STEM RESEARCH AT GRAMBLING STATE UNIVERSITY

Biotechnology

Dr. Waneene Dorsey serves as the Ernest Everett Just Endowed Professor in the biology department. She earned her Ph.D. in environmental science from Jackson State University. She has published fifteen peer-reviewed articles and has nearly two decades of experience in molecular biology research. Her research uses a toxicogenomic approach to identify molecular targets that cause the onset of cancer. This methodology combines toxicology and genomics to understand how molecular events lead to cancer through exposure to chemicals. *Ras* mutation through signal disruption is seen in roughly half of all colon cancers and 90% of pancreatic carcinomas. Dorsey is studying the *Ras*/MAPK pathway, a key signal transducing system that facilitates cancer in mammalian cells. She is identifying molecules that turn on cancer gene proteins in mouse liver cells when they are exposed to chlorinated organic compounds. Once the molecular targets have been identified, they can be blocked by various chemicals. These chemicals have the potential to provide a medicinal tool to help prevent the onset of cancer.

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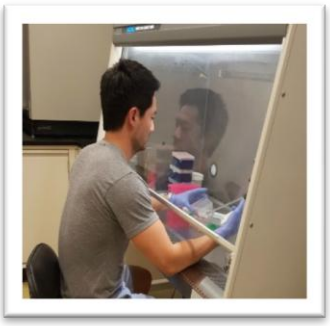

Dr. Paul Kim is an assistant professor in the biology department. He earned his Ph.D. in cellular and molecular biology from Colorado State University. He has two years of postdoctoral experience in biomedical engineering and has worked as a research consultant for a biomedical device company. He has published nine peer-reviewed articles, presented nine abstracts at national meetings, and holds four patents related to biomedicine. His research interests include studying obesity-related diseases, specifically non-alcoholic fatty liver disease (NAFLD). NAFLD is becoming one of the most common liver diseases and, in some cases, NAFLD progresses to the more severe non-alcoholic steatohepatitis, one of the leading causes of liver cirrhosis in the United States. He is working with collaborators and mentors at Colorado State University and the Pennington Biomedical Research Center in Baton Rouge Louisiana. The team is trying to better understand the cellular mechanisms that lead to disease development and progression.

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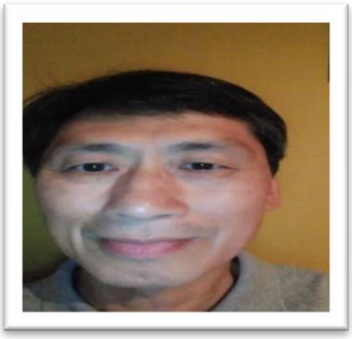

Dr. Hung-tat Leung is an associate professor of biology. He earned his Ph.D. in neurobiology from the University of Southern California and conducted research as a postdoctoral fellow and scientist at Purdue University for 12 years. He has published twenty-three peer-reviewed articles. He combines genetic and electrophysiological techniques to investigate Drosophila photoreceptors and synaptic transmission. He also makes double mutants to study interactions among genes.

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Dr. Melvenia Martin is an assistant professor of biology. She earned her M.S. in cellular and molecular biology and a Ph.D. in environmental biology, both from Tulane University. She has five years of post-doctoral research experience at the National Institute of Cancer/National Institutes of Health where she studied DNA replication damage, and repair. She has published eleven peer-reviewed articles. Her research interests include investigating DNA replication repair in an effort to understand mechanisms of cancer progression utilizing next generation sequencing. Currently she is investigating mapping protein-DNA interactions of nuclear cyclin D1 in two distinct cancer systems, in collaboration with Dr. Mirit Aladjem at The National Cancer Institute in Bethesda. Maryland. These investigations are trying to locate oncogenic biomarkers in transitioning cells as they undergo neoplasia.

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Dr. Tony Perry serves as an assistant professor of chemistry. He earned his Ph.D. in phamacognosy from the University of Mississippi. Dr. Perry's research focuses on the identification and optimization of lead compounds as drug candidates. This work involves the investigation of the biological properties of synthesized molecules and natural products from marine and terrestrial sources. The aim is to advance the efficiency, effectiveness, and sustainability of the chemical synthesis of materials to be used in biomedical applications.

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Dr. Frank Ohene is a professor in the chemistry department. He earned a M.S. degree in physical chemistry from Florida State University and a Ph.D. in physical chemistry from the University of Georgia at Athens. His research interests are in multiple areas. They include biotechnology and computational chemistry. His current project in biotechnology involves the preparation and optimization of methodology for the coating of the inner walls of 75 μm ID fused silica capillary tube with non-crosslinked polyacrylamide gel, tailored for the separation of proteins using capillary electrophoresis. He is using Gaussian computational software built in function linear synchronous transit or quadratic synchronous transit approach with the Density Functional Theory and 6-31G basis set. He is investigating the energetics of the interactions between a variety of substituted dienes and different dienophiles of various geometries. Intrinsic reaction coordinate are being performed in order to determine the activation energies of these reactions.

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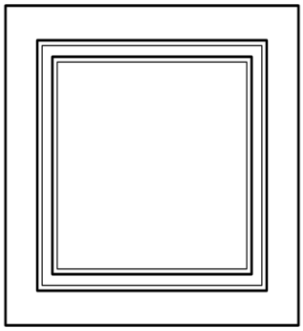
Environmental Science



Dr. Dagne Hill earned her Ph.D. in environmental science from Jackson State University. She has published seven peer-reviewed articles. As a previous non gratis Research Associate at Louisiana State University Agriculture Center (Hill Farm Research Station, Mastitis Laboratory) Hill conducted various water quality studies involving the comparative assessment of the physico-chemical and bacteriological qualities of selected streams. Her research focuses on studying the environmental factors that influence the prevalence and distribution of coliform bacteria.

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Material Science

Dr. Naidu Seetala serves as the Edward Bouchet Endowed Professor in physics. He earned a Ph.D. in physics from Saha Institute of Nuclear Physics, India, and completed a post-doctoral experience at the University of Texas at Arlington. He is currently involved in nano-science research. Seetala has more than seventy research publications in refereed journals. His research interests are diverse. They include ultra-high temperature ceramic composites, materials synthesis using additive manufacturing techniques, nano-enhanced armor protection materials that can provide protection from explosions, and polyimide-carbon nanotube composites for aerospace applications. Dr. Seetala also studies nanoporosity in polymers and vacancy defects in metals (using positron annihilation lifetime spectroscopy), microstructures and elemental analysis (using SEM/EDX system), crystal phase composition and nanoparticle size analysis (using XRD), magnetization studies (using VSM), and micro- hardness analysis.

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Dr. Connie Walton is a professor of chemistry. She earned her Ph.D. in chemistry from the University of Southern Mississippi. Her expertise includes the synthesis and characterization of molecules that exhibit liquid crystalline behavior and polymer synthesis. Walton is a co-inventor on two U.S. Patents and one German Patent Application. These patents target polymers for nonlinear optic related applications. Walton has served as principal investigator on grant funded projects received from NASA, NSF, and the U.S. Department of Education. Her research includes the synthesis of biodegradable polymers and the characterization of their properties.

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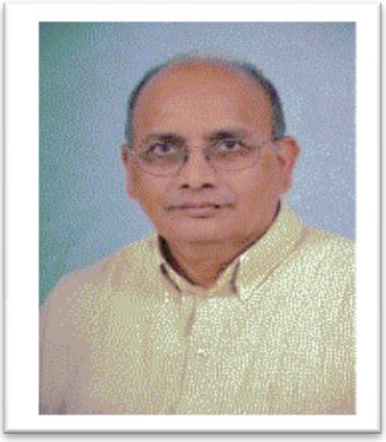

CyberSecurity & Data Mining

Dr. Yenumula Reddy is a professor of computer science. He earned a Ph.D. in computer science from the Indian Institute of Technology, Delhi, India. He is an IEEE Senior Member, ACM Senior Member & Life Member, and an IARIA Fellow. Dr. Reddy has authored more than one hundred fifty papers in reviewed Journals, International Conference proceedings that includes IEEE and ACM. He serves as editor-in-chief of the International Journal of Information Processing and Management. His research interests include Cognitive Radio Networks-Security, efficient spectrum allocation using genetic algorithms, game models, reinforce learning models, backpropagation models (neural networks), cross layer design, and cloud data security. He has expertise in Big Data-Security, document selection, Hadoop distributed file systems, Deep Learning, and anomaly detection. Currently his research focuses on the design and implementation of a Cognitive Radio Cloud Network. Reddy is also working on high performance GP-GPU Computing in Federated Hadoop Systems.

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Molecular Modeling

Dr. Pedro Derosa earned his PhD in physics and his degree of *Licenciado* in physics (equivalent to BS+MS) from the University of Córdoba in Argentina. He then conducted research as a postdoctoral fellow at the University of South Carolina. He serves as an associate professor in a joint appointment with Grambling State University and Louisiana Tech University. Derosa has published twenty eight peer-reviewed journal articles, eight peer-reviewed conference proceedings, three book chapters, and edited one book. His research is in the broad area of molecular modeling, including atomistic and coarse grain simulation models. Derosa uses Density Functional Theory and Green functions to study charge transport in a variety of molecules, polymers, and two dimensional structures, including graphene and MoS_2. In addition, stochastics models of carrier transport in nanocomposites and conductive polymers have been developed by his research team. He also studies molecular transport in nanostructures, using Monte Carlo coarse grained models also developed by his research team. Currently, molecular storage and release in clay nanotubes and hydrogels are being studied.

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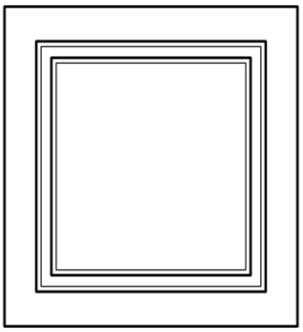

STEM EDUCATION

Dr. Frederick Semwogerere serves as a professor of mathematics. He earned a Ph.D. in operator algebras from the University of California-Berkley. His research focuses on the exploration of methods used to teach mathematical concepts to strengthen a student's ability to construct and write mathematics arguments. Semwogerere is writing manuals that will initiate the student into the art of writing valid logical arguments.

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