Division of Research and Sponsored Programs

2016-2017 Annual Report
DIVISION OF RESEARCH AND SPONSORED PROGRAMS

MESSAGE FROM THE DIVISION OF RESEARCH AND SPONSORED PROGRAMS

Tuskegee University recognizes the importance of external support of research and sponsored programs, and the impact these vital programs have on the development of its students, faculty and society in general. Tuskegee University has a long-standing reputation of being among the nation’s premiere minority research institutions committed to the total development of its students and faculty. In this annual report it is evident that through our centers of excellence, academic colleges and other institutional units, our faculty, staff and students are engaged in research that is critical to address the needs of today’s citizens, industries and governments.

Since 1996, the Division of Research and Sponsored Programs has more than doubled its annual funding for research and other sponsored programs. The university concluded 2016-2017 with a total annual funding of $40.2 million, which represents an increase of 16% over the last year. Credit for this enormous success goes to faculty members and staff, who continue to search for resources and write winning proposals. The staff members in the Division of Research and Sponsored Programs and various departments of Business and Fiscal Affairs are also to be commended for their enthusiastic support of the researchers in the grantsmanship process. These grants and contracts not only allow us to fulfill the research mission of Tuskegee University but also make a huge impact on our academic programs. Tuskegee University’s two Ph.D. programs in Materials Science and Engineering and Integrative Biosciences are prime examples of programs that are offered solely based on the expertise and resources developed by these faculty members.

Our long-term plan focuses on actively expanding Tuskegee University’s research in the areas of nanobiotechnology, information technology, environmental science and engineering, energy, astronomy, sensors and devices, molecular biology, immunology, public health, toxicology, epidemiology, reproductive and environmental biology, and modeling and simulations.

This report highlights only a few major grants received during the year 2016-2017, while all grants and contracts received are shown toward the end.
### Federal Funding Fiscal Year 2016-2017

- **U.S. Department of Homeland Security (DHS)**
- **U.S. Department of Defense (DOD)**
- **U.S. Department of Energy (DOE)**
- **U.S. Department of Transportation (DOT)**
- **U.S. Department of Health and Human Services (DHHS)**
- **National Aeronautics and Space Administration (NASA)**
- **National Science Foundation (NSF)**
- **Smithsonian Institute**
- **U.S. Agency for International Development (USAID)**
- **U.S. Department of Agriculture (USDA)**

### Awards Rewarded by Units

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PRINCIPAL INVESTIGATOR: Mohammed A. Qazi

CO-PRINCIPAL INVESTIGATORS: Michael Curry and Shaik Zainuddin

Funding Agency: National Science Foundation (NSF)

Title: Making to Advance Knowledge, Excellence, and Recognition in STEM (MAKERS)

The focus of this $5 million consortium led by Tuskegee University is to prepare low-income academically talented STEM majors (MAKERS Scholars) in the consortium for careers as STEM professionals. Over $1 million of the grant funds are dedicated for scholarships for STEM undergraduates at Tuskegee University.

The MAKERS program offers Scholars numerous benefits, including peer mentoring, access to research internships and access to several professional and academic skills-building workshops. MAKERS’ hallmark intervention is the design, development and testing by Scholar teams of prototypes of devices to address a problem in their communities. Scholars within each team must learn to collaborate, share responsibilities, delegate tasks, assume leadership roles and brainstorm together to determine the STEM concepts that are needed to come together to make their prototypes work, much like STEM professionals do in industry settings.

Approximately 30 students at Tuskegee University will be supported through MAKERS Scholarships, for a maximum of four years each. After five years, it is anticipated that the MAKERS program will have impacted approximately 150 high-needs students across the consortium with a solid STEM preparation, 21st century skills and the readiness to enter the STEM workforce.

The consortium includes Tuskegee University, Alabama A&M University, Auburn University, Auburn University at Montgomery, Oakland University, Lawson State Community College and Southern Union State Community College.

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PRINCIPAL INVESTIGATOR: Mohammed A. Qazi

CO-PRINCIPAL INVESTIGATORS: Hira Narang and Cassandra Thomas

Funding Agency: National Science Foundation (NSF)

Title: ECS4Alabama (also known as The Tuskegee Partnership to Establish Computer Science Education in the Alabama Black Belt)

ECS4Alabama is a $1 million partnership led by Tuskegee University to address one of the nation’s areas of highest priority in K-12 education: to offer all children with preparation in authentic computer science, a vitally important subject that is virtually non-existent in schools, especially in the country’s rural high-minority schools.

ECS4Alabama addresses this need locally by establishing a stand-alone, college preparatory computer science course called “Exploring Computer Science (ECS)” in Alabama high schools with a particular focus on the greater Black Belt region of the state. ECS is designed to provide students with a rigorous preparation on foundational computer science concepts and computational practices. Coding, web design, data analysis and robotics are some of the exciting topics that students learn in ECS, along with career awareness in computer science-related areas.

The ECS4Alabama effort is creating pathways for the very first time to many youth in the region, the majority from low-income and rural backgrounds, for access to digital-minded jobs, an opportunity that is typically available only to students in more affluent districts.

A first cohort of 24 teachers received initial preparation for ECS instruction in Summer 2017 at Tuskegee University, who are now teaching the course to over 550 students in high schools of the greater Black Belt region. Close to 50% of these students are young women and 84% are minority. By the end of the grant, 60 teachers will have received training in ECS who will collectively teach ECS to approximately 2,500 students annually.

The University of Alabama, Auburn University along with other key stakeholders are partners in this project.
PRINCIPAL INVESTIGATOR: Mohammed A. Qazi

CO-PRINCIPAL INVESTIGATORS: Mohamed O. Abdalla, Alicia Curry, Michael Curry and Shaik Zainuddin

Funding Agency: National Science Foundation (NSF)

Title: Building Unique Inventions to Launch Discoveries, Engagement and Reasoning in STEM (BUILDERS)

The BUILDERS program is an alliance of Tuskegee University, Oakland University and the school districts of Macon and Phenix City whose focus is to provide innovative technology experiential learning for high school students in these districts in an academy setting on the campus of Tuskegee University.

As the BUILDERS acronym suggests, participating students (called “BUILDERS Scholars”) are engaged in “building,” just like STEM professionals. Under the mentorship of teacher participants and faculty members, 40 Scholars annually work in clusters on problems that are prevalent in communities around the world to make inexpensive and portable prototypes of working products that will serve as solutions. Lack of safe water, metal detection in food, and toxin testing are examples of community problems that Scholar teams explore. In doing so, Scholars use commonly available and low-cost materials to design the water filtration systems, metal detectors, and toxin detection units that will address these problems. In the process, scholars learn about the technology that is needed to make these products do what they are supposed to. Additionally, Scholars build vital skills to be successful as STEM professionals.

Scholars continue working on refining their prototypes during the school year. They are invited back to Tuskegee during the school year to showcase their work in front of family and other stakeholders in STEM education.
PRINCIPAL INVESTIGATOR: Chadia A. Aji

CO-PRINCIPAL INVESTIGATORS: M. Javed Khan, Youngsoo Kim, Ana Maria Tameru and Ovais Khan

Funding Agency: National Science Foundation (NSF)

Title: Strategies for Effective Engagement (SEE)

Online learning is changing higher education, but are our students ready for it? The NSF-funded project Strategies for Effective Engagement (SEE) aims to engage students, enhance learning outcomes and improve academic success and retention rate. The project will implement the “flipped” classroom model in which the lecture materials are available online. The class time is then utilized for reinforcing challenging concepts. For this purpose, specially designed activities will be used in the classroom. Undergraduate mentors will be trained to assist in the class activities.

The project team consists of Dr. Chadia A. Aji (Mathematics), the PI of the project, and Dr. M. Javed Khan (Aerospace Science Engineering), the co-PI. Dr. Youngsoo Kim and Dr. Ana Maria Tameru from Mathematics, and Dr. Ovais Khan from Aerospace Science Engineering are members of the project team. Additionally, a consultant with expertise in authentic assessment and online instruction will assist the project team.

The plan is to eventually implement this approach in all lower-level Mathematics and Aerospace Science Engineering courses. Professional development workshops will be provided to faculty to share the outcomes and best practices of the project. The team will support interested faculty in implementing the approach.

As a result of the SEE project, students will experience an online learning environment that is supported by face-to-face meetings with the instructors. It is expected that this experience will improve students’ skills to be successful in online courses. Students will then be motivated to take the online summer courses offered at Tuskegee University.

PRINCIPAL INVESTIGATOR: Lauretta Garrett

CO-PRINCIPAL INVESTIGATORS: Li Huang, Chadia Affane Aji, and Mohammed Qazi

Funding Agency: National Science Foundation (NSF)

Title: Broadening Participation Research: Fostering Retention in STEM Fields at Minority Serving Institutions

The goal of this work is to improve minority retention in STEM disciplines. Following up on a 2012-2016 NSF-funded project focusing on HBCUs led by Dr. Vivian L. Carter, the current research examines Hispanic Serving Institutions (HSIs).

The project team includes Dr. Lauretta Garrett (PI), Dr. Li Huang, Dr. Chadia Affane Aji, Dr. Mohammed Qazi, and undergraduate research assistant, Ms. Jaleah Rutledge.

Mixed methods are used to examine psychosocial and structural factors impacting retention in STEM at participating HSIs (Florida International University, Nova Southeastern University, The University of the Southwest, and the University of New Mexico). In Spring 2017, each of the faculty team members traveled to an assigned partner HSI to conduct focus groups with a diverse sample of participants from each of four populations: current undergraduate students, graduates, faculty, and administration and staff. The objective of the focus groups is to gain a better understanding of the phenomenon of majoring in STEM or facilitating STEM study at HSIs via the voices of those having those experiences.

A quantitative survey developed by the research team using established instruments and focus group data was administered to the HSI focus groups. Surveys will provide additional data during the 2017-2018 academic year. HSI liaisons will come to Tuskegee to participate in a comprehensive two-day workshop during the Summer of 2018. They will develop an action plan, based upon our research results, to promote the retention of minority students in STEM fields.
The focus of this grant is to recruit, educate/train, and retain underrepresented populations in veterinary medical and public health education. The Center of Excellence (COE) Program expands the ability of the college to continue to educate culturally competent veterinarians and public health professionals who will contribute to the development of a culturally competent workforce. The program will build upon its successful infrastructure of counselors, peer and faculty tutors, student and alumni mentors, research mentors, and teaching experts who have helped more than 2,000 African-Americans graduate from the Tuskegee University College of Veterinary Medicine since its founding in 1945. Building on past successes and in keeping with an extensive needs assessment, the COE program will assist the college with fostering an environment that 1) eliminates barriers faced by underrepresented minorities interested in health careers, 2) provides educational opportunities to a diverse student population through a comprehensive support system, and 3) employs a diverse population of faculty and researchers who serve as mentors.

Sweetpotato, *Ipomoea batatas*, ranks as the seventh most important food crop in the world, and is mainly utilized for human consumption, animal feed, and industrial purposes. This important crop, differing in storage-root flesh/skin colors, presents numerous breeding challenges due to its hexaploid genome, self/cross incompatibility, high genetic variability, and lack of reference genome sequence. Dr. Egnin (PI) and her team (Drs. Mortley, Bernard, Samuels, and C. Bonsi) in the College of Agriculture, Environment and Nutrition Sciences (CAENS) Plant Biotechnology and Genomics Research Lab are employing the revolutionized genome-editing tool, CRISPR/Cas system, to decipher and understand sweetpotato gene expressions toward overcoming disease and quality challenges by specific coding region modifications. This project is funded by USDA-NIFA with collaborative efforts from Purdue University (Drs. Gelvin and Lee), and Auburn University (Drs. Traoré and Jolly).

The project seeks to design and assemble multiple CRISPR/Cas9-sgRNA-related vectors, test sgRNA constructs in sweetpotato protoplasts for insertion/deletion detections utilizing T7 endonuclease assays, perform stable *Agrobacterium*-mediated transformation-regeneration, phenotyping, agronomic screening, detection of mutations, and sequencing analysis of edited plants. Last spring, the team along with IBS-PhD student, Ms. Bukari, successfully edited the sweetpotato *Phytoene Desaturase* (*pds*) gene involved in carotenoid biosynthesis as a proof of concept of CRISPR/Cas9 feasibility in editing complex genomes. This integrative and interactive project pioneers an important precision technology in sweetpotato breeding and exposing students to the promise of CRISPR training. The outcomes will lay the foundations for efficient editing in hexaploid sweetpotato and other agriculturally important crops, with significant contributions towards capacity building of a-historical 1890 Land Grant University.
PRINCIPAL INVESTIGATOR: Shaik Jeelani

CO-PRINCIPAL INVESTIGATORS: Willard Collier, Michael Curry, Mahesh Hosur, Mohammed A. Qazi, Vijay Rangari, Alfred Tcherbi-Narteh and Shaik Zainuddin

Funding Agency: National Science Foundation

Title: HBCU-UP Implementation Project: Preparing Interdisciplinary Minority Scientists & Engineering of the Future

This grant-awarded by the National Science Foundation (NSF) — aims to bolster science, technology, engineering and mathematics (STEM) programs at the HBCUs that already award a large share of bachelor’s degrees to African-American students. NSF seeks to help meet the nation’s accelerating demands for STEM talent and ensure more rapid gains in STEM degree completion among underrepresented minority populations, who ultimately will fill vital roles in the nation’s STEM workforce.

Material scientists have a profound impact on technological, aerospace, agricultural, military, healthcare, transportation and sports industries; however, few colleges and universities in the United States offer undergraduate-level degree programs in this field. To address these deficiencies and the diversity challenges in the current materials science and engineering workforce, a group of STEM faculty at Tuskegee University is collaborating to develop an innovative undergraduate minor and co-curricular model.

Under this grant, juniors and seniors from various STEM disciplines will study in the new material science and engineering minor. In parallel with their primary major, students pursuing a minor in material science and engineering will complete an intensive multidisciplinary coursework in the field, co-curricular activities designed to prepare them for MSE-related graduate studies, and experiences akin to those of STEM professionals. Recruitment of students to pursue this minor will begin in Spring 2018. It is anticipated that during the five-year funding period, the undergraduate minor program will prepare as many as 100 undergraduate STEM majors who will be ready for challenging careers in industry as well as graduate studies in materials science and engineering.
PRINCIPAL INVESTIGATOR: Kokoasse Kpomblekou-A

CO-PRINCIPAL INVESTIGATORS: Franklin Quarcoo, Desmond Mortley, Adelia Bovell-Benjamin and Ellene Kebede

Funding Agency: U.S. Department of Agriculture (USDA)/National Institute of Food and Agriculture (NIFA)

Title: Strengthening Organic Farming Infrastructure through Consumer Education, Market Development and Integrated Extension and Research Programs in the Southeastern Region

In conjunction with a consortium of agricultural institutions in the Southeast (Auburn University, Mississippi State University, North Carolina State University, Alabama Sustainable Agricultural Network) and Oregon State University in the Pacific Northwest, the College of Agriculture, Environment and Nutrition Sciences (CAENS) has been awarded a four-year competitive USDA/NIFA grant of $2 million to strengthen organic farming infrastructure in the Southeast. This multi-state, multi-disciplinary project is spearheaded by Tuskegee University and incorporates stakeholders’ priorities. There is an urgent need to help residents of the Southeast to improve their diet and health as some of the highest incidences of diet-related diseases in the nation are found in this population. Some major contributing factors include low consumption of fresh fruits and vegetables, excessive consumption of high-caloric drinks, high percentage of residents with low income, a tradition of support for conventional farming techniques and lack of support for organic farming techniques in the land-grant institutions and cooperative extension system. For example, in Alabama, there are no statistics on the demand for organic foods because no research had been conducted on how much money consumers spend on organic produce at grocery stores. The project uses integrated pest management (IPM) techniques to evaluate and improve systems-based IPM programs to address pest and pest-related problems to enhance abilities of producers in the Southeast to grow and market high-quality organic agricultural products. Thus, the project will provide research and extension support needed to strengthen organic farming infrastructure, create economic opportunities for limited-resource organic producers, and contribute to long-term profitability and sustainability of organic agriculture.

PRINCIPAL INVESTIGATOR: Raymon Shange

CO-PRINCIPAL INVESTIGATORS: Souleymane Fall, Joseph Quansah, Ronald Smith, Gamal El Afandi and Uma Karki

Funding Agency: U.S. Department of Agriculture (USDA)/National Institute of Food and Agriculture (NIFA)

Title: Development of a Forest Management System to Enhance Ecosystem Restoration and Management for Limited Resources Landowners

The Southeastern U.S. is often referred to as the “wood basket” of the country, as forests represent a significant portion of the land use and economy of the region. A large amount of the referenced forest land is in private ownership. Because of issues in trust and participation, a majority of these owners are unwilling and unable to effectively take part in USDA programs targeting conservation management. This gap in participation has led to an issue of mismanagement of forest resources among limited resource landowners and managers. This project seeks to partner with the Tuskegee National Forest to: 1) develop decision support tools that can handle environmental data (geospatial, seasonal, climatic, biotic) and are applicable across various scales; 2) develop a network of demonstration plots at Tuskegee University and Tuskegee National Forest to serve our targeted clientele in delivering quality extension education in restoration and management for forest health; and 3) establish long-term research/education sites within the demonstration forests to facilitate curricular and co-curricular education among undergraduate and graduate students in Environmental Science and Forestry through ecosystem management and research experiences. We are attempting to change the interface of Researcher-Extension Professional-Land Manager/Owner through the use and interpretation of the decision support tool.
The project aims to improve the chemistry laboratory curriculum by introducing an inquiry-based education model into the labs, green chemistry into the lab curriculum, and instrumentation into student training. The restructuring of the chemistry lab courses has the potential to transform chemistry instruction in an area often overlooked. Two significant accomplishments for the department will be the diversification of our experiment portfolio and the reduction of our laboratory waste. We will develop a closed-loop of guided inquiry experiments in which silver salt waste from general chemistry laboratory will be collected and purified by students through a variety of methods. The purified silver salts will be reused in various levels of our chemistry lab courses. The proposed work will strengthen research and research training, and allow new active-learning methodologies to be implemented throughout the chemistry curriculum at Tuskegee University. Undergraduate and graduate students will be exposed to the overarching theme of green chemistry, recycling, sustainability, and their impact on our world. Green chemistry practices are currently being pursued in many research labs from industry to academia, and as such, are providing a new way to view scientific work. Students involved in this work will be part of a multi-step closed-loop process in which they can ultimately follow semester by semester, ending in a newly found appreciation for sustainable practices.
## AWARDS RECEIVED
### JULY 1, 2016-JUNE 30, 2017

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<td>NUCOR Education and Research Center (NERC)</td>
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### AWARDS RECEIVED
**JULY 1, 2016-JUNE 30, 2017**

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<th>TITLE OF PROJECT</th>
<th>TOTAL</th>
<th>PERIOD OF PERFORMANCE</th>
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<td>Purdue University/NSF</td>
<td>Aglan, Heshmat</td>
<td>PIRE: Nuclear Energy Systems &amp; Materials under Extreme Conditions</td>
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<td>SAIC/Army</td>
<td>Aglan, Heshmat</td>
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<td>NSF</td>
<td>Aji, Chadia</td>
<td>Strategies for Effective Management (SEE)</td>
<td>$299,953</td>
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<td>State of Alabama Board of Architecture</td>
<td>Bell, Carla J.</td>
<td>NCARB Council Record Application Fees</td>
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<td>Bell, Carla J.</td>
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<td>CHS Foundation</td>
<td>Bolden-Tiller, Olga</td>
<td>Tuskegee University: Opportunities in Cooperative Education</td>
<td>$34,755</td>
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<td>Bolden-Tiller, Olga</td>
<td>Monsanto 1890 Scholarships</td>
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<td>Cooperative Agreement Award between TU and USDA/APHIS to Support the Ag-Discovery Summer Enrichment Program</td>
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<td>Bolden-Tiller, Olga</td>
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<td>Youth Development Workshop</td>
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<td>Delaware State University/USDA</td>
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<td>Engage Students and Faculty in Latin American as a Model for Global Involvement and Career Development</td>
<td>$48,590</td>
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<td>Florida A&amp;M Univ/</td>
<td>Bonsi, Conrad</td>
<td>Center for Safe Accessible Transportation for an Aging Population</td>
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<td>TUFTS Univ/USAID</td>
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<td>Subcontract between TUFTS University and TU for USAID, UGANDU Africa CRSP Research Project</td>
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<td>ASCB</td>
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<td>Calhoun, Maria, Garrett, Laura, Raju-Nayak, C., Khan, Ovis</td>
<td>Improving Student Engagement in Freshman Engineering Graphics Using Student Assistant for Visualization in Engineering (SAVE)</td>
<td>$299,776</td>
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<td>Smithsonian Institute</td>
<td>Chandler, Dana</td>
<td>Archival Services</td>
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<td>University of Georgia/NSF</td>
<td>Collier, Willard</td>
<td>Collaborative Research: Chemistry Coalitions, Workshops and Communities of Scholars</td>
<td>$22,569</td>
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## AWARDS RECEIVED
### JULY 1, 2016-JUNE 30, 2017

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<td>IBM 2015 Faculty Award</td>
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<td>University of Wisconsin/NSF</td>
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<td>NIH</td>
<td>Deepa, Bedi</td>
<td>Phage Display to Identify Epithelial to Mesenchymal Transitioned (EMT)</td>
<td>$147,000</td>
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<td>4-H International</td>
<td>Doamekpor, Prosper</td>
<td>4-H International Exchange Japan Summer Inbound Program</td>
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<td>USDA/NIFA</td>
<td>Egnin, Marceline</td>
<td>Exploring Next Generation Sweetpotato Breeding with Crispr Association Proteins</td>
<td>$497,479</td>
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<td>Dominican Republic</td>
<td>Fermin, Cesar</td>
<td>MESCYT-TU Agreement</td>
<td>$35,000</td>
<td>08/01/16-07/31/18</td>
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<tr>
<td>Minterio De Education Superior</td>
<td>Fermin, Cesar</td>
<td>MESCYT-TU Agreement</td>
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<td>Floyd-Smith, Tamara</td>
<td>IGERT Nanomedicine Science and Technology</td>
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<td>UNCF</td>
<td>Floyd-Smith, Tamara</td>
<td>Building Fiscal and Institutional Effectiveness Capacity at TU through Strategic Planning</td>
<td>$16,500</td>
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<td>National Science Foundation</td>
<td>Garrett, L.; Aji, Affane; Qazi, M.; Huang, L.</td>
<td>Fostering Retention In STEM Disciplines at Minority Serving Institutions</td>
<td>$349,992</td>
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<td>National Science Foundation</td>
<td>Garrett, Laura</td>
<td>The Tuskegee Partnership for Personal Authenticity in College Mathematics</td>
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<td>University of Alabama</td>
<td>Gayle, Catherine</td>
<td>Higher Education Consortium on Child Welfare</td>
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<td>Iowa State University</td>
<td>Gilbreath, Ebony</td>
<td>Toxicology Mentoring and Skills Development Training Program</td>
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<td>Habtemariam, T</td>
<td>Africa SPS Capacity Building</td>
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<td>University of Alabama/NIH</td>
<td>Hannon, Lonnie</td>
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<td>State of Alabama</td>
<td>Hill, Walter; Baharanyi, Ntam</td>
<td>State Matching Funds for 1890 Formula Funds (Extension)</td>
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<td>Ag Student Support for 1890 Formula Funds</td>
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<td>Hill, Walter; Bonis, Conrad</td>
<td>State of Alabama 1890 Matching for USDA McIntire Stennis Forestry Formula Funds</td>
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<td>USDA/NIFA McIntire Stennis</td>
<td>Hill, Walter; Bonis, Conrad</td>
<td>Administration of Research Support by McIntire Stennis Forest Research Programs Funds</td>
<td>$64,321</td>
<td>10/01/16-09/30/17</td>
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Tuskegee University Division of Research and Sponsored Programs Annual Report | 11
## AWARDS RECEIVED
### JULY 1, 2016-JUNE 30, 2017

<table>
<thead>
<tr>
<th>SPONSOR</th>
<th>PRINCIPAL INVESTIGATOR</th>
<th>TITLE OF PROJECT</th>
<th>TOTAL</th>
<th>PERIOD OF PERFORMANCE</th>
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<tr>
<td>USDA/NIFA McIntire Stennis Cooperative Forestry Research Program</td>
<td>Hill, Walter; Bonis, Conrad; Ankumah, Ramble</td>
<td>Assessing the Impact of Forest Management Practices by Limited Resource Forestland Owners on Above and Below Ground Ecosystems in Alabama Black Belt Counties</td>
<td>$128,642</td>
<td>10/01/16-09/30/17</td>
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<td>AALGA/State</td>
<td>Hill, Walter; Bonis, Conrad</td>
<td>AALGA Matching Funds for USDA/Evan-Allens Research Projects Administrative Budget</td>
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<td>10/01/16-09/30/17</td>
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<td>USDA/NIFA</td>
<td>Hill, Walter; Bonis, Conrad; Baharanayi, Ntam</td>
<td>1890 Facilities Grant Program at TU</td>
<td>$952,989</td>
<td>09/13-08/31/17</td>
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<td>USDA/NIFA McIntire Stennis Cooperative Forestry Research Program</td>
<td>Hill, Walter; Gurung</td>
<td>Integration of Meat Goats in Pine Silvopasture Systems in a Sustainable Forest Vegetation Management</td>
<td>$128,642</td>
<td>10/01/16-09/30/17</td>
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<td>USDA/RD</td>
<td>Hill, Walter; Robinson, Miles</td>
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<td>On-campus Specialist</td>
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<td>USDA/NIFA Evans-Allen</td>
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<td>USDA/NIFA Evans-Allen</td>
<td>Hill, Walter; Bonis, Conrad</td>
<td>Integrative Propagation, Production and Product Development of Alternate BioEnergy and Fiber Crops in Alabama for Socially and Historically Disadvantaged (SHD) Farmers and Communities</td>
<td>$17,000</td>
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<td>USDA/NIFA Evans-Allen</td>
<td>Hill, Walter; Bonis, Conrad</td>
<td>Assessment of Global Climate Change Impacts on Water Resources and Crop and Forest Productivity and Adaptations by Limited Resource Farmers and Forestland Owners in the Black Belt Region of Alabama</td>
<td>$13,000</td>
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<td>USDA/NIFA Evans-Allen</td>
<td>Hill, Walter; Bonis, Conrad</td>
<td>Sustainable Meat Goat and Alternative Poultry Productions Systems for Limited Resource Producers</td>
<td>$16,000</td>
<td>10/01/16-09/30/17</td>
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<td>USDA/NIFA Evans-Allen</td>
<td>Hill, Walter; Bonis, Conrad</td>
<td>Sustainable Fruit and Vegetable Production, Product Development and Marketing Strategies for Socially Disadvantaged Farmers and Cooperatives (SHDFC) in Alabama</td>
<td>$19,000</td>
<td>10/01/16-09/30/17</td>
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<td>USDA/NIFA Evans-Allen</td>
<td>Hill, Walter; Bonis, Conrad</td>
<td>Integrative Approach to Prevention and Reduction of Overweight and Childhood Obesity in the Alabama Black Belt</td>
<td>$26,000</td>
<td>10/01/16-09/30/17</td>
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<td>Hosur, Mahesh</td>
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<td>Hosur, Mahesh; Rangari, V.; Curry, Michael; Zainuddin, Shaik</td>
<td>Center for Sustainable Lightweight Advanced Materials (C-SLAM)</td>
<td>$20,000</td>
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<td>Hunt, Rogers</td>
<td>Private Gifts and Grants to Construction Science Department FY 2016</td>
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### Awards Received
**July 1, 2016-June 30, 2017**

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<th>Title of Project</th>
<th>Total</th>
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<td>National Science Foundation</td>
<td>Jeelan, Shaik; Hall, Danette; Qazi, Mohammed</td>
<td>Planning Grant: Establishment of a Virtual Sponsored Programs Office</td>
<td>$323,450</td>
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<td>NSF</td>
<td>Jeelan, Shaik</td>
<td>Implementation Project: Preparing Interdisciplinary Minority Scientists &amp; Engineering of the Future</td>
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<td>UNCF McBay Fellowship</td>
<td>Jiang, Li</td>
<td>Flexible Energy Storage Device for Wearable Electronics</td>
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<td>Alabama Power Foundation, Inc.</td>
<td>Johnson, Brian</td>
<td>To Support Undergraduate Programming</td>
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<td>Lumina Foundation</td>
<td>Johnson, Brian</td>
<td>HBCU Student Success Project</td>
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<td>The Andrew Mellon Foundation</td>
<td>Johnson, Brian</td>
<td>Presidential Support Initiative</td>
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<td>Brigham Young University/The Boeing Company</td>
<td>Khan, M.J.</td>
<td>Development &amp; Delivery of Aerospace Capstone Project Q4 2013-Q4 2016</td>
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<td>New Mexico State University/FAA</td>
<td>Khan, M.J.</td>
<td>Minority Outreach - UAS as a STEM Minority Outreach Learning Platform for K-12 Students</td>
<td>$75,000</td>
<td>06/10/16-09/19</td>
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<td>NSF</td>
<td>Khan, Ovais</td>
<td>RIA: Direct Numerical Simulation for Shock/Turbulence Interaction with Applications to Supersonic Cavity Flows</td>
<td>$7,500</td>
<td>08/15/15-07/31/18</td>
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<td>National Science Foundation</td>
<td>Korivi, N.</td>
<td>MRI: Acquisition of Optical Interferometric Surface Profilometer to Enhance Capabilities in Micro- and Nano-Scale Engineering</td>
<td>$138,044</td>
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<td>University of Arizona/NSF</td>
<td>Korivi, N.; Jiang, Li</td>
<td>Thrust 2: Subsystem Integration &amp; Silicon Nanophonics</td>
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<td>USDA/NIFA</td>
<td>Kpomblekou, A.</td>
<td>Strengthening Organic Farming Infrastructure through Consumer Education, Market Development and Integrated Extension and Research Programs in the Southeastern Region</td>
<td>$2,000,000</td>
<td>09/01/16-08/31/20</td>
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<td>USDA/NIFA</td>
<td>Mohamed, Adelrahman</td>
<td>Prevalence, Characterization and Control of Edwardsiella Tardia in Farmed Fish in Alabama State</td>
<td>$14,694</td>
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<td>Alabama State Department of Education</td>
<td>Morris, Carlton</td>
<td>Alabama Educator Preparation Program (edTPA)</td>
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<td>Hormel Foods Corporation</td>
<td>Morris, Charlotte</td>
<td>Friends of Business</td>
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<td>U.S. Department of Education</td>
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<td>Academic Enhancement Core Curriculum and Retention Strategies for Entering Students - Activity 1</td>
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<td>Library Enhancement - Activity 2</td>
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<td>Faculty Development - Activity 3</td>
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<td>Moss-Smith, Jeanette</td>
<td>Renovation of Instructional Facilities - Activity 4</td>
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<td>U.S. Department of Education</td>
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<td>Enhancing the Curriculum through Technology - Activity 5</td>
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<td>U.S. Department of Education</td>
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<td>Moss-Smith, Jeanette</td>
<td>Title III SAFRA: Office of Distance Education and Online Learning (ODEOL)</td>
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<td>University of TN/NSF</td>
<td>Murphy, Gregory</td>
<td>NSF Engineering Research Center for Ultra-wide-area Resilient Electric Energy Transmission Network</td>
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<td>Murphy, Gregory</td>
<td>NSF Engineering Research Center for Ultra-wide-area Resilient Electric Energy Transmission Network</td>
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<td>Rutgers State University/DHS</td>
<td>Narang, Hira</td>
<td>Center of Excellence for Command, Control and Interoperability</td>
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<td>Rutgers University</td>
<td>Narang, Hira</td>
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<th>PERIOD OF PERFORMANCE</th>
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Research and Sponsored Program Leadership

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