

MATH DEPARTMENT UNDERGRADUATE DEGREE OPTIONS

The Department of Mathematics offers two degree programs in mathematics: the Bachelor of Science in Mathematics and the Bachelor of Arts in Mathematics. The department also offers a Minor in Mathematics.

The Bachelor of Science degree program has four plans, each designed for specific career goals: Plan A, the Traditional Track; Plan B, the Applied Mathematics Track; Plan C, the Statistics/Actuarial Track; and Plan D, the UTEACH Secondary Education Track. The student's advisor will help the student choose the best track, based on the student's interests.

Plan A, a traditional mathematics option, offers students a broad background in mathematics and is principally designed to prepare students for graduate study in pure or applied mathematics.

Plan B is designed to offer students a solid background in applied mathematics, prepare them for employment in government agencies such as communications, national security, and computer-related fields or industry such as engineering or computational types of work. It also prepares students for further study in mathematics.

Plan C, an option in applied statistics/ actuarial science, is designed to offer students a solid theoretical and applied background in statistics, preparing them for employment in a wide variety of interesting careers.

Plan D, an option in secondary education, is designed for students seeking mathematics teacher certification at the secondary level. Students who complete this option will qualify for certification in secondary education in mathematics.

The Bachelor of Arts degree program is designed for students seeking employment in government or business, or those desiring further study in mathematics.

Bachelor of Science Degree with a Major in Mathematics:

A. Traditional Track (120 hours)

CORE Areas A – E
42 hours

CORE Area F - 18 hours consisting of:

- MATH 1113 Precalculus (1 hour)
- MATH 1634 Calculus I (1 hour)
- MATH 2009 Sophomore Seminar (1 hour)
- MATH 2644 Calculus II (4 hours)
- MATH 2654 Calculus III (4 hours)
- MATH 2853 Elementary Linear Algebra (3 hours)
- CS 1300 Introduction to Computer Science (4 hours)

MAJOR REQUIREMENTS (Math B.S.)

- MATH 3003 Transition to Advanced Mathematics (3 hours)
- MATH 3243 Advanced Calculus (3 hours)
- MATH 4983 Senior Project (1 hour)

MAJOR REQUIREMENTS (Track Specific)

CS 1301 Computer Science I (3 hours)
MATH 4413 Abstract Algebra I(3 hours)
MATH 4043 Number Theory(3 hours)
MATH 4203 Mathematical Probability(3 hours)
MATH 4233 College Geometry(3 hours)
MATH 4253 Real Analysis(3 hours)
MATH 4353 Complex Analysis(3 hours)
MATH 4513 Linear Algebra I(3 hours)
Three courses from: (9 hours)
MATH 4213 Mathematical Statistics
MATH 4423 Abstract Algebra II
MATH 4473 Combinatorics
MATH 4483 Graph Theory
MATH 4523 Linear Algebra II
MATH 4613 Introduction to Topology

TOTAL MAJOR REQUIREMENTS: 40 hours

ELECTIVES: 20 hours*

*At least 2 hours of electives must be at the 3000-level or above.

B. Applied Mathematics Track (120 hours)

CORE Areas A – E

42 hours

CORE Area F - 18 hours consisting of:

MATH 1113 Precalculus (1 hour)
MATH 1634 Calculus I (1 hour)
MATH 2009 Sophomore Seminar (1 hour)
MATH 2644 Calculus II (4 hours)
MATH 2654 Calculus III (4 hours)
MATH 2853 Elementary Linear Algebra (3 hours)
CS 1300 Introduction to Computer Science (4 hours)

MAJOR REQUIREMENTS (Math B.S.)

MATH 3003 Transition to Advanced Mathematics (3 hours)
MATH 3243 Advanced Calculus (3 hours)
MATH 4983 Senior Project (1 hour)

MAJOR REQUIREMENTS (Track Specific)

CS 1301 Computer Science I (3 hours)
MATH 3303 Ordinary Differential Equations (3 hours)
MATH 4013 Numerical Analysis (3 hours)
MATH 4353 Complex Analysis(3 hours)
MATH 4363 Partial Differential Equations (3 hours)
MATH 4413 Abstract Algebra I (3 hours)
MATH 4473 Combinatorics (3 hours)
MATH 4483 Graph Theory (3 hours)

MATH 4513 Linear Algebra I (3 hours)

TOTAL MAJOR REQUIREMENTS: 34 hours

DIRECTED ELECTIVES: 9 hours*

Three courses numbered at or above the 2000-level from one of the following lists:

1. ACCT, ECON, FINC, MGMT, MKTG
2. BIOL, CHEM, PHYS, GEOL
3. CS

ELECTIVES: 17 hours*

*At least eight hours of the 26 hours of directed electives and electives must be at the 3000-level or above.

C. Statistics/Actuarial Track (120 hours)

CORE Areas A – E

42 hours

CORE Area F - 18 hours consisting of:

- MATH 1113 Precalculus (1 hour)
- MATH 1634 Calculus I (1 hour)
- MATH 2009 Sophomore Seminar (1 hour)
- MATH 2644 Calculus II (4 hours)
- MATH 2654 Calculus III (4 hours)
- MATH 2853 Elementary Linear Algebra (3 hours)
- CS 1300 Introduction to Computer Science (4 hours)

MAJOR REQUIREMENTS (Math B.S.)

- MATH 3003 Transition to Advanced Mathematics (3 hours)
- MATH 3243 Advanced Calculus (3 hours)
- MATH 4983 Senior Project (1 hour)

MAJOR REQUIREMENTS (Track Specific)

- CS 1301 Computer Science I (3 hours)
- MATH 4203 Mathematical Probability (3 hours)
- MATH 4213 Mathematical Statistics (3 hours)
- MATH 4803 Analysis of Variance (3 hours)
- MATH 4813 Regression Analysis (3 hours)
- MATH 4843 Introduction to Sampling (3 hours)
- MATH 4823 Applied Experimental Design (3 hours)
- MATH 4833 Applied Nonparametric Statistics (3 hours)

TOTAL MAJOR REQUIREMENTS: 31 hours

DIRECTED ELECTIVES: 9 hours*

Three courses numbered at or above the 2000-level from one of the following lists:

1. ACCT, ECON, FINC, MGMT, MKTG
2. BIOL, CHEM, PHYS, GEOL

- 3. CS
- 4. PHIL, PSYC, SOCI

ELECTIVES: 20 hours*

*At least eleven hours of the 29 hours of directed electives and electives must be at the 3000-level or above

D. UTEACH Secondary Education Track (120 hours)

CORE Areas A – E

42 hours

CORE Area F – 18 hours consisting of:

- MATH 1113 Precalculus (1 hour)
- MATH 1634 Calculus I (1 hour)
- MATH 2009 Sophomore Seminar (1 hour)
- MATH 2644 Calculus II (4 hours)
- MATH 2654 Calculus III (4 hours)
- MATH 2853 Elementary Linear Algebra (3 hours)
- CS 1300 Introduction to Computer Science (4 hours)

MAJOR REQUIREMENTS (Math B.S.)

- MATH 3003 Transition to Advanced Mathematics (3 hours)
- MATH 3243 Advanced Calculus (3 hours)
- MATH 4983 Senior Project (1 hour)

MAJOR REQUIREMENTS (Track Specific)

- MATH 3303 Ordinary Differential Equations (3 hours)
- MATH 4043 Number Theory (3 hours)
- MATH 4203 Mathematical Probability (3 hours)
- MATH 4233 College Geometry (3 hours)
- MATH 4413 Abstract Algebra I (3 hours)
- MATH 4513 Linear Algebra I (3 hours)
- MATH Elective (3 hours) One course at the 4000 level (excluding service courses for elementary education)

TOTAL MAJOR REQUIREMENTS: 28 hours

CERTIFICATION REQUIREMENTS

- UTCH 2001 (1 hour)
- UTCH 2002 (1hour)
- UTCH 3001 Knowing & Learning (3 hours)
- UTCH 3002 Classroom Interactions (3 hours)
- UTCH 3003 Project-Based Learning (3 hours)
- UTCH 3004 Inclusive Math & Science Classroom (3 hours)
- MATH 3805 Functions & Modeling (3 hours)
- STEM 3815 Perspectives (3 hours)
- MATH 3825 Research Methods (3 hours)
- UTCH 4000 Apprentice Teaching (9 hours)

TOTAL (Certification): 32 hours

Bachelor of Arts Degree with a Major in Mathematics (120 hours)

CORE A-E 42 hours

CORE F 18 hours consisting of:

MATH 1113 Precalculus (1 hour)

MATH 1634 Calculus I (1 hour)

MATH 2009 Sophomore Seminar (1 hour)

MATH 2644 Calculus II (4 hours)

MATH 2654 Calculus III (4 hours)

Foreign Language 2002 (3 hours)

Elective chosen from the following which were not completed in Core Area A-E:

PHYS 2211, PHYS 2212, CS 1301

MAJOR REQUIREMENTS

MATH 2853 Elementary Linear Algebra (3 hours)

MATH 3003 Transition to Advanced Mathematics (3 hours)

MATH 3243 Advanced Calculus (3 hours)

MATH 4983 Senior Project (1 hour)

Any 15 hours of mathematics courses at or above the 3000-level (excluding service courses for elementary education).

TOTAL MAJOR REQUIREMENTS: 25 hours

MINOR: 15 hours*

ELECTIVES: 20 hours*

*At least seventeen hours of the 35 hours of the minor courses and electives must be at the 3000-level or above