

Overtoun Jenda: A STEM Mentor Extraordinaire

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Professor Overtoun Jenda has been recognized with the 2020 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring for the substantial STEM mentoring, outreach programs, and networks that he developed and implemented. According to many who know him, he is able to recruit participants and volunteers through his optimistic worldview and genuine interest in connecting groups for mentorship and collaboration. He is said to have a contagious attitude of “We can achieve much with your help.” As some of us know, it is hard to say “no” to him because of his commitment, creative ideas, and infectious energy.

Dr. Jenda is currently Professor of Mathematics and Assistant Provost for Special Projects and Initiatives at Auburn University. He previously served as Associate Provost for Diversity and Multicultural Affairs and Associate Dean of the College of Sciences and Mathematics. He received a PhD in Mathematics from the University of Kentucky after obtaining a BS in Mathematics from the University of Malawi. Prior to coming to Auburn, Dr. Jenda had been a faculty member at the University of Kentucky, University of Botswana, and University of Malawi. Despite heavy administrative duties, Dr. Jenda has managed to maintain an active research program. He published three graduate level books and many research articles in

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Figure 1. Professor Jenda teaching.

homological algebra, as well as several articles in STEM Education.

While many of the programs that Dr. Jenda has implemented provide students with financial support and access to academic resources, mentoring is the common thread in all of his endeavors. He designed and built programs that provide mentoring for students with disabilities, students historically underrepresented in STEM, and first-generation and low-income students. In his programs, students receive mentoring not only from STEM faculty members and administrators, but also from their peers. Dr. Jenda began mentoring students in an unofficial capacity while he was an Associate Lecturer in his home country of Malawi, simply because he wanted to help students succeed. He continued to do so after coming to the US as an Assistant Professor and while working toward promotions, tenure, and entering into university administration. His willingness to provide support for students in need led to a natural progression into leadership positions in the

areas of diversity and STEM education, where he continues to provide mentorship and guidance to students at all levels.

Dr. Jenda has been the Project Director for multiple US National Science Foundation and Alabama State Department of Education grants focusing on STEM education and student success, some of which will be discussed in detail below.

Reaching out to Students at Auburn

In 1988, during his early days at Auburn University, Dr. Jenda served as academic advisor for 40 students in the department. Since he was the only Black faculty member in the department, many Black students enrolled in math courses would stop by his office for tutoring and advising. He was glad to provide support and encouragement to these students, and it was the relationships formed in this capacity that served as a springboard for several mentoring programs that he would go on to develop over the years. In 1994, he submitted a proposal to the university to fund graduate students to provide tutoring for entry courses in mathematics, chemistry, and physics. His proposal was successful and the funding allowed the mentoring and tutoring of minority students that was previously performed by him alone to be formalized and expanded into what eventually became the College of Sciences and Mathematics Minority Drop-In Center. The Center continues to serve large numbers of students today as the home of a comprehensive academic support program.

Dr. Jenda believes in holding his students to high standards, as a stepping stone to their success. In 1994, he started a summer internship program for minority students, but found few qualifying students. By 1997, after students began participating in the mentoring and tutoring provided by the newly created Drop-In Center, there was a drastic increase in the number of minority students who qualified for his summer internship program.

Dr. Jenda enjoys problem solving, both as a mathematician and as an administrator. Realizing that many talented African-American students come from underserved high schools, in 1997 he created a Summer Bridge Program for 35 minority students, and obtained funding from the university. The goal of this four-week residential program was to give students a head start on their college career by emphasizing academic preparedness, time management skills, and providing a trial run at math and science courses, career awareness activities, and networking opportunities. Dr. Jenda ran this program and served as a mentor for all participants from 1997 until 2006, when he became the university's chief diversity officer. The program still takes place every summer, and he continues to mentor



Figure 2. Professor Jenda and first-generation college students on a pre-freshman study-abroad trip to the Virgin Islands.

staff members and graduate assistants in the program and serves as a guest speaker for participants.

From 2006–2010, Dr. Jenda served as the Principal Investigator for the graduate GK–12 Fellows in Science and Mathematics program for East Alabama Schools. This program placed graduate students in STEM disciplines in 9th–12th grade classrooms to serve as resource persons. Dr. Jenda served as a mentor to the fellows, providing guidance on teaching and how to communicate with K–12 teachers and students. The fellows provided overwhelmingly positive feedback about this program, and many of them have gone on to careers in academia.

In 2007, Dr. Jenda designed and established the Provost Leadership Undergraduate Scholarship Program to support underrepresented students through scholarships and mentoring. He hired a full-time staff member to administer the program, while continuing to mentor students from 2007 to 2015. Students were provided financial support with peer mentoring, leadership training, study sessions, and counseling services. This program continues to be one of Auburn University's flagship diversity programs and has provided scholarships and mentoring for over 500 underrepresented minority students.

He has also given opportunities to many undergraduate students in mathematics, through an NSF Summer REU program in algebra and discrete mathematics on Auburn University's campus. Each summer since 1999, at least eight students from around the country participate in daily seminars, problem sessions, and publication efforts under his leadership. He is the PI and one of two faculty mentors (with Dr. Peter Johnson) for the REU program.

Networking beyond Auburn

Since 1994, Dr. Jenda has been actively involved in mentoring students through the NSF's Louis Stokes Alliances for Minority Participation (LSAMP) program. The LSAMP program aims to assist universities and colleges in diversifying the nation's workforce by increasing the number of STEM baccalaureate and graduate degrees awarded to students from ethnic and racial populations historically underrepresented in these disciplines. From 1994 to 2015, he served as the campus coordinator as part of the Alabama LSAMP. This program provides students with not only scholarship funding, but mentoring from faculty and student peers, free tutoring, research internships, and funding for travel to research conferences. Since 2017, Dr. Jenda has overseen the LSAMP activities for all eight institutions in the Greater Alabama Black Belt Region LSAMP Alliance.

From 2003–2005 and 2008–2010, he awarded Bridge to the Doctorate grants, as extensions of the LSAMP programs. The goal of this program was to increase the production of minority PhDs and facilitate their beginning faculty positions or research careers. Since the LSAMP program funded the first two years of graduate school, this program assisted students in obtaining additional funding for their remaining years of graduate school.

In 2018, in an effort to improve college readiness among students, Dr. Jenda developed the Greater Alabama Black Belt Region STEM Initiative, in partnership with the Alabama State Department of Education and the Cooperative Extension System. The Initiative hosts summer academies each year at high schools. The goal of the program is to help students be better prepared for college by expanding their content knowledge in core subject areas, allowing them to progress toward college admission and successful studies in STEM. Dr. Jenda serves as a mentor for the graduate students who teach in the program, as well as being a resource for the school districts' teachers and administrators. The program involved students from four counties in 2020 and is expected to expand to more counties in 2021.

Dr. Jenda has also created programs for students with disabilities. In 2009, he worked with Auburn faculty and four partner institutions to establish the Alabama Alliance for Students with Disabilities in STEM. This program provided peer mentoring and faculty mentoring for undergraduate and graduate students with disabilities, leading to rates of graduate school entrance higher than those of the general student population and higher levels of persistence in STEM fields and research programs.

"Seeing other individuals with disabilities working toward, and succeeding in, scientific fields at my own university, and at other institutions during the annual conferences, helped show me I was on the right path and not alone," said an Alliance participant, Danielle Tadych.

This alliance was expanded in 2016 through an NSF INCLUDES pilot project award, becoming the South East Alliance for Persons with Disabilities in STEM. This expansion included 21 institutions throughout the Southeastern United States. Dr. Jenda provided the leadership for this alliance, and efforts are underway to expand it to a national alliance to provide support for STEM students, postdoctoral fellows, and faculty members with disabilities nationwide.

Collaborations in Southern Africa

In 2011, Dr. Jenda launched the Masamu Program (masamu means mathematics in the Bantu language), which promotes US-Africa research collaboration in mathematical sciences and related areas. He mentors faculty and students in the program and serves as the leader of the program's Collaborative Research Network in Mathematical Sciences, consisting of over 80 research faculty members from Africa, the US, Canada, China, and Europe, from 46 colleges and universities. The program provides undergraduate and graduate students with connections to senior research faculty mentors, giving them opportunities for networking, professional development, and publication opportunities [EJO17].

The idea of developing a sustainable US-Africa collaboration in mathematical sciences research was first conceived at the 2009 Southern Africa Mathematical Sciences Association (SAMSA) Conference held in Dar es Salaam, Tanzania, during a strategy session. This led to the creation of the Masamu Program in 2011 with initial financial support from Auburn University, the NSF, and partial funding from the British Council. This program continues to be funded by the NSF with cooperation from partner universities. Each year, the participants attend the SAMSA Conference and work together on research projects in small groups a few days before and after the conference. The collaborative work continues via online meetings throughout the year [LEG⁺17, DAC⁺18, ELA⁺19].

Dr. Edward Lungu, an international leader in Mathematical Biology and Dean of Faculty of Science, Botswana International University of Science and Technology, is co-chair of the Masamu Steering Committee and said about the success of this program: "The achievements of Masamu in Africa are invaluable. Masamu meets every year to train American, European, and African students. The opportunities Masamu has brought have led to improvement in research and teaching in Southern Africa. The number of publications in the region has increased tremendously thanks to the exposure Dr. Jenda has offered to our students who are assisted by their colleagues in developed and well-resourced institutions. There are many collaborative projects between Africa and



Figure 3. Masamu Group in Victoria Falls, Zimbabwe, 2014.

other continents—however, very few projects are as successful as the Masamu/SAMSA collaboration.”

Dr. K. A. Jane White, Head of Natural Sciences at the University of Bath in the UK, said, “As soon as I became aware of the Masamu Program, I was keen to be involved for one simple reason—its philosophy. Masamu expects participants to develop and maintain collaborative research activity between academics and PhD students from the sub-Saharan countries and people like me, academics from the UK, Europe, and the USA. That expectation comes from the clear vision that Dr. Jenda has for the Masamu Program and his commitment to the vision of training students and faculty in Africa to deliver high quality mathematical research and teaching.”

Over the years, Dr. Jenda’s mentoring efforts have impacted hundreds of students, especially underrepresented minorities and students with disabilities. His mentees have gone on to enjoy successful careers. He continues to be an exemplary role model and mentor for students, faculty, and staff. The three of us, Abebe, Lenhart, and McCullough, are glad to be a part of TEAM JENDA!

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Credits

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