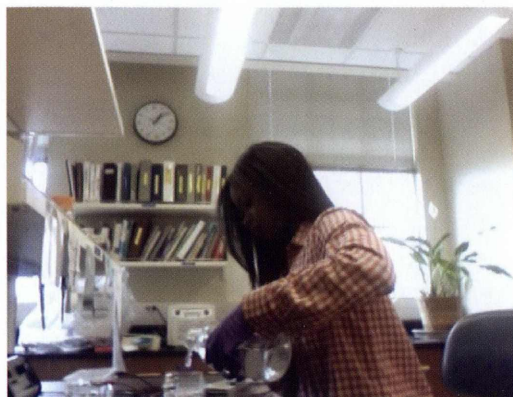


**Shane Stanley** is a Ph.D. student in the Department of Biological Sciences at UA. Shane is an avid researcher who relishes time in the lab and enjoys synthesizing new ideas with lab colleagues. Currently, he investigates the effects of androgenic compounds and other active metabolic intermediates on the muscle physiology of androgen receptors in the skeletal muscle of the mangrove rivulus. He intends to elucidate any unknown mechanisms by which the killifish become behaviorally plastic in the context of these mechanisms. The goal of this research is to find a direct link between skeletal muscle physiology and increased fitness amongst a variety of species. As secondary and tertiary projects respectively, Shane is investigating the role of creatine kinase, an enzyme used in the phosphorylation of creatine, as a parameter for quantifying jumping behavior in the rivulus and conducting an 18 month life history investigation on the same fish species. Shane has attended conferences



throughout Alabama and the country through which he gained valuable resources. In addition, he is an associate member of Sigma Xi and will supplement with membership in the Society for Integrative and Comparative Biology (SICB) and the American Physiological Society (APS) His ultimate goal is to attain a Ph.D., and garner employment as a faculty member at a research institution.

**Erica Thompson** is a M.S. student at UA in the Department of Biological Sciences, researching epigenetic factors that generate the *curly tail* phenotype. The *curly tail* mouse is a widely used model for studying neural tube defects (NTDs), specifically spina bifida. Her research findings will make significant contributions to NTD research and have the potential to aid in decreasing the incidence of NTDs in humans. In her first year of graduate studies, she has obtained a 4.0 GPA while making swift progress towards her research project objective. Erica's research project will produce new and different information for NTD research and she plans to publish results in journals such as "*Birth Defects Research*". Upon completion of her M.S. degree in cellular and Molecular biology, she plans to continue her education by pursuing a Ph.D. in biology with a focus on developmental aspects of teratogenesis and further contribute to decreasing the incidence of birth defects.

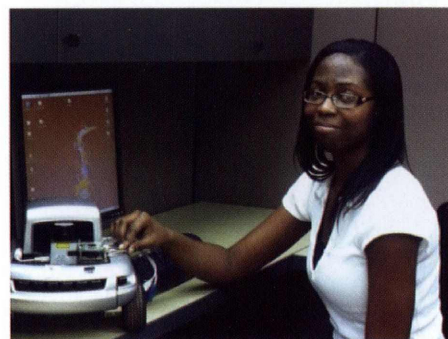


## Mathematics and Computer Sciences

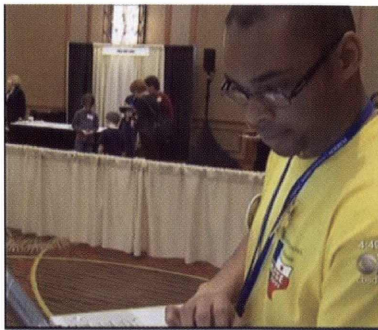
**Jalonda Coats** is a first year doctoral program graduate student in the Mathematics Department at UA. Her goal is to obtain a degree in mathematics with a concentration in finance. Her ultimate ambition is to become a quantitative analyst. Prior to acceptance into the doctoral program, she participated in various research projects and attended several conferences such as: the Annual Biomedical Research Conference for Minority Students in Charlotte, North Carolina, the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers in Indianapolis, Indiana and the National Conference for Undergraduate Women in Mathematics in Lincoln, Nebraska. At these conferences and others, she gave presentations in the areas of separating matrices (pure mathematics), the functional relationship of 24-hour ambulatory blood pressure and estrogen receptor ligands (computational chemistry).



**Shameka Dawson** is a doctoral student in the Computer Science Department at UA. Her research interest is in robotics concentrated on cooperative search, coverage and surveillance in multi-robot systems. Recent research involves investigating the factors specific to robot teams that affect simulation accuracy. Her research involves designing and conducting experiments in simulation and a lab environment to test various cooperation paradigms with autonomous, distributed robots. Other activities include writing, debugging and testing robot controllers. She has had the opportunity to travel to various national conferences and communicate significant findings of her research through poster and oral presentations. She has also published her research in conference papers.

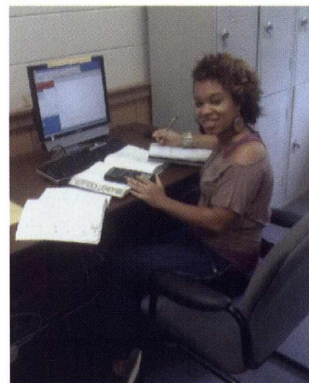


**Edward Dillon** is a doctoral student in the Department of Computer Science at UA. His area of research is Human Computer Interaction (HCI) with inferences in computer science education. For his dissertation, he is studying programming environments and their ability to help novices learn how to program in introductory courses. As part of his research, he studies an environment called Providing Robotic Experiences Through Object-Based Programming (PREOP), which was developed at the university. This environment is currently being used in the lab component of the introductory programming course at the university. PREOP helps students not only learn programming but also allow them to work with IROBOT Creates. Recently, he and Dr. Monica Anderson-Herzog, a robotics professor at the university conducted outreach at Aliceville

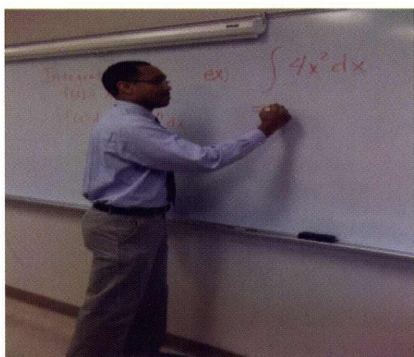


High School in Pickens County, Alabama. This school is predominantly African American and the goal was to expose these students to programming along with computer scientists who are also African American. It was also the intent to encourage students who were interested, to pursue a career in computer science. Edward is a scholar of the Southern Regional Education Board (SREB) and currently serves as vice president and webmaster for the SREB student organization on campus.

**Sharniece Holland** is a first year graduate student working towards her Ph.D. in mathematics at UA. She received a Bachelor of Science in Mathematics from Alabama State University. While earning her undergraduate degree, she attended a summer research program at the University of Iowa and a mini-semester at Brookhaven National Laboratory in Long Island, New York. In addition, she attended professional meetings in her field such as: the Annual Joint Mathematical Association of America and the American Mathematical Society meeting. Currently, she is focusing on her research on Iterative Techniques for Solving Linear Systems. Under the guidance of Dr. Zhao and Dr. Liem, she will present her research at the Alabama LSAMP Spring Research Conference. As a member of the American Mathematical Society, she has had the opportunity to attend a variety of conferences to learn about her research and about the new technologies in mathematics. In the future, she plans to team with Dr. Neggers and pursue research in mathematics and education for her Ph.D.

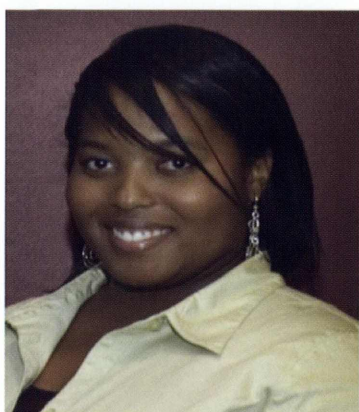


**Brandon Ross Morgan** was a Bridge to the Doctorate fellow from the 2007-2009 cohort. After receiving his master's in mathematics from UA, he decided to gain classroom experience by teaching math on the secondary level at Central High School in Tuscaloosa, Alabama. Brandon's passion is showing children from rural areas that mathematics can be exciting and interesting. He works tirelessly pursuing activities which improve mathematics instruction and promoting mathematics as a viable field to underrepresented groups. By teaching in the classroom, Brandon feels that this will give him firsthand experience to enhance his Ph.D. research and outreach activities. He needs nine hours to complete his Ph.D., coursework in mathematics at UA. He is on schedule to complete his degree in the fall 2011 semester. Brandon's research interests are in computational fluid mechanics.



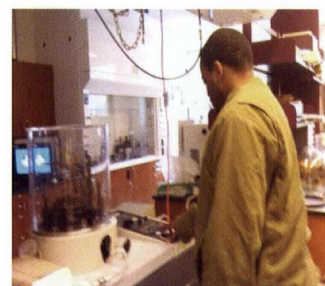
## Physical Sciences

**Melody Kelley** is a doctoral graduate student of the Department of Chemistry at the UA. During her tenure as a graduate student, she has been a recipient of several awards including: the UNCF/Merck Graduate Fellowship and the NSF Graduate Fellowship. Currently, her research involves using physical organic chemistry to devise catalysts for solar energy storage applications. This work has been presented at national meetings of the American Chemical Society (ACS) and The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCChE). She looks forward to attending the 2011 national meeting of the North American Catalysis Society where she gets to travel home to Detroit. Her work as a graduate student also includes various outreach activities at local elementary schools in Tuscaloosa.



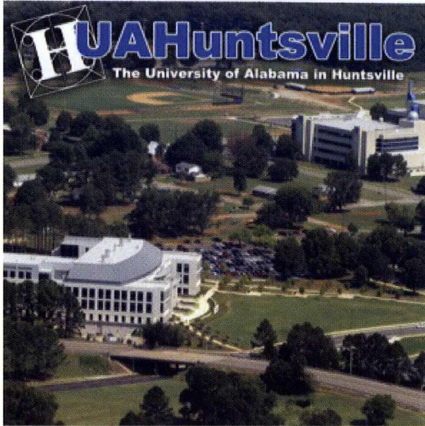
**DeAna McDory**, Chemistry  
BD Program

**Marcus Johnson** is a first year Ph.D. student in chemistry at UA, focusing on physical organic chemistry. Currently his research interests are in the area of unimolecular electronics under the direction of Dr. Robert Metzger. Using a Langmuir-Blodgett, he is attempting to make monolayers of a variety of molecules, synthesized by the organic chemists at UA, which will be tested for their electrical properties. Also he has proposed to NSF, for fellowship funding, an alternative method which uses self-assembled monolayers to perform the same task but offers a wider array of molecules to be tested. Electron propagation through individual organic molecules will be ultimately governed by quantum mechanics principles. Thus, insight into the physical quantitative quantum mechanics measurements may be directly measured. He believes that by understanding materials at a microscopic level more fundamental understanding of the bulk will be attained. Materials science and nanotechnology have been his primary interest since beginning undergraduate research at Clark Atlanta University (CAU). During a three year period at CAU he worked under a graduate student specializing in polymers and looking for the effect of doping with nano-particles. Breakthroughs in these two fields of chemistry may lead to a plethora of outcomes such as enhanced electrochemical cell efficiencies, increased materials strengths and an endless amount of applications. Marcus hopes to be a major contributor to these breakthroughs through his current and future research.



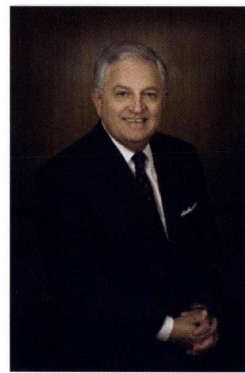
## The University of Alabama in Huntsville

The University of Alabama in Huntsville (UAH) is a public, co-educational, state-supported research university within The University of Alabama System. UAH was founded as part of the University of



Alabama in 1950 and became an autonomous campus within the UA System in 1969. Located at the southern edge of the Appalachian Mountains, Huntsville is a national center of aerospace and high technology research and development. It is home to NASA's Marshall Space Flight Center and major U.S. Army research and development centers at Redstone Arsenal including the U.S. Army Aviation and Missile Command (AMCOM) and the U.S. Army Space and Missile Defense Command (SMDC). UAH is the anchor tenant in Cummings Research Park, the second largest research park in the United States and home to more than 225 high technology and research companies with more than 23,000 employees.

*U.S. News & World Report* ranks UAH among the "150 best national doctoral universities," a distinction shared by only seven percent of the more than America. UAHuntsville's academic reputation has by other respected national publications. *Barron's Colleges* lists UAH as "very competitive;" the only to achieve this ranking. UAH also was highlighted Colleges for Top Students" by *Peterson's* university has been recognized by *America's 100* consecutive years for providing students a high competitively low cost. Total enrollment is including more than 1,600 graduate students. percent women, 51 percent men. UAH incoming of 25.2 on the ACT examinations which are best universities.



Dr. Malcolm Potera,  
Interim President

2,000 four-year colleges in been consistently recognized *Profiles of American* public university in Alabama as being among "Top *Competitive Colleges*. The *Best College Buys* for eleven quality education at a approximately 7,700, Undergraduates include 49 freshmen score an average among Alabama's public



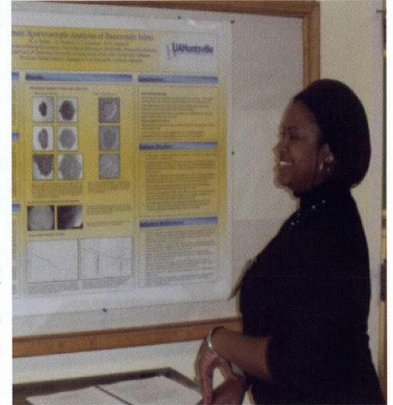
Dr. Emanuel Waddell,  
ALSAMP Site  
Coordinator

UAH offers 61 degree-granting programs that meet the highest standards of excellence, including 30 bachelor degree programs, 18 master's degree programs and 13 doctoral programs through its five colleges: business administration, liberal arts, engineering, nursing and science. The university received about \$65 million in external funding for active research projects during 2007-2008. Research sponsors include: federal and state agencies, academic institutions and industry and private foundations. Research is conducted within the individual colleges or through UAH's 17 independent research centers, laboratories and institutes. Major interdisciplinary research thrusts include: applied optics, propulsion, space plasma and aeronomics, space physics and astrophysics, earth system science, information technology, management of science and technology, microgravity and materials, modeling and simulation, rotocraft systems, systems engineering, structural biology and automation and robotics.

## UA Huntsville BD Students

### Engineering

**Kimberly A. Hobbs** attends UAH as a doctoral student in the biotechnology science and engineering program. She is currently completing her doctoral studies at the Hudson Alpha Institute for Biotechnology under the advisement of Dr. Devin Absher. Her project focuses on studying genetic and epigenetic changes of cyclin-dependent kinase inhibitor genes (CDKN2A and 2B) and their role in heart disease. She completed her Bachelor of Science degree in 2002 with honors at UAH as a biological science major and chemistry minor. As an undergraduate, Kimberly was a Louis Stokes Alliance for Minority Participation (LSAMP) scholar. During her undergraduate years, she was also a NASA Space Grant scholar, a Harold J. Wilson scholar and a UAH Leadership scholar. She completed her Master of Science degree in the spring of 2007 also at UAH as an NSF supported Bridge to the Doctorate fellow. Her published master's thesis work is entitled, "*Differential Nitric Oxide Sensitivity in Motor Neurons and Oligodendrocytes: implication of Central Nervous System Diseases*". She served as President of the UAH Minority Graduate Student Association for two consecutive academic years (2005-2007) and currently serves as treasurer for the organization. Kimberly has also been the recipient of the NASA Harriet G. Jenkins Fellowship for her doctoral studies and also received the 2010 American Association for Blacks in Higher Education Doctoral Student Conference Grant. She has presented her work at over 10 national conferences including: the American Society for Cell Biology and the Society for Neuroscience. In 2008, Kimberly received the National Student Role Model Award from Minority Access Incorporated. She also had the opportunity to travel abroad as a student delegate to China, Beijing, Xian and Shanghai, visiting both the China Academy of Social Sciences and the Chinese University of Nationalities.



**Christopher Harris**, BD Program (2004-2006), is currently a mechanical engineering intern with IMS Engineers where he works hand-in-hand with senior mechanical engineers. Christopher's primary responsibilities include MEP planning, design and preparation of construction specifications for various facilities and capital improvement projects and project management. He received his undergraduate degree in physics from Tougaloo College where he also was a Louis Stokes Alliance for Minority Participation (LSAMP) scholar. He received his Master of Science degree in Mechanical Engineering in the fall of 2006 as a Bridge to the Doctorate fellow and member of the Minority Graduate Student Association.



**John Martin**, BD Program (2004-2006), is currently a solid rocket booster systems engineer at Snyder Technical Services in Huntsville, Alabama. The company was founded in 2003 and serves the NASA MSFC systems engineering community. John



received his undergraduate degree from Alabama A&M University and his master's degree in aerospace engineering from the UAH.



**Eileen Rojas**, BD Program (2004-2006), is currently working as an operations research analyst for a defense sub-contractor in Huntsville, Alabama. Eileen has worked in various areas including: modeling and simulation of alternate vehicle systems, data analysis and modernization efforts of software tools. A graduate of UAH, Eileen received both her B.S. and M.S. in Chemical Engineering.

**Andre Turner** is a Ph.D. student at UAH in the Department of Aerospace Engineering. During his time as graduate research assistant there, he has been involved in the field of electric propulsion, specifically ion thrusters and their efficiency. He has studied the efficiency of an ion thruster during simulated missions to various celestial bodies in our solar system. In addition to research, Andre is the instructor of record for MAE 110: Introduction to Computer Aided Design. In this role, Andre instructs freshmen students in the principles of modern engineering graphics and computer aided design (CAD), in addition to fostering sound problem-solving and engineering design practices. Andre is a member of the American Institute of Aeronautics.



**Tameka Walker** is a doctoral student in the biotechnology science & engineering program at UAH. She currently works under Dr. William N. Setzer, in the Natural Products Research Group at UAH, researching the isolation and characterization of compounds from *Zanthoxylum setulosum* in the development of novel structures for chemotherapeutic drugs. She completed her M.S. degree in chemistry at the UAH and graduated with a B.S. in Chemistry from Alabama State University.



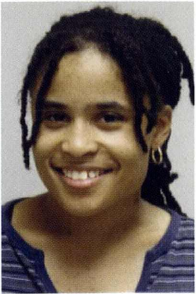
While at UAH, she has published more than 15 scientific articles and has been the recipient of numerous scholarships and fellowships including: the National Science Foundation Bridge to the Doctorate, American Chemical Society Organic Division Fellowship and American Association of Blacks in Higher Education Doctoral Student National Conference Grant. She holds professional memberships in the Alabama Academy of Science, National Organization of Black Chemists and Chemical Engineers and Minority Graduate Student Association. Upon graduation from UAH, she plans to be involved in research and design of advanced materials,

techniques, equipment and/or chemicals that could lead to the advancement of cures for health-related issues.

**Ambrey Watkins** currently is a senior software engineer in the Defense & Aerospace Systems Division of Sanmina-SCI Corporation. During her time at UAH, she completed her Master of Science degree in Engineering in May 2007 and her Bachelor of Science in Engineering in May 2002. During these years, she was a LSAMP scholar, LSAMP summer intern, graduate student mentor, MGSA officer and a Bridge to the Doctorate fellow. Before completion of her master's degree she was accepted into UAH's electrical and computer engineering department's doctoral program. She credits her involvement in UAH's LSAMP program under the guidance of the LSAMP principal investigator Dr. Adriel Johnson as the critical catalyst to her current success.



## Life Sciences



**Isa J. Alexander**, BD (2004-2006), Biological Sciences  
Isa left the program for work and other opportunities.



**Pierce J. Gibbs**, BD Program (2004-2006), Biological Sciences  
Pierce left the program for work and other opportunities.



**Victor Harris**, BD Program (2004-2006), studied alloxan-induced diabetes at the UAH in the laboratory of Dr. Adriel Johnson, Sr. and completed his M.S. in spring 2008. He then entered the Health and Exercise Department at the University of Oklahoma in August 2009, pursuing a Ph.D. in Health Promotion. Currently, he is mentoring high school and middle school students through various programs in the Oklahoma City area.

**Khalid W. Holmes**, BD Program (2004-2006), Biological Sciences. After returning to UAH to complete his master's degree in 2010, Khalid served a short stint as an adjunct professor of biology at Drake State Technical College. Early in 2011, he relocated to California to do research for the Jackson Laboratory. His day to day activities are varied and enable him to work on a myriad of mouse models. He may start the day working on mice with irritable bowel syndrome (IBS) and end his day with mice with MS (multiple sclerosis). During a normal day, he may treat mice with experimental therapeutic drugs on no less than four models in an effort to test for their effectiveness against a wide variety of ailments.





## Mathematics and Computer Sciences

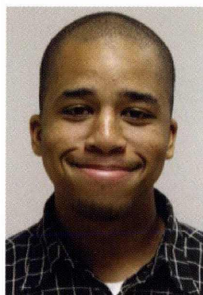
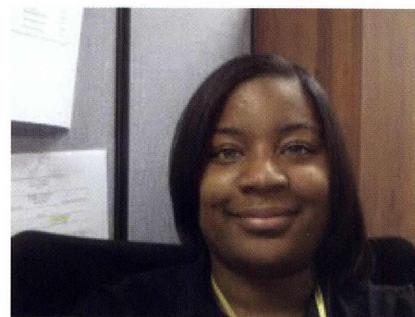
**Birvid Atkins-Warner**, BD Program (2004-2006), Computer Science  
Birvid left the program for work and other opportunities.



**Veronica Hunter** is a senior software engineer for Lockheed Martin Corporation in Huntsville, Alabama. She completed her M.S. degree in Software Engineering at the UAH in 2006 under the Bridge to the Doctorate Fellowship sponsored by the NSF and graduated with a B.S. in Computer Science from the UA, where she was a LSAMP scholar. While at UAH, Veronica was an active member of the Multicultural Graduate Student Association and served as a mentor for upcoming LSAMP scholars. In her spare time, she is very diligent about emphasizing the importance and value of STEM fundamentals to youth by participating in various extracurricular work and church initiatives.



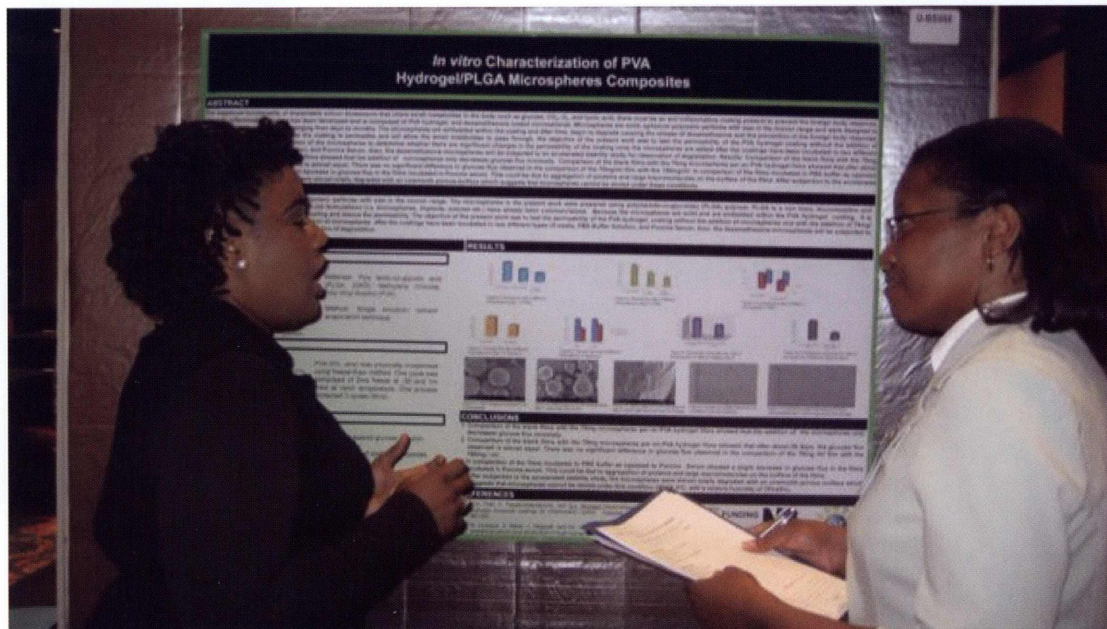
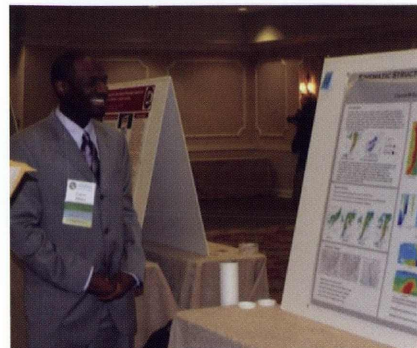
**Melody Jackson** received a B.S in Mathematics from Alabama State University in 2004. Upon graduation she became an ALSAMP BD fellow at the UAH where she received a M.S. degree in Applied Mathematics in 2007. Melody is currently employed as an operations research analyst for the Aviation and Missile Command, a position she has held since 2007. Aside from her academic achievements, Melody is dedicated to giving back to the community and also participates in the Army's Education Outreach Program and is active in her Psi Alpha Zeta Graduate Chapter of Zeta Phi Beta Sorority, Incorporated.



**Justin M. Kelly**, BD Program (2004-2006), Computer Science  
Justin left the program for work and other opportunities.

## Physical Sciences

**Calvin Elkins** is a Ph.D. student at UAH in the Department of Atmospheric Science. His research is on damaging winds generated by quasi-linear convective systems in the southeastern United States. This research will investigate these often overlooked phenomena and answer pertinent questions in regards to storm structure, damaging potential and propagation mechanisms. Calvin has presented research at numerous educational and professional conferences, most of them through the American Meteorological Society. He is currently the southeast regional representative of the National Black Graduate Student Association and 2nd vice president of the UAH Minority Graduate Student Association. In addition to schoolwork and research, he is very active in the community and serves as a middle school tutor and assistant director of his church's Pathfinder Club among a plethora of other activities and interests.



UAH BD student Kimberly Hobbs explains research project to project judge

## Alliance Site Coordinators

**Dr. Jacqueline Johnson**, *Professor*  
School of Agricultural & Environmental Sciences  
Alabama A&M University  
P.O. Box 1628  
Normal, AL 35762-1628  
Phone: (256) 372-5713 or 4162  
Fax: (256) 372-5840  
E-mail: [jacq.johnson@aamu.edu](mailto:jacq.johnson@aamu.edu)

**Mr. Elijah Nyairo**, *Instructor*  
Department of Physical Sciences  
Alabama State University  
915 South Jackson Street  
Montgomery, AL 36101-0271  
Phone: (334) 229-6923  
Fax: (334) 229-4902  
E-mail: [enyairo@alasu.edu](mailto:enyairo@alasu.edu)

**Dr. James Langie**, *Associate Professor*  
Department of Natural Sciences and Mathematics  
Miles College  
P.O. Box 3800  
Birmingham, AL 35208  
Phone: (205) 929-1554  
Fax: (205) 929-1550  
E-mail: [jangie@miles.edu](mailto:jangie@miles.edu)

**Dr. Mary Jane Krotzer**, *Dean and Division Chair*  
Division of Arts and Sciences  
Stillman College  
3601 Stillman Boulevard  
Tuscaloosa, AL 35401  
Phone: (205) 366-8929  
Fax: (205) 366-8942  
E-mail: [mkrotzer@stillman.edu](mailto:mkrotzer@stillman.edu)

**Dr. Herman Windham**, *Associate Professor*  
Department of Mathematics  
Tuskegee University  
Tuskegee, AL 36088  
Phone: (334) 727-8556  
Fax: (334) 725-2348  
E-mail: [windham@mytu.tuskegee.edu](mailto:windham@mytu.tuskegee.edu)

**Dr. Carolyn Braswell**, *Associate Vice President  
for Equity and Diversity*  
The University of Alabama at Birmingham  
401 Campbell Hall (1300 University Boulevard)  
1530 3<sup>rd</sup> Avenue South  
Birmingham, AL 35294-1170  
Phone: (205) 934-8762  
Fax: (205) 934-1650  
E-mail: [cbraswel@uab.edu](mailto:cbraswel@uab.edu)

**Dr. Carl Pettis**, *Chair*  
Department of Mathematics and Computer Science  
Alabama State University  
915 South Jackson Street  
Montgomery, AL 36101-0271  
Phone: (334) 229-4484  
Fax: (334) 229-4902  
E-mail: [cpettis@alasu.edu](mailto:cpettis@alasu.edu)

**Dr. Overtoun M. Jenda**, *Associate Provost  
Diversity and Multicultural Affairs*  
Auburn University  
103 M. White Smith Hall  
381 Mell Street  
Auburn University, AL 36849-5168  
Phone: (334) 844-4184  
Fax: (334) 844-4445  
E-mail: [jendaov@auburn.edu](mailto:jendaov@auburn.edu)

**Dr. Kenneth LaiHing**, *Chair*  
Department of Chemistry  
Oakwood University  
7000 Adventist Boulevard, NW  
Huntsville, AL 35896  
Phone: (256) 726-7112  
Fax: (256) 726-7111  
E-mail: [laihing@oakwood.edu](mailto:laihing@oakwood.edu)

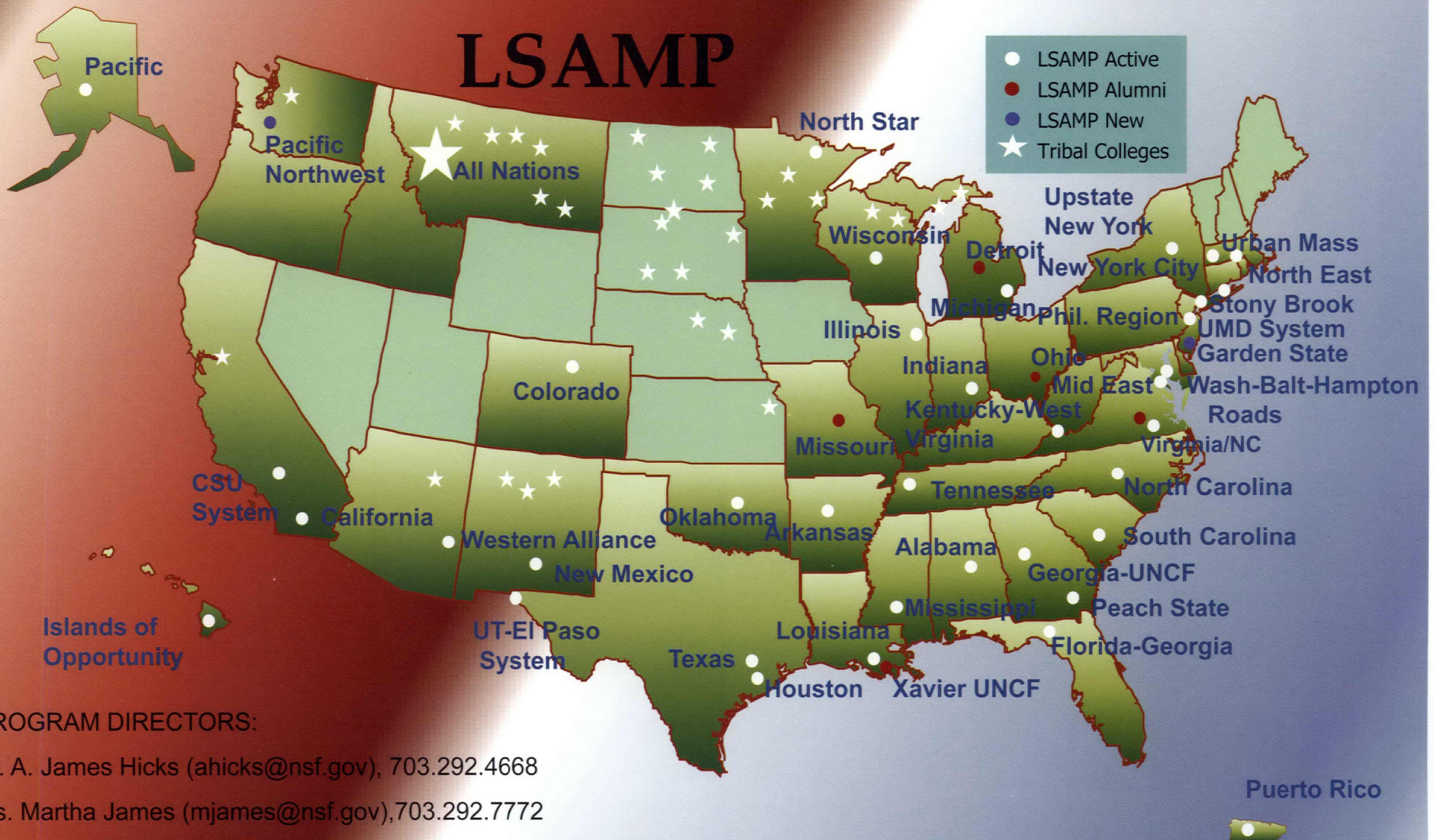
**Dr. Silas Edet**, *Associate Professor*  
Natural Sciences and Mathematics  
Talladega College  
Silsby Science Hall  
627 West Battle Street  
Talladega, AL 35160  
Phone: (256) 761-6271  
Fax: (256) 362-1090  
E-mail: [sbedet@talladega.edu](mailto:sbedet@talladega.edu)

**Dr. Viola L. Acoff**, *Professor*  
Department of Metallurgical and Materials Engineering  
The University of Alabama  
A129 Beville, Box 870202  
Tuscaloosa, AL 35487-0202  
Phone: (205) 348-2080  
Fax: (205) 348-2164  
E-mail: [vacoff@eng.ua.edu](mailto:vacoff@eng.ua.edu)

**Dr. Emanuel A. Waddell, Jr.**, *Assistant Professor*  
Department of Chemistry  
The University of Alabama in Huntsville  
Shelby Center for Science and Technology, Room 369 H  
Huntsville, AL 35899  
Phone: (256) 824-6235  
Fax: (256) 824-6230  
E-mail: [emanuel.waddell@uah.edu](mailto:emanuel.waddell@uah.edu)

**Dr. Alexandra Stenson**, *Assistant Professor*  
Department of Chemistry  
The University of South Alabama  
307 University Boulevard, CHEM Room 231  
Mobile, AL 36688  
Phone: (251) 460-7432 • Fax: (251) 460-7359  
E-mail: [astenson@jaguar1.usouthal.edu](mailto:astenson@jaguar1.usouthal.edu)

# Louis Stokes Alliances for Minority Participation



## PROGRAM DIRECTORS:

Dr. A. James Hicks (ahicks@nsf.gov), 703.292.4668

Ms. Martha James (mjames@nsf.gov), 703.292.7772

## MAP DESIGN:

Ms. April Boyd-Melvin, Science Assistant  
(abmelvin@nsf.gov), 703.292.4616

## CONTACT:

Division of Human Resource Development  
Louis Stokes Alliances for Minority Participation (LSAMP)  
703.292.8632 (office), 703.292.9018 (fax)