Mathematics & Statistics Summary

Mission:

DMS is committed to providing high-quality education, transformative research, and impactful outreach in mathematics and statistics. The department plays a central role in Auburn University by offering instruction to nearly every Auburn student, supporting STEM disciplines, and advancing mathematical and statistical knowledge. Its educational objectives include providing foundational courses for all majors requiring quantitative skills, training future educators and researchers, and fostering public engagement in mathematics and statistics. The department aims to expand knowledge by developing new methodologies and addressing complex problems across various disciplines. Through its outreach programs, DMS seeks to enhance participation in STEM fields, broaden access, and inspire the next generation of mathematicians and statisticians.

DMS currently has 52 full-time faculty, 10 postdoctoral fellows, 4 full-time staff members, and 4 adjunct instructors. The student body includes 122 graduate and 131 undergraduate majors. The department offers four undergraduate majors: Applied Mathematics, Actuarial Science, Applied Discrete Mathematics (soon transitioning to Data Science), and Mathematics. Graduate programs include MS degrees in Mathematics, Applied Mathematics, Statistics, and Data Science, along with PhD programs in Mathematics and the upcoming PhD in Statistics and Data Science.

Research:

DMS has a strong and diverse research profile, with faculty, postdoctoral fellows, and students working in areas such as algebra, algebraic geometry, applied and computational mathematics, combinatorics, analysis, stochastic analysis, geometry, topology, statistics, and data science. The department secures over $2 million in external research funding annually and maintains a high NSF HERD and US News rankings. Faculty members have received prestigious awards, including NSF CAREER Awards, Fulbright Fellowships, AMS Fellowships, and various other research awards.

The department's commitment to research is reflected in its active seminar culture, hosting about 180 visitors annually, its leadership in professional societies, and its organization of national and international conferences. DMS faculty also engage in interdisciplinary research with every AU college, reflecting the department's role in Auburn's R1 research mission.

Impact:

DMS has a broad impact through education, research, and outreach. Faculty hold prestigious professorships, including the Alumni, Knowles, Logan, and RKB professorships, recognizing their excellence in research and teaching. The department's outreach efforts include hosting math competitions for high school and middle school students, the Summer Science Institute, and STEM programs such as Destination STEM and Math Bootcamp for Student Veterans. Faculty also support K-12 teacher training through NSF-funded programs like Dream-Math.

DMS faculty continue to increase its national and international visibility by organizing invited sessions at AMS meetings, serving as journal editors, and engaging in major interdisciplinary research collaborations. Outreach efforts extend beyond Auburn, with engagement in global research partnerships.

Teaching:

DMS provides a high-quality education at all levels, generating the largest student credit hours (SCH) at Auburn University and playing a key role in general education. It employs innovative instructional strategies, including the ALEKS math placement system, a distributed Math Tutoring Center with about 2,000 visits per semester, and Gradescope for equitable assessment. Faculty, postdocs, and GTAs are certified in active learning through the EASL program, and the department's NSF IUSE-supported GTA training program serves as a national model.

DMS offers a well-established actuarial science program and a rapidly growing data science program with an industry capstone experience. The PhD program in Statistics and Data Science, currently under review, is expected to be the first of its kind in Alabama. Interdisciplinary courses and curriculum enhancements ensure students are prepared for careers in academia, industry, and government.

Future Ambitions:

DMS prioritizes growth and innovation in research, teaching, and outreach. Key goals include:

- Hiring in interdisciplinary areas, growing the postdoctoral program, and securing funding for named professorships and a named postdoctoral program.
- Expanding the Data Science program and launching a Data Science Innovations Center.
- Supporting grant efforts, mentoring postdocs, and expanding professional development.
- Strengthening academic support and refining placement and curriculum strategies.



Contact:
Ash Abebe, Ph.D.
Chair , Department of Mathematics and Statistics
334-844-6567
abebeas@auburn.edu