

Pathways
Auburn University Office of Special Projects and Initiatives
2021 Edition

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Section 1. Administration

1. Letter from Assistant Provost

Dear Friends,

Welcome to the second issue of Pathways, the publication from the Auburn University Office of Special Projects and Initiatives!

We would like to thank everyone for the unwavering support after successfully publishing our first magazine. It is truly wonderful to hear from so many past and present colleagues and friends. Like the rest of you, 2020 was a challenging year for us all. Dealing with the uncertainties of the COVID-19 pandemic resulted in fear and anxiety for students, staff, the Auburn community and beyond. I want to take a second to share how proud I am of our students for their perseverance. The persistence shown in the transition from face-to-face learning to online learning has been nothing short of inspiring. The commitment to student studies and academic pursuits has not gone unnoticed. Similarly, it has been equally challenging for faculty to quickly adapt to effectively providing remote instruction. I commend them on their ability to navigate these difficult times to continue delivering high levels of academic engagement.

Fortunately, the current climate has not stopped us from our unit's mission to lead large-scale, multi-institutional efforts by developing and implementing programs designed to improve STEM education and related areas locally, nationally, and internationally. Although many of our programs looked slightly different this year, most being conducted in Zoom meeting rooms rather than in classrooms, we remained committed to the continued delivery of our projects and initiatives.

Our office continues to engage cross-disciplinary teams of faculty and staff across Auburn University colleges and schools, and beyond, to create innovative projects and initiatives that seamlessly integrate the three Auburn University land-grant functions: instruction, research, and public engagement. We aim to address issues of access to higher education, academic performance of at-risk students in STEM and related areas, and to ensure students who aspire to a STEM career remain and succeed in STEM disciplines.

As you read, we invite you to think and let us know how you can become engaged to enhance these programs. Please do not hesitate to contact me or my colleagues if you need additional information.

War Eagle!

Overtoun Jenda, Ph.D.

Assistant Provost for Special Projects and Initiatives and Professor of Mathematics

2. Our Staff

Dr. Overtoun Jenda, Professor of Mathematics and Assistant Provost, is responsible for overall administration of the unit and serves as a Principal Investigator and Project Director on externally funded programs in the unit, while continuing to teach, perform research and mentor.

Dr. Brittany McCullough, Program Analyst, is responsible for developing data collection systems and tools, maintaining databases and providing quantitative and qualitative data related to the office's initiatives and preparing and presenting technical reports, publications, and presentations.

Keri Hesson, Academic Programs Administrator, is responsible for monitoring expenditures, initiating contracts, and generating budget reports. She also coordinates specific programs including ACT Prep Academy and College Quest and serves as a co-advisor and primary contact for student organizations housed in the unit.

Section 2. Instruction

The primary focus of the office is to develop and implement sustainable interventions that are based on sound research that supplement classroom instruction to ensure that underrepresented and underserved students (low-income, first generation, students with disabilities, women and girls, and underrepresented minorities) succeed in STEM fields and graduate on time at each of our partner institutions. Here, we provide updates on the activities happening in some of our flagship programs.

1. Summer Academies

In Summer 2020 and 2021, our third and fourth annual five-week Summer STEM Academies were held virtually, through Zoom, from June 1 - July 2, 2020 and June 1 - July 1, 2021. In 2020, 55 students in grades 6-10 from Bullock, Elmore, Macon, and Montgomery counties participated, and 33 students in grades 6-11 from Bullock, Dallas, Lowndes, Macon, Montgomery, Pike, Russell, and Sumter counties participated in 2021. Participants took English, mathematics, and science courses taught by Auburn University, Auburn University at Montgomery, Troy University, and the University of West Alabama graduate students. In addition to classroom work, students in summer academies also participated in hands-on learning activities. In 2020, students attended a virtual field trip using NASA's Virtual Reality Commercial Crew Program and attended a guest speaker session that included an at-home science experiment. In 2021, students made a field trip to the Southern Company Aerial Services hangar facility in Birmingham, Alabama to learn about aviation applications and careers.

In the 2020 Virtual Summer Academy, the overall mean of average test scores improved by 23 points, from 56% to 79%. Students scored significantly higher in all grade levels and subjects, with the biggest gains coming in the older grade levels of mathematics and science courses. In each of the 9th and 10th grade mathematics and science classes, scores improved on average by at least 30 points.

The 2021 program results were similar, with the overall mean of average scores improving by 19 points, from 55% to 74%. Math scores overall in 2021 improved by 32 points, from 55% to 87%, and science scores improved by 20 points, from 42% to 62%.

Although in-person graduation ceremonies have not been possible for the past two summers, an online closing ceremony was held at the conclusion of the 2021 program to recognize the students' achievements and hard work. Representing her class during the ceremony, one 9th grade student participant said the following:

"I want to thank the people of this program. It has given me a chance to recover from my exhausting freshman year. With the impact of the current pandemic, I was physically and mentally drained. My freshman year of high school, I was introduced to virtual learning. I wasn't capable of retaining information, so I lost hope in myself and I wanted to give up. I started to develop depression and anxiety, and I didn't know if I was ever going to be able to be myself again. Then my principal sent an email about this amazing STEM summer program. I was nervous at first, but these wonderful teachers who I've gotten to know have made this experience absolutely incredible. I've learned more here than my entire freshman year. I was able to refresh my memory and get a better understanding of the topics that I had a hard time understanding in school. I am extremely grateful for this special opportunity as a whole. The teachers I've gotten to know are literal angels sent from heaven above. They have been patient, understanding, and caring throughout this entire process. They allowed us to laugh, have fun, and enjoy ourselves while getting work done and I needed that in my life. With them, I was able to enjoy school again. This program has given me both friends and mentors, and I couldn't be more appreciative of this academy. To all the people that put this together, to all the amazing teachers who spent their gracious time with us, thank you for everything. You've made my transition and journey to 10th grade run a lot smoother. I definitely hope to see you guys next year. THANK YOU!"

The 2020 Summer STEM Academy was supported by Alabama State Department of Education (ALSDE), Alabama Cooperative Extension System (ACES), Bullock County High School, Montgomery Public Schools, and GABBR LSAMP while the 2021 Academy was supported by ALSDE, ACES, and Alabama Power.

Looking forward: We plan to expand this initiative in Summer 2022 by returning to in-person academies for rising 7th through rising 12th graders to be held at high schools in eight counties, namely Bullock, Dallas, Lowndes, Macon, Montgomery, Perry, Pike, and Sumter, focusing on Grades 7-11 English, mathematics, and science curriculum. Academies will have an average of 40 students per county, for a total of 320 students. The dates for the 2022 program are tentatively scheduled for Tuesday, May 31 – Thursday, June 30, 2022.

2. Mentoring During COVID-19

Even in these uncertain times, our academic year bridge mentoring programs have been a valuable intervention for our GABBR LSAMP and S-STEM MAKERS Scholars.

During the 2020-2021 academic year, all activities were shifted to an online format. Students continued to attend monthly mentoring sessions virtually. During these meetings, scholars shared their experiences and challenges they faced taking virtual courses and doing virtual labs and being away from campus. Each semester, guest speakers from industry were invited to one of the monthly meetings to share their college and career experiences and job and co-op/internship opportunities.

The inaugural guest speaker was James Goosby, '00 and Southern Company assistant to the COO, who talked to scholars on September 17, 2020. He shared his Alabama upbringing and his

academic experiences at Auburn, including majoring in electrical engineering and his industrious career progression with Southern Company. The guest speaker for Spring semester was Derron Sanders, CEO of SG Companies and managing partner of SG Energy Solutions, who spoke to students on February 11, 2021, about his Detroit upbringing and academic experiences as an electrical engineering and MBA (finance) major and his more than 20 years of entrepreneurial experience in energy, real estate and construction.

Scholars continued participating in small cluster group meetings throughout the year to mentor each other. This proved particularly useful when they were all away from campus, as it allowed them to be connected with their peers and provide each other with support, encouragement and useful information on how to handle remote learning while maintaining high GPAs.

On November 14, 2020 and April 17, 2021, we held our GABBR LSAMP/MAKERS S-STEM Virtual Joint Mini-Conferences. MAKERS Scholars from Auburn University and Auburn University Montgomery were able to present their prototype projects, and LSAMP Scholars presented their summer research findings. Additionally, many Scholars from both programs volunteered to speak on their experiences in the current learning environment and how COVID-19 has affected their academic progress. At the April conference, Charles Lewis, '99, senior project manager at HPM, served as a guest speaker.

Section 3. Research

1. Students Embrace Research Opportunities

In Spring 2020, the Auburn University Research Experience for Undergraduates, or REU, in Algebra and Discrete Mathematics was selected by the National Science Foundation, or NSF, for renewal of funding at \$259,200 for an additional three years. This program is a continuation of successful NSF funded REU programs conducted by Dr. Overtoun Jenda and Dr. Peter Johnson, principal investigators and mathematics professors, at Auburn in 1999, 2000, 2005-2008, and 2010-2019.

The purpose of the REU program is to give participants an authentic experience of mathematical research during their undergraduate studies. The program also aims to recruit minority and female students in an attempt to develop a more diverse workforce. To accomplish this, eight undergraduate participants are selected nationally to complete an eight-week, intensive REU program at Auburn, where they receive a \$4,500 stipend and spend their first two weeks in an in-depth introduction to a selection of open problems and problem areas, after which, they break into groups to work on problems in different areas of mathematics. Participants make short presentations in daily seminars on background literature, progress made, or obstacles encountered during their research process.

For the first time ever, the REU was held virtually in 2020 due to restrictions resulting from COVID-19. The program ran from June 1 to July 24 and included ten participants from all over the United States. Participants noted that the online environment did not impede their ability to research and collaborate. Specifically, two REU participants, Layla Araiinejad, an Auburn University junior pursuing a bachelor's degree in applied mathematics and industrial and systems engineering, and Jacqueline Carlton, a Florida Southern College senior majoring in applied mathematics and statistics and accounting, were two of the co-authors on a paper titled "Assessing the Impact of Government Interventions on the Spread of COVID-19 with Dynamic Epidemic

Models: A case study of Texas,” which was selected to be presented at the 2020 IEEE International Conference on Bioinformatics and Biomedicine.

The 2021 REU was held face-to-face at Auburn from June 6 - July 31, 2021, with 11 students who hailed from Amherst College, Brown University, Francis Marion University, Murray State University, Soka University of America, Troy University, Union University, University of Kentucky, University of South Carolina, and University of Utah.

Other previous accomplishments of the Auburn University REU in Algebra and Discrete Mathematics and its participants include more than 70 papers appearing or being accepted for publication in books or refereed journals, and three papers submitted while others are currently in preparation. Additionally, eight program alumni are NSF Graduate Research Fellows, one has won the Morgan Prize, one has won the Katherine S. McCarter Graduate Student Policy Award, and five have become Goldwater Scholars.

2. Interdisciplinary Research: Masamu Program

The 10th Annual Masamu Advanced Study Institute, or MASI, and Research Workshop in mathematical sciences was held virtually November 20–29, 2020. More than 100 participants from 55 institutions, 14 countries and 4 continents gathered online to collaborate on research problems in the areas of algebra, analysis, biostatistics, financial mathematics, graph theory, mathematical biology, and statistics. Participants also attended the 40th Annual Southern Africa Mathematical Sciences Association (SAMSA) Conference, presented research findings and planned continued research activities for 2021. Attendees included faculty, postdoctoral fellows, graduate students, undergraduate students, and researchers from government agencies.

The primary goal of the Masamu program, which means mathematics in Southern Africa, is to enhance research in mathematical sciences within SAMSA institutions and beyond through promotion of international collaborative research. This collaborative research network, or CRN, consists of senior research faculty from the U.S., Sub-Saharan Africa, Canada, Asia and Europe who lead research groups. The CRN works to enhance research by producing high quality new doctorates in the U.S. and Sub-Saharan Africa, high quality joint research publications and developing prominent U.S. and Africa research partnerships comprised of researchers from diverse backgrounds.

Overtoun Jenda, director of the Masamu Program and assistant provost for special projects and initiatives, said, “It was very encouraging to see our largest number of Masamu participants ever this year. In a time where hosting collaborative events can prove challenging, we were able to transform our in-person institute into a successful virtual environment that allowed our participants to continue to collaborate and develop new results. The international research collaborations that we are helping to foster will continue to grow and thrive, helping to advance research and human infrastructure in mathematical sciences and related areas globally.”

The institute is supported by the National Science Foundation and Auburn University and is administered by the Office of Special Projects and Initiatives. Since 2013, the program and its participants have produced 39 published research papers in international mathematics and science journals. Additionally, four master’s degrees and 25 (10 female and 15 male) PhD degrees in US and Sub-Saharan Africa have been awarded, with 8 of the PhDs from Auburn University.

The 11th Annual MASI and Workshops were held virtually on November 19 – 28, 2021, and the 41st SAMSA Conference was held virtually on November 22-24, 2021. Both were hosted by Auburn University. We are hopeful that the 2022 MASI will be face-to-face and held in Maputo,

Mozambique. Other activities of the program include a STEM Education Workshop, Department Heads and Chairs Workshop, and Career Development Workshop.

3. SAMSA MASAMU Virtual Colloquia Series

Due to the success of the 2020 Masamu Institute, it was agreed that Auburn University would launch and host a colloquium series beginning February 2021 and running through November 2021. Initially intended to only run up to the end of March 2021, the turnout of Masamu participants volunteering to give talks enabled us to extend the series through November 2021. The one-hour colloquium talks are aimed at a general audience and intended to allow researchers to give lectures on their work and discuss best practices and current work being done in their respective fields. Each talk is followed by a virtual networking session for faculty and students to further discuss these topics. The inaugural colloquium was in Mathematical Biology and given by Dr. Steve Dobson of Auburn University on February 9, 2021. Speakers throughout the series have represented the Mathematical Biology, Mathematics of Finance, Graph Theory, Algebra and Geometry, Analysis, and Biostatistics research groups from the Masamu Program. Participants from all over the world have participated in this colloquia series. See below for full program schedule and list of 2021 speakers and titles.

February 9: Steve Dobson, Auburn University. Multiple paternity: How we used combinatorials, Bayesian analyses, and mixed models to study animal behavior.

February 23: Sure Mataramvura, University of Cape Town. A hybrid neural network – GARCH approach to forecasting Zimbabwean inflation volatility.

March 9: Ben Levy, Fitchburg State University: Modeling the effect of HIV/AIDS stigma on HIV infection dynamics in Kenya.

March 23: Samuel Manda, South African Medical Research Council: A spatial analysis of Covid-19 in African countries: Evaluating the effects of sociodemographic, geographical, disease vulnerability, preparedness, and Covid-19 importation determinants.

April 6: Javier Arsuaga, University of California, Davis. Mathematical approaches to the problem of DNA packing in bacterial viruses.

April 20: Jane White, University of Bath: Crime modeling.

May 4: Farai Mhlanga, University of Limpopo. On the pathwise stochastic integration for model-free finance.

May 18: Paul Horn, University of Denver. Combinatorics and dynamics of a drone network.

June 1: Alfred Menezes, University of Waterloo. Lattice-based cryptography.

June 15: Michael Washington, US Centers for Disease Control and Prevention (CDC). The use of models to make informed public health decisions.

July 6: Innocent Maposa, University of the Witwatersrand. Hamiltonian Monte Carlo approaches to sampling high dimensional posteriors: Performance in comparison to Random-Walk MCMC Metropolis-Hastings methods.

July 20: Pete Johnson, Auburn University. Generalized Frobenius problems.

August 24: Suzanne Lenhart, University of Tennessee. Optimal control for management of aquatic population models.

September 7: Mokhwetha Mabula, University of Pretoria. Order-isometries of ordered asymmetrically normed cones.

September 21: Inger Fabris-Rotelli, University of Pretoria. Designing a spatial rabies vaccination scheme.

October 5: David Erwin, University of Cape Town. Distance domination and generalized eccentricity in graphs with given minimum degree.

October 19: Eduard Campillo-Funollet, University of Kent. Forestry and mathematics: the effect of peri-urban woodland on pollution absorption.

November 2: Bernard Omolo, University of South Carolina Upstate. Some statistical challenges in the analysis of single-cell RNASeq data.

4. Dr. Suzanne Lenhart selected as 2022 Hedrick Lecturer

Congratulations to Dr. Suzanne Lenhart on her recent selection as the 2022 Hedrick Lecturer by the Mathematical Association of America (MAA). The Earle Raymond Hedrick Lectures are named for the first president of the MAA. They were established to present to the Association a lecturer of known skill as an expositor of mathematics "who will present a series of at most three lectures accessible to a large fraction of those who teach college mathematics."

Dr. Lenhart is a Chancellor's professor in the Mathematics Department at the University of Tennessee. She was a part-time research staff member at Oak Ridge National Laboratory from 1987-2009. Her research involves partial differential equations, ordinary differential equations and optimal control of biological and physical models.

She was the President of the Association for Women in Mathematics in 2001-2002. She received fellow awards from SIAM, AMS, AWM, and AAAS. She was the Associate Director for Education and Outreach of the National Institute for Mathematical and Biological Synthesis for the last 12 years and developed many education modules for use with teachers and students. Lenhart has been the director of Research Experiences for Undergraduates summer programs at UT for 27 years.

Dr. Lenhart serves on the Masamu Steering Committee and continues to lead the highly productive Masamu Program Mathematical Biology Research Group.

Section 4. Extension

1. Alabama Black Belt STEM Initiative

The primary goal of the Alabama Black Belt STEM Initiative is to increase college readiness among students from the Black Belt Region of Alabama to allow students to progress along a path toward college/university admission and successful studies and careers in STEM. The program includes Summer STEM Academies, Saturday Academy, Summer Bridge Program, and academic year academic enrichment activities. The initiative is supported by GABBR LSAMP, Alabama State Department of Education (ALSDE), local public school systems, and the Alabama Cooperative Extension Service (ACES).

Section 5: Recognition and Awards

1. Jenda receives Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring Award

Original Auburn University Office of Communications and Marketing article written by Neal Reid

In Fall of 2020, Dr. Jenda was named one of 15 recipients of a prestigious mentoring award given by former President Donald Trump. Dr. Jenda, an Auburn professor since 1988, was part of a group of a dozen university professors to receive the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring, or PAESMEM, with three organizations also earning the distinction. He accepted the honor via a virtual Zoom awards ceremony on August 3, with Auburn President Jay Gogue among the participants on-hand to offer congratulations.

“Throughout my adult life, I have devoted a lot of time to mentoring students, faculty and administrators while carrying out the core functions of my academic duties: teaching, research and administration,” Jenda said on the PAESMEM website. “For me, mentoring provides immediate rewards because at the end of each day, I can go home and say, 'I made a difference in someone’s life today.' I never imagined that I would be recognized for mentoring at this level, and I feel humbled and truly honored to receive this prestigious award.”

The award, which is administered by the National Science Foundation, or NSF, and the White House Office of Science and Technology Policy, or OSTP, recognizes excellence in mentoring among college and university professors. Jenda will receive the award, along with a \$10,000 check to use for his educational programs, and said he and the other award winners have been invited to visit the White House as soon as conditions allow.

The PAESMEM recognizes the critical role mentors play outside the traditional classroom setting in the academic and professional development of the future Science, Technology, Engineering and Mathematics, or STEM, workforce. Mentors support learners from kindergarten through the collegiate levels, as well as those who recently started their careers in STEM. Mentors share their expertise and guidance with learners, sometimes through formal mentoring programs, and have demonstrated an impact on individuals historically underrepresented in STEM.

Since 1995, PAESMEM has honored the hard work and dedication that mentors exhibit in broadening participation in the STEM pipeline. Colleagues, administrators and students nominate individuals and organizations for exemplary mentoring sustained over a minimum of five years. “One of the most satisfying opportunities of my professional career was participating in the nomination of Dr. Jenda for the NSF Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring,” said Stewart Schneller, dean of COSAM from 1994-2010 and current professor of chemistry and biochemistry. “Many words come to mind to describe Dr. Jenda’s commitment to facilitating the educational future of minority students with limited academic background in science, mathematics and engineering. He is tireless, selfless, creative, personable and inspirational. “He also has been successful with entrepreneurial funding for his programs. Dr. Jenda has been one of my mentors.”

Dr. Jenda began implementing NSF-funded scholarships for students in 1994 and worked with professors in the Samuel Ginn College of Engineering to create a STEM Summer Bridge program in 1997. He has helped grow the scholarship program from \$10,000 in student support in its first year to \$1 million annually as part of a 10-institution collaboration, been instrumental in the STEM Summer Bridge program’s vast expansion to eight institutions in the Alabama Black Belt since its inception and led the charge to consistently raise the programs’ student grade point average requirements through the years. Under his leadership, overall external funding for recruitment and retention programs has increased from \$17,000 per year in 1994 to over \$2 million per year currently.

Dr. Jenda has used a variety of hands-on programs to mentor and educate students, including the U.S.-Africa Collaborative Research Network in Mathematical Sciences and Masamu Program, Louis Stokes Alliance for Minority Participation Program, or LSAMP, and LSAMP Bridge to the Doctorate Program, Making to Advance Knowledge, Excellence and Recognition in STEM (MAKERS) Program, Alabama Alliance for Students with Disabilities in STEM (AASD-STEM) and INCLUDES South East Alliance for Persons with Disabilities in STEM (SEAPD-STEM).

His longevity at the university and experience as a mentor has enabled Jenda to reach more and more students with each passing year, “I think this award is for consistency in mentoring through the years and developing programs in the 1990s that are still running now,” Jenda said. “We try to do institutional transformation so that our programs not only affect current students, but also future students, and I think that’s what resonated with the selection committee. I had great nomination letters, too.” His mentoring efforts have impacted hundreds of students through the years, most being underrepresented students or those with disabilities. “To me, mentoring should be part of what you do on a daily basis,” Jenda said. “This award justifies all the work I’ve been doing, but more importantly, I hope the award will be motivation for young people. It says, ‘If you do this kind of work and mentoring long-term, people will recognize it and thank you for it.’ It says a lot about Auburn University and what we’ve done, and it’s not just me doing this work. I love what I do. I get to work with students, parents and a lot of great people.”

2. Notices of the American Mathematical Society Article

Original Auburn University Office of Communications and Marketing article written by Neal Reid

Dr. Overtoun Jenda was recently featured in the February issue of the magazine “Notices of the American Mathematical Society.” Jenda is profiled in a four-page feature in an article titled, “Overtoun Jenda: A STEM Mentor Extraordinaire.” The article in the acclaimed mathematics magazine was written by his colleagues, Ash Abebe and Brittany McCullough from Auburn University, as well as Suzanne Lenhart from the University of Tennessee, and highlights Jenda’s teaching career, his various study abroad projects and decades of mentorship.

The piece—which runs from pages 258-261—also chronicles Jenda’s networking efforts, implementation of National Science Foundation grants and collaborations in Southern Africa. In addition, Jenda’s Masamu Program—a collaboration with Edward Lungu, an international leader in mathematical biology and dean of faculty of science at Botswana International University of Science and Technology—is profiled in a separate article in the February issue. The feature, on pages 262-265, profiles the program’s successful efforts to promote mathematics education in Southern Africa and the United States since its creation in 2010.

“The feature articles in this issue provide just a sample of the scholarship and breadth of mathematics research being produced today by Black mathematicians,” said Robin Wilson, professor of mathematics at California Polytechnic State University, Pomona, in the magazine’s welcome letter. “Their research interests and accomplishments are substantial enough to be highlighted in any issue of the Notices, yet the authors were generous enough to share their work in this special issue. The Masamu Program only scratches the surface of Dr. Jenda’s work in mentorship and outreach; in this issue, we also highlight his 2020 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring with an article written by his colleagues about the impact he has had.”

Section 6: Advisory Boards and Committees

OSPI Advisory Board

The Office of Special Projects and Initiatives Advisory Board is comprised of 20 highly skilled and knowledgeable individuals that meet at least once a year. This group is tasked with helping our office fulfill the mission and goals we have created by serving as ambassadors, advocating for our programs and initiatives to enhance STEM education, address challenges of access to higher education, and identify ways to increase opportunities for academic performance and retention of at-risk students in STEM and related areas. Board members include:

Bedarius Bell, Alabama Department of Rehabilitation Services
Antonio Benford, Southern Nuclear
Louise Duncan, Southern Company
Dr. Kristi Garrett, Itsirk Solutions, LLC
James Goosby, Southern Company
Antoria Guerrier, The Coca-Cola Company
April Gulley Perkins, Southern Company
Lori Gurr Thompson, Kennesaw State University
Dr. Christopher Lee, College of William & Mary
Dr. Kristalyn Lee, University of Montevallo
Charles Lewis, HPM
James Majors, Slalom

Dr. Sharonda Martin, Walmart Pharmacy
Quincy Minor, Uniti Fiber
Jeff Moore, U.S. International Development Finance Corporation
Dr. William Muse, National Issues Forums Institute
Dr. Jared Rehm, Alabama State University
Yameeka Williams, Kaiser Permanente
Theodore Wilson, Comcast NBCUniversal
Kelly Young, U.S. Department of Labor

GABBR LSAMP Advisory Board

The Greater Alabama Black Belt Region Louis Stokes Alliance for Minority Participation (GABBR LSAMP) Advisory Board is comprised of 15 individuals from academia, government, and industry who provide valuable leadership and guidance for the GABBR LSAMP Program. The group meets twice per year, and board members are often invited to attend student monthly meetings and participate in annual conferences as attendees and guest speakers. Board members include:

Dr. Louis Dale, Chair, University of Alabama at Birmingham
Dr. Ansley Abraham, Southern Regional Education Board
Dr. Quenton Bonds, NASA
Dr. Carolyn Braswell, University of Alabama at Birmingham
Brittany Denton, Lockheed Martin
Dr. Melanie Eddins Spencer, Prairie State College
Dr. Kristi Garrett, Itsirk Solutions, LLC
James Goosby, Southern Company
Dr. Michael Grady, Georgia Tech Research Institute
Dr. Sharniece Holland, Washington University in St. Louis
Adam Mastin, Mastin Enterprises, LLC
Dr. Paul Mohr, Alabama Commission on Higher Education
Dr. Erika Nelums Smith, Arizona Center for Cancer Care
Dr. Patsy Parker, Southern Union State Community College
Kelly Young, U.S. Department of Labor

Section 7: Alumni and Friends Highlights

In addition to our immense pride for our students, faculty, and staff, we would also like to recognize the valuable contributions being made by our talented alumni:

Hannah Correia

Original College of Sciences and Mathematics article written by Maria Gebhardt

Hannah Correia, a long-time Masamu participant and Ph.D. graduate from Auburn University's Department of Biological Sciences, was awarded the Katherine S. McCarter Graduate Student Policy Award in 2019, a first for any Auburn University student. Ms. Correia traveled to Washington, D.C. to meet with members of the United States Congress, which

provided her with an unparalleled opportunity to receive policy and communication training before learning about the legislative process and federal science funding. This insight during the Congressional Visit Day, organized and sponsored by the Ecological Society of America, the nation's largest community of professional ecologists, will allow her to discuss the importance of federal funding for biological and ecological sciences. "It is critically important for the public and policy makers to be aware that there are many exciting and equally-important research areas in ecology that do not always involve fieldwork, such as my own field of statistical ecology," explained Hannah.

Hannah was awarded a National Science Foundation (NSF) Graduate Research Fellowship in 2015 and a NSF Graduate Research Opportunities Worldwide funding in 2017 to pursue collaborative research in Norwegian Institute of Nature Research. "My research focuses on the formulation of novel statistical methods to increase accuracy of quantifying causal relationships and creating models to predict potential ecosystem variations," shared Hannah.

Each year she participates in the Masamu Program, a collaborative workshop in southern Africa focusing on advancing mathematical sciences research with students from both the U.S. and Africa. She has gained hands-on research on projects including modeling elephant population dynamics, determining the effects of stigma on the spread of HIV/AIDS, and modeling multiple paternity among clades of animals. "This motivates me to obtain experience in communicating my insights on the significant positive effects federal funding provides to groups who may not necessarily share my enthusiasms and experiences about which I am passionate," she said. "In order for these benefits to persist and grow for the next generation of students and researchers, it is necessary for me to learn to promote science policy and funding to support these types of programs and research in ecological sciences."

Correia is currently an HDSI Postdoctoral Fellow in the Department of Biostatistics at Harvard University T.H. Chan School of Public Health.

James Goosby

Original article written by Matt Edwards

Office of Special Projects and Initiatives Board member James Goosby was recently selected as one of thirty national cyber and critical infrastructure security leaders joining the McCrary Institute as senior fellows, adding their expertise toward development of practical solutions to national security challenges.

This select group includes senior leaders with a depth of experience in government, private industry, and academe. Their high-level government service includes at the White House, on Capitol Hill, in the Department of Defense, and the law enforcement, intelligence, and homeland security communities. "This new cohort of senior fellows is tremendously talented and brings a wealth of national security expertise," said Frank Cilluffo, McCrary Institute director. "Their knowledge will help power our efforts to shape policy and impact practice in the United States and build a community of experts committed to advancing our cyber and critical infrastructure security."

Senior fellows participate actively in the development and execution of the work plans of the McCrary Institute, engaging through multimedia, pursuing research and publishing regularly on timely topics of pressing interest and concern. “The insights and experience that this distinguished group of senior fellows brings to the table will help take the work of the institute to a new level,” said Charles D. McCrary, namesake of the institute and Auburn University Trustee. “These fellows will deepen the institute’s capacity to help tackle some of the country’s most pressing challenges.”

The McCrary Institute, based in Auburn but with additional centers in Washington D.C., and Huntsville, seeks practical solutions to pressing challenges in the areas of cyber and critical infrastructure security. Through its three hubs, the institute offers end-to-end capability – policy, technology, research and education – on all things cyber.

James is a 2000 graduate of Auburn University with a degree in electrical engineering.

Curtis Cain

Congratulations to Dr. Curtis Cain, a GABBR LSAMP Alumni and Assistant Professor at Howard University, for receiving a five-year CAREER award in 2021 from the National Science Foundation Faculty Early Career Development (CAREER) program.

Curtis received his Ph.D. from The Pennsylvania State University’s College of Information Sciences and Technology (IST) in 2016. He became a National Science Foundation (NSF) Graduate Research Fellow in 2011 for his proposal entitled “Swimming Upstream: Black Males in STEM Higher Education”. He holds a Master of Science in Computer Science and Software Engineering from Auburn University, where he was an NSF LSAMP Bridge to the Doctorate Fellow. He received his Bachelor of Science degree from Johnson C. Smith University in Information Systems Engineering.

Section 8: Grants and Giving

Auburn Awarded \$10 million in NSF Funding for New TAPDINTO-STEM INCLUDES Alliance

Original Auburn University Office of Communications and Marketing article written by Mitch Emmons

Auburn University has been awarded \$10 million from the National Science Foundation, or NSF, to lead a national research effort to promote science, technology, engineering and mathematics, or STEM, education among students with disabilities.

The grant will support a five-year program that will grow as it progresses, says Overtoun Jenda, assistant provost for special projects and initiatives at Auburn, whose office will be administering the initiative.

“We are starting out as a 27-institution alliance,” said Jenda, a professor of mathematics in the College of Sciences and Mathematics. “The award was made official on Aug. 1, and the first 90 days involves the development of a strategic plan that will guide the alliance.”

The funding will be used to conduct research related to enhancing workforce development opportunities for persons with disabilities. The collaborative research effort is a national project aimed at increasing the number of disabled students entering college and completing a degree in a STEM-related field of study.

“This major award from the National Science Foundation will allow Auburn and collaborating institutions to foster a more diverse workforce while improving educational opportunities for disabled students,” said James Weyhenmeyer, Auburn's vice president for research and economic development.

Students will also receive benefits such as peer and faculty mentoring, research opportunities and financial support. The program has three primary goals: 1) increasing the quantity of students with disabilities completing associate, undergraduate and graduate degrees in STEM; 2) facilitating the transitions of students with disabilities from STEM degree completion into the STEM workforce; and 3) enhancing communication and collaboration among institutions of higher education, industry, government, national labs and local communities in addressing the education needs of students with disabilities in STEM disciplines.

“Persons with disabilities are one of the most significantly underrepresented groups in STEM education and employment,” Jenda said. “And they comprise a disproportionately smaller percentage of STEM degrees and jobs compared to their percentages in the U.S. population.

“This alliance is designed to help shrink that gap. Students will participate through stipends, internships conferences and mentoring.”

Auburn is leading this initiative that is subdivided into six regional hubs, according to Jenda.

“Auburn is overseeing the complete alliance, while at the same time leading the Southeastern Hub,” Jenda said.

Other hub-leading institutions include Northern Arizona University (Mountain Hub), The Ohio State University (Northeastern Hub), the University of Hawaii at Manoa (Islands Hub), the University of Missouri-Kansas City (Midwest Hub) and the University of Washington (West Coast Hub). Auburn is working closely with the University of Missouri-Kansas City, which functions as the backbone organization for the alliance to support communication, engagement, networked systems, data collection and analyses, sustainability, scaling and dissemination.

Jenda will be assisted in the program administration by others at Auburn, including David Shannon with the College of Education, Daniela Marghitu with the Samuel Ginn College of Engineering – a member of the NSF’s Committee on Equal Opportunities in Science and Engineering, or CEOSE – Brittany McCullough with the Office of Special Projects and Initiatives and Carl Pettis, provost for Academic Affairs at Alabama State University, also one of the participating institutions.

The award—titled The Alliance of Students with Disabilities for Inclusion, Networking and Transition Opportunities in STEM, or TAPDINTO-STEM—is part of the NSF INCLUDES initiative. The initiative is one of NSF’s 10 Big Ideas, which invests in programs that address diversity, inclusion and participation challenges in STEM at a national scale. The Auburn-led alliance is one of only five INCLUDES awards given by NSF this year.

“Creating pathways to success for a STEM workforce reflective of the U.S. population is of national importance to ensuring America's competitiveness in a global research landscape,” said Sylvia Butterfield, acting assistant director for NSF’s Education and Human Resources Directorate. “NSF INCLUDES Alliances provide a structure to address this issue and for the STEM enterprise to work collaboratively to achieve inclusive change.”

We are in constant awe of the dedication and commitment our alumni continue to display to Auburn University and its programs. In addition to grant funding from the National Science Foundation, Alabama State Department of Education, and Alabama Department of Rehabilitation Services, your tireless advocating, support, and guidance truly allows us to provide continued support and opportunities for our students.

Alumni Giving: Dr. Kristi Garrett, GABBR LSAMP and Special Projects and Initiatives Advisory Board member and LSAMP Summer Bridge alumni, has established a \$25,000 endowment in support of Special Projects and Initiatives programs. Dr. Garrett’s commitment to enhancing opportunities for underrepresented students is evident in her generous contributions. Thanks to her support, we will be able to provide students with additional support, programming, and opportunities. Dr. Garret says, “Education is a powerful tool that is indispensable, but with limited accessibility for many students, especially those in underserved/underrepresented areas. I serve on various committees and enjoy the Office of Special Programs and Initiatives' efforts to foster learning within the Black Belt region of Alabama and Internationally. My contribution aims to pave the way for future Auburn students and make one of my favorite lines from the Auburn Creed heartfelt by future alumni, ‘I believe in education, which gives me the knowledge to work wisely and trains my mind and my hands to work skillfully’.”

Tiger Giving Day: Every February, Auburn University hosts an annual Giving Day to encourage people to give back in support of student and faculty initiatives across campus. In 2021, our unit’s proposed initiative was selected as a Giving Day project. The project for which we chose to raise funds was in support of the GABBR Black Belt STEM Initiative. Our goal was to raise \$10,000 to purchase drones for student participants of the program, to further enhance their hands-on opportunities by having students build, configure, and program the drones, at the same time using science, algebra, and geometry. Students will work together to program these drones to do a variety of tasks, including taking pictures of specific locations to address specified societal challenges and their impacts. In particular, students will learn about engineering design, physical science (e.g. motion and force), computer science (coding and programming), and mathematics (algebra, geometry, and pre-calculus) in a single activity using mathematical tools. Our overall goal is that contributing to this project would help more students from Alabama’s Black Belt Region be college-ready, enabling them to come to Auburn University, major in STEM disciplines, and go on to enjoy successful STEM careers. Thanks to all of our amazing donors, we were able to raise \$12,155.

Office of Special Projects and Initiatives Gift Funds:

Masamu: The primary goal of the Masamu (masamu means mathematics in Southern Africa) Program is to enhance research in mathematical sciences and related areas within Southern Africa Mathematical Sciences Association (SAMSA) institutions and beyond through promotion of international research collaboration. A key component of the Masamu Program is the Masamu Advanced Study Institute (MASI) and Workshop Series in mathematical sciences and related areas that provides a platform for such collaboration. Supporting this initiative assists in the advancement of mathematical research to make progress towards solving some of our planet's most pressing problems, while also engaging in a cultural exchange. You can support this initiative by visiting the link below and selecting "Masamu Gift" to donate.

Alabama Black Belt STEM Initiative: The goal of this initiative is to improve college readiness among students from the Alabama Black Belt Region. One of its core programs, the Summer STEM Academy, aims at increasing students' skills and confidence in mathematics, science, and English and exposing them to STEM applications through field trips to university campuses and local companies. You can support this Academy by visiting the link below and selecting "Black Belt Initiative Gift" to donate.

Giving Link: <https://alumniq.auburn.edu/giving/to/specialprojects>

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