College of Arts & Sciences
UMass Dartmouth

Mathematics
BA, BS
Minor
4+1 BA/BS-MAT

The Mathematics program at the University of Massachusetts Dartmouth offers students both **BA** and **BS** options and is designed to provide a solid foundation in the theoretical and applied aspects of mathematics necessary for a variety of professional careers. Mathematics can be pursued as a scholarly discipline or can be treated as a valuable tool in an applied discipline. Students can also choose to elect the **Applied & Computational Mathematics BS concentration** or the **Applied Statistics concentration** tracks for their mathetmatics degree.

Overview of skills developed

Mathematics majors will possess specific technical/analytical skills and conceptual understanding in core areas of mathematics including calculus, linear algebra, combinatorics, computer programs, differential equations, advanced calculus (analysis) & modern algebra. Students connect different areas of mathematics with other disciplines; they effectively use the interplay between applications and problem-solving, applying what they know from one realm to answer questions from another. Students learn to reason rigorously in mathematical arguments; they can follow abstract mathematical arguments and write their own proofs. Students can communicate mathematics: reading, writing, listening, and speaking, and make effective use of the library, and conduct research and make oral and written presentations of their findings. Math majors are also able to write programs or use mathematical software to explore, visualize, and solve mathematical problems and to verify analytical calculations.

Curriculum outline

Students can choose their curricula to emphasize that role of mathematics which will be useful to them in later years. The flexibility within the third and fourth years was established to enable mathematics majors to concentrate in areas of their interest. For example, the Computational Mathematics Program (COMP) is designed for those seeking positions in industry or with the government; the program emphasizes applied and computational mathematics. Other students may use our offerings as preparation for secondary school teaching, graduate school in mathematics, applied mathematics, statistics or computer science, a career in applied mathematics in either the public or private sector, or graduate school. Sample courses include:

- Applied Linear Algebra
- Applied Statistical Investigation
- Calculus I, II & III
- Complex Analysis
- High Performance Scientific Computing
- Mathematical & Computational Consulting

- Probability
- Mathematical Statistics
- Modern Algebra
- Numerical Analysis
- Numerical Optimization
- Numerical Methods for PDEs
- Statistical Computing
- Small-world Networks

Sample Careers and Job Facts

- Actuaries (median salary: $102,880)
- Data Analysts (median salary: $83,390)
- Financial Analysts (median salary: $85,660)
- Data Scientist (median salary: $100,910)
- Overall employment of mathematicians and statisticians is projected to grow 31 percent from 2021 to 2031, much faster than the average for all occupations.
- The median annual wage for mathematicians was $108,100 (2021)
- The median annual wage for statisticians was $95,570 (2021)

Sample Graduate school placements

- Boston University
- Harvard University
- Northwestern University
- Oregon State University
- Rensselaer Polytechnic Institute
- UMass Amherst
- University of Virginia
- Worcester Polytechnic Institute

Sample Alumni Careers

- AbbVie Biotech
- AthenaHealth
- JP Morgan Chase
- National Security Agency
- Naval Undersea Warfare Center
- Pratt & Whitney
- Raytheon
- Reebok International
- TripAdvsior
- Vineyard Wind

Fast Facts

- Students can apply to the ACCOMPLISH (computation-focused modularized learning) STEM scholarship program (https://accomplish.sites.umassd.edu/)
- 50% of the faculty have regularly been funded by federal agencies
- Recent mathematics alumni are 100% employed
- Undergraduate Research Opportunities include applying to participate in grant funded research with faculty

Scan for more information on the UMass Dartmouth Mathematics degrees

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