Welcome to the Homepage of

Department of Mathematical Sciences

FAQ: How do I register for Calculus? Check out the Problem of the Week.
The Department of Mathematical Sciences (DOMS) is a community of mathematicians and mathematical statisticians. We offer degrees at the Bachelor's, Master's and Doctoral level. Thus, besides our faculty and post-doctoral visitors, our community includes a large and valuable cadre of hard-working and talented undergraduate and graduate students.

At the undergraduate level, we have two kinds of degrees: general degrees for majors in Mathematical Sciences are labeled Bachelor of Arts (BA), while our more intensive undergraduate degrees are labeled Bachelor of Science (BS). There are both mathematics tracks and actuarial science tracks within both degrees. For more details, see the page on the undergraduate programs. A minor in mathematics is also possible.

At the graduate level, we have the PhD in Mathematical Sciences, Master of Arts (MA) in Mathematics, and Master of Arts (MA) in Statistics degrees. We cooperate with the Department of Teaching, Learning and Educational Leadership in their Master of Arts in Teaching (MAT) degree for future high school teachers. There is also a combined five-year BA/MAT degree. For more details, see the page on the graduate programs.
While our highest degree is a PhD “in Mathematical Sciences”, a significant number of our doctoral dissertations are written on research topics in mathematical statistics.

All faculty members and post-doctoral visitors are active researchers. The main areas of concentration in the department are: Algebra, Analysis, Combinatorics, Geometry/Topology and Statistics.

Read the page on Graduate Programs for information about financial support for graduate students.

The photos above were taken by Jinghao Li, Ph.D. 15’.

Latest Department News

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Binghamton Math Graduate awarded Norbert Wiener Prize

The 2019 Norbert Wiener Prize in Applied Mathematics was awarded to Marsha Berger for her fundamental contributions to adaptive mesh refinement (AMR) and to Cartesian mesh techniques for automating the simulation of compressible flows in complex geometry.

Marsha Berger received her B.S. in mathematics from State University of New York at Binghamton in 1974. She went on to receive an M.S. and a Ph.D in computer science from Stanford University in 1978 and 1982, respectively. Berger is currently a Silver Professor in the Computer Science Department at the Courant Institute of Mathematical Sciences at NYU. She is a frequent visitor to NASA Ames, where she has spent every summer since 1990, and several sabbaticals. Her honors include membership in the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences. She is a Fellow of the Society for Industrial and Applied Mathematics. Berger was a recipient of the IEEE Fernbach award, and was part of the team that won the 2002 Software of the Year Award from NASA for its Cart3D software.

Marsha Berger is one of the inventors of AMR algorithms, used in solving partial differential equations to improve the accuracy of a solution by locally and dynamically resolving complex features of a simulation. Berger provided the mathematical foundations, algorithms, and software that made it possible to solve many otherwise intractable simulation problems, including those related to blood flow, climate modeling, and galaxy simulation. Her mathematical contributions include local error estimators to identify where refinement is needed, stable and conservative grid interface conditions, and embedded boundary and cut-cell methods. She is part of the team that created CART3D, a NASA code based on her AMR algorithms that is used extensively for aerodynamic simulations, and which was instrumental in understanding the Columbia Space Shuttle disaster. She also helped build GeoClaw, an open source software project for ocean-scale wave modeling. It is used to simulate tsunamis, debris flows and dam breaks, among other applications.

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Louis McAuley [1924 - 2020]

With sadness we report the passing on November 18, 2020 of Professor Emeritus Louis F. McAuley.

Louis was born in 1924 in Travelers Rest, South Carolina to Stephen Floyd and Floree Cox McAuley. He served in the army in WWII in Italy at age 19. He studied at Mars Hill Jr. College, received his Bachelor's Degree at Oklahoma State University, and his Doctorate in Mathematics at the University of North Carolina.

He was a member of the mathematics departments at the University of Maryland, the University of Wisconsin, Rutgers University, and at the State University of New York at Binghamton. He also spent time as a visitor at Louisiana State University, the Institute for Advanced Study at Princeton, and Istanbul Bilgi University in Istanbul, Turkey.

At SUNY Binghamton he served as Chairman of the Department of Mathematical Sciences from 1969 -1978, and was instrumental in developing the graduate program. He directed the doctoral work of 21 students who received PhD's in Mathematics and went on to successful careers in teaching and research.

He was predeceased by his parents, his first wife Ionene McAuley, his brother Van, and his sister Harriett. Louis is survived by his three sons John Devin, Louis Kirk, and Jeff Cox, their mother Patricia McAuley, and his longtime partner Kathryn Espe, as well as his niece Charlotte Poole and nephew Stephen McCall.

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