

Department of Mathematics and Statistics

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Faculty

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Mission

The mission of the Department of Mathematics and Statistics is to provide a high-quality program that enables students throughout the university to examine and appreciate the principal concepts of mathematics and statistics and to utilize them effectively in applications. The program incorporates modeling, real-world data, classical and contemporary methods, and modern technology. The department offers majors and minors that are designed to prepare students for graduate study or for entering a profession. The curriculum also provides service courses to programs in all colleges. The department maintains a vital program of research and makes outreach courses available to the citizens of the region.

Expected Outcomes

The program of the Department of Mathematics and Statistics:

1. introduces all students to the mathematical method, mathematical problem solving, and the mathematical world-view.
2. provides service courses to equip students from diverse disciplines with the mathematical and statistical background needed for their majors.
3. provides a solid foundation in the relevant terms, methodology, and applications of mathematics and statistics.
4. strengthens the ability of students to solve problems and to present their solutions both orally and through written reports.
5. provides students with opportunities to use appropriate technology productively.
6. enables graduates in mathematics and statistics to understand the past, present, and future of these disciplines within our society.
7. prepares graduates in mathematics and statistics for graduate study in the mathematical sciences or to enter professions that utilize their education in mathematics and statistics.
8. produces graduates in mathematics and statistics who are able to formulate, model, and solve mathematically oriented problems, to learn new mathematical concepts on their own, and to undertake intellectually challenging tasks with confidence.

Admission Requirements

Mathematics placement recommendations for entering students will be based on their mathematics placement examination results, their mathematics ACT score, and their high school record. All students are encouraged to take the placement exam before enrolling in their first mathematics course.

Students who have a deficiency in algebra or geometry must remove the deficiency by taking the appropriate course(s) chosen from Mathematics 070, 080, 090.

Students, particularly in science, who need more than one year of mathematics should plan to take Mathematics 251-252. If a student has not completed high school trigonometry, he/she should take Mathematics 185 before enrolling in Mathematics 251.

Facilities

As the first state university in Tennessee to allow Internet access to all students and faculty from residence halls, apartments, and offices, UT Martin's computer facilities rank among some of the best in the southeast if not the nation. Numerous student labs provide access to a variety of personal computers (Windows and MacOS). Some of the labs are open 24 hours. All computers in the university labs provide for Internet access. Student labs in the Humanities Building are open 24 hours per day and include Maple and Minitab software for mathematics and statistics students.

The department operates a people-oriented mathematics laboratory. Tutorial assistance is provided for students in freshman and sophomore-level mathematics courses. Several self-paced courses are offered through the laboratory. Students in mathematics intensive majors are employed as tutors in the mathematics laboratory.

Scholarships and Awards

The Arthur L. and Nelle L. Sparks Mathematics Scholarships are awarded to students majoring in mathematics who have demonstrated successful academic performance. Selection is made by the UT Martin Scholarship Committee. The Louise Knifley Memorial Scholarship is awarded to a junior or senior mathematics major with appropriate mathematics courses and grade point average. The faculty selects the recipient. In addition to the Knifley scholarship, the Mathematics Award is given to the outstanding senior in mathematics as selected by the faculty.

Student Organizations

The department supports a student mathematics organization that provides opportunities for extra-curricular mathematical activities and interaction with the faculty in an informal setting. The department encourages student membership in the Mathematical Association of America, a national organization of mathematicians. The department also encourages student research, student presentations, and student attendance at regional mathematics conferences.

Cooperative Education Program

The Cooperative Education Program in Mathematics offers the participant an opportunity to gain valuable professional experience while preparing for a career or for further study in graduate school. In addition, the participant earns money to help finance college expenses. After successful completion of the freshman year, qualified students admitted to the program alternate semesters at the university. Application for admission should be made during the fall semester of the freshman year. Further information is available from Employment Information Services, UT Martin (731) 881-7740.

Mathematics Major

The Department of Mathematics and Statistics offers four concentrations leading to the Bachelor of Arts or the Bachelor of Science degree with a major in mathematics. Majors in any concentration are required to complete the general education requirements for the appropriate degree and are advised to select physics as one of the laboratory sciences. If a student is not prepared to enter calculus as the first mathematics course, the elective hours can be used to take college algebra and/or pre-calculus. The completion of a minor or the professional-education courses necessary for professional licensure are required for both the B.A. and the B.S.

Double majors: Mathematics/Computer Science 340 may only be allowed in the requirements for a mathematics major or computer science major but not both.

One of the goals of the mathematics major is to prepare students for mathematical careers in business, government, education, or industry. To meet the various professional needs of the mathematics major, different concentrations are available within the major.

Students interested in pursuing a graduate degree in mathematics should pursue the following concentration.

Mathematics Concentration (6911 BA or 6911 BS):

Mathematics 210 Elementary Statistics and Probability	3
Mathematics 251 Calculus I	4
Mathematics 252 Calculus II	4
Mathematics 310 Linear Algebra	3
Mathematics 314 Foundations of Mathematics	3
Mathematics 320 Multivariate Calculus	4
Mathematics 330 Differential Equations	3
Mathematics 471 Abstract Algebra I	3
Mathematics 472 Abstract Algebra II	3
Mathematics 481 Real Analysis I	3
Mathematics 482 Real Analysis II	3

and

Nine additional hours from: Mathematics 340 or 451; Mathematics 350; Mathematics 410; Mathematics 430; Mathematics 498; Mathematics 499; Statistics 461

Students interested in pursuing a graduate degree in statistics, actuarial science, or a career as a statistician should pursue the following concentration.

Statistics Concentration (6912 BA or 6912 BS):

Mathematics 210 Elementary Statistics and Probability	3
Mathematics 251 Calculus I	4
Mathematics 252 Calculus II	4
Mathematics 310 Linear Algebra	3
Mathematics 314 Foundations of Mathematics	3
Mathematics 320 Multivariate Calculus	4
Mathematics 481 Real Analysis I	3
Statistics 325 Statistical Methods	3
Statistics 461 Probability and Statistics I	3
Statistics 462 Probability and Statistics II	3

and

Twelve additional hours from: Statistics 365; Statistics 375; Statistics 385; Statistics 435; Statistics 455; Statistics 465; Statistics 498; Statistics 499; Mathematics 451

Students interested in pursuing a career in secondary mathematics teaching should pursue the following concentration.

Secondary Mathematics Concentration (6913 BA or 6913 BS):

Students in the College of Engineering and Natural Sciences who are seeking the necessary professional-education courses to qualify for licensure as a secondary mathematics teacher must be admitted to the teacher-education program in the College of Education and Behavioral Sciences. They should consult the College of Education and Behavioral Sciences about admission and licensure requirements. The necessary mathematics courses are listed below. This option will usually require at least four-and-one-half years (nine semesters).

Mathematics 210 Elementary Statistics and Probability	3
Mathematics 251 Calculus I.....	4
Mathematics 252 Calculus II.....	4
Mathematics 310 Linear algebra	3
Mathematics 314 Foundations of Mathematics.....	3
Mathematics 320 Multivariate Calculus.....	4
Mathematics 410 Geometry	3
Mathematics 420 History of Mathematics.....	3
Mathematics 451 Applications and Modeling.....	3
Mathematics 471 Abstract Algebra I.....	3
<i>one course from:</i>	
Statistics 461 Probability and Statistics I	3
Mathematics 481 Real Analysis I.....	3
<i>one course from:</i>	
Statistics 462 Probability and Statistics II	3
Mathematics 472 Abstract Algebra II	3
Mathematics 482 Real Analysis II.....	3

and

Six additional hours of upper-division mathematics not including cooperative-education courses.

Students interested in a broad general background in mathematics and statistics should pursue the following concentration.

General Mathematics and Statistics Concentration (6914 BA or 6914 BS):

Mathematics 210 Elementary Statistics and Probability	3
Mathematics 251 Calculus I	4
Mathematics 252 Calculus II	4
Mathematics 310 Linear algebra	3
Mathematics 314 Foundations of Mathematics.....	3
Mathematics 320 Multivariate Calculus.....	4
<i>two courses from:</i>	
Statistics 461 Probability and Statistics I	3
Mathematics 471 Abstract Algebra I.....	3
Mathematics 481 Real Analysis I.....	3

one course from:

Statistics 462 Probability and Statistics II	3
Mathematics 472 Abstract Algebra II	3
Mathematics 482 Real Analysis II.....	3

and

Fifteen additional hours of upper-division mathematics not including cooperative-education courses.

Minors

Mathematics (M-6910)

Mathematics 251-252, Calculus I-II, are prerequisites to the mathematics minor which consists of 310 Linear Algebra, 314 Foundations of Mathematics, and nine additional hours of upper-division mathematics.

Statistics (M-6911)

Mathematics 210 Elementary Statistics and Probability and Mathematics 251 Calculus I are prerequisites to the statistics minor. The minor consists of Statistics 325 Statistical Methods and nine additional hours of upper division statistics courses.

Secondary Mathematics Majors in the College of Education and Behavioral Sciences

Students in the College of Education and Behavioral Sciences who are secondary mathematics majors with the intent of teaching in secondary schools are required by the College of Education and Behavioral Sciences to complete the following mathematics courses: Mathematics 210, 251, 252, 310, 314, 320, 410, 420, 451, 471, and two additional upper division mathematics courses. Students should consult the College of Education and Behavioral Sciences pages in the catalog for all other course requirements.

Courses Offered by Department of Mathematics and Statistics

- Mathematics 070-080 Developmental Algebra I-II (F, Sp)
- Mathematics 090 Developmental Geometry (F, Sp)
- Mathematics 130 The Nature of Mathematics (F, Sp)
- Mathematics 140 College Algebra and Elementary Functions (F, Sp)
- Mathematics 160 Calculus for Business and Life Sciences (F, Sp)
- Mathematics 185 Precalculus (F, Sp)
- Mathematics 191-192 Principles of Mathematics (F, Sp)
- Mathematics 210 Elementary Statistics and Probability (F, Sp)
- Mathematics 251-252 Calculus I-II (F, Sp)
- Mathematics 291 Special Topics in Mathematics (as needed)
- Mathematics 310 Linear Algebra (Sp)
- Mathematics 314 Foundations of Mathematics (F)
- Mathematics 320 Multivariate Calculus (F, Sp)
- Mathematics 330 Differential Equations (F)
- Mathematics 340 (540) Numerical Analysis (Sp-even)
- Mathematics 350 Number Theory (Sp-odd)
- Mathematics 410 (610) Geometry (Sp-even)

Mathematics 420 (620) History of Mathematics (Sp-odd)
Mathematics 430 (630) Complex Variables (Sp-even)
Mathematics 451 (651) Applications and Modeling (F)
Mathematics 471 (671) Abstract Algebra I (F)
Mathematics 472 (672) Abstract Algebra II (Sp)
Mathematics 481 (681) Real Analysis I (F-odd)
Mathematics 482 (682) Real Analysis II (Sp-even)
Mathematics 491-492 (691-692) Special Topics (as needed)
Mathematics 498 Undergraduate Research Experience I (as needed)
Mathematics 499 Undergraduate Research Experience II (as needed)
Mathematics 710 Selected Topics in Arithmetic for Teachers (as needed)
Mathematics 720 Selected Topics in Algebra for Teachers (as needed)
Mathematics 730 Selected Topics in Geometry for Teachers (as needed)
Statistics 325 Statistical Methods (F)
Statistics 365 (565) Regression Analysis (F-odd)
Statistics 375 (575) Sampling Theory (Sp-even)
Statistics 385 (585) Nonparametric Methods (F-even)
Statistics 435 (635) Categorical Data Analysis (F-odd)
Statistics 455 (655) Design of Experiments (Sp-even)
Statistics 461 (661) Probability and Statistics I (F-even)
Statistics 462 (662) Probability and Statistics II (Sp-odd)
Statistics 465 (665) Statistical Computing (Sp-odd)
Statistics 491-492 (691-692) Special Topics [topic title] (as needed)
Statistics 498 Undergraduate Research Experience I (as needed)
Statistics 499 Undergraduate Research Experience II (as needed)

Complete course descriptions can be found in the Course Description section of the catalog.