

Mathematics, Teaching (BSMath)

Degree-Bachelor of Science in Mathematics (BSMath)

The Bachelor of Science in Mathematics is designed with a twofold purpose: to offer students a more extensive scientific program that may better prepare them for graduate study or employment, and to recognize students who choose to pursue a more demanding program. Students are given the opportunity to develop greater breadth and depth in their mathematical programs as well as to combine mathematics with a concentration in another scientific discipline.

Licensure

This program is designed to fulfill the educational requirements for certification as a middle grades or secondary school mathematics teacher in Texas. Students choose from certifications in:

- mathematics
- mathematics, physical science, and engineering

Completion of program requirements does not guarantee State of Texas teacher certification. For information about additional certification requirements, consult the UTeach-Natural Sciences academic advisor.

Total Hours Required: 120

Plan of Study

The Plan of Study is a suggested four-year course sequence to support academic planning and serves as a helpful guide. Currently enrolled students should meet with their academic advisor to tailor their course selections and timelines to their individual goals and circumstances.

Course	Title	Hours
Year 1		
Semester 1		
M 408N or M 408C	Differential Calculus for Science or Differential and Integral Calculus	4
<u>Natural Science and Technology, Part I (030)</u>		3
RHE 306	Rhetoric and Writing	3
<u>First-Year Signature Course (090)</u>		3
UTS 101	Secondary Teacher Education Preparation: Step 1	1
Hours		14
Semester 2		
M 408S or M 408D	Integral Calculus for Science or Sequences, Series, and Multivariable Calculus	4
M 341	Linear Algebra and Matrix Theory	3
<u>Social and Behavioral Sciences (080)</u>		3
<u>Natural Science and Technology, Part II (093)</u>		3
UTS 110	Secondary Teacher Education Preparation: STEP 2	1
GOV 310L	American and Texas Government	3
Hours		17
Year 2		
Semester 1		
M 427J	Differential Equations with Linear Algebra	4
M 315C	Foundations, Functions, and Regression Models	3
<u>U.S. History (060)</u>		3
EDC 365C	Knowing and Learning in Math and Science	3
GOV 312L	Issues and Policies in American Government	3
Hours		16

Semester 2		
M 325K	Discrete Mathematics	3
<u>U.S. History (060)</u>		3
EDC 365D	Classroom Interactions	3
AST 307	Introductory Astronomy	3
M 375D	Discovery: An Introduction to Advanced Study in Mathematics	3
Hours		15
Year 3		
Semester 1		
M 362K	Probability I	3
<u>Natural Science and Technology, Part I (030)</u>		3
HIS 329U	Perspectives on Science and Mathematics	3
<u>Visual and Performing Arts (050)</u>		3
M 343K	Introduction to Algebraic Structures	3
Hours		15
Semester 2		
M 333L	Structure of Modern Geometry	3
M 358K	Applied Statistics	3
PHY 341.7	Research Methods: UTeach	3
<u>Communication (010)</u>		3
M 339U	Actuarial Contingent Payments I	3
Hours		15
Year 4		
Semester 1		
M 375D	Discovery: An Introduction to Advanced Study in Mathematics	3
M 361K	Introduction to Real Analysis	3
<u>Humanities (040)</u>		3
EDC 365E	Project-Based Instruction	3
Math Certification Requirement: additional Math from approved list		3
Hours		15
Semester 2		
UTS 170	Student Teaching Seminar	1
EDC 651S.3	Secondary School Teaching Practicum: Math	6
M 348	Scientific Computation in Numerical Analysis	3
PSY 325K	Advanced Statistics	3
Hours		13
Total Hours		120

Requirements

All requirements are listed below, starting with the most specialized moving to the most general. Additional requirements may follow the table, so be sure to read the entire page. Some required courses listed below may also satisfy General Education requirements, including Core Curriculum.

Code	Title	Hours
Concentration		
Hours chosen from: (with a grade of at least C-)		3
HIS 329U	Perspectives on Science and Mathematics	
PHL 329U	Perspectives on Science and Mathematics	
Choose a sequence below:		8
Sequence 1:		
M 408C	Differential and Integral Calculus (Mathematics 408N and Mathematics 408S, or Mathematics 408K and Mathematics 408L, may substitute for Mathematics 408C)	
M 408D	Sequences, Series, and Multivariable Calculus	
Sequence 2:		
M 408N	Differential Calculus for Science	
M 408S	Integral Calculus for Science	

Sequence 3:		
M 408K	Differential Calculus	
M 408L	Integral Calculus	
M 315C	Foundations, Functions, and Regression Models	3
Hours chosen from: (with a grade of at least C-)		3
BIO 337.2	Research Methods: UTeach (Topic 2: Research Methods: UTeach)	
CH 368.1	Research Methods: UTeach (Topic 1: Research Methods: UTeach)	
PHY 341.7	Research Methods: UTeach (Topic 7: Research Methods: UTeach)	
Certification Areas (choose one; see course list tab for details)		49
Mathematics Certification		
Mathematics, Physical Science, and Engineering Certification		
Professional Development (with a grade of at least C-)		
EDC 651S.3	Secondary School Teaching Practicum: Math	6
EDC 365C	Knowing and Learning in Math and Science	3
or UTS 350	Knowing and Learning in Math and Science	
EDC 365D	Classroom Interactions	3
or UTS 355	Classroom Interactions	
EDC 365E	Project-Based Instruction	3
or UTS 360	Project-Based Instruction	
UTS 101	Secondary Teacher Education Preparation: Step 1	1
UTS 110	Secondary Teacher Education Preparation: STEP 2	1
UTS 170	Student Teaching Seminar	1
Subtotal		84
Degree (see details below)		
Free electives: Additional coursework to reach total hours required.		0
Subtotal		0
General Education		
Remaining Core Curriculum (42 hours total)		36
Foreign Language other than English, Beginning Proficiency		
Subtotal		36
College Requirements - Natural Sciences		
General University Requirements		
Total Hours		120

Additional Requirements and Policy

Students are encouraged to become familiar with a variety of mathematical software relevant to middle grades or secondary teaching, such as computer geometry systems, spreadsheets, and statistical software. Whenever possible, the student should take courses and sections of courses that use these types of software.

To graduate, students must earn a grade of at least C- and at least a 2.00 grade point average in each required mathematics and science course and in each professional development course.

To be recommended for certification, students must have a University grade point average of at least 2.50.

For information about teacher certification requirements, students should consult the UTeach-Natural Sciences academic advisor.

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At least 42 hours must be upper-division. At least 21 upper-division hours must be completed in residence at the University. At least 18 hours in mathematics must be completed in residence at the University.

Students must earn a grade of at least C- in each mathematics and science course required, and a grade point average in these courses of at least 2.00. More information about grades and the grade point average is given in the [General Information Catalog](#).

M 408N and M 408S, or M 408K and M 408L, may substitute for M 408C

Course Lists

Mathematics Certification

Code	Title	Hours
M 340L	Matrices and Matrix Calculations	3
or M 341	Linear Algebra and Matrix Theory	
Hours chosen from:		3
M 325K	Discrete Mathematics	
M 328K	Introduction to Number Theory (Mathematics 328K is recommended for students with substantial experience in writing proofs)	
M 333L	Structure of Modern Geometry	3
M 358K	Applied Statistics	3
M 362K	Probability I	3
M 361K	Introduction to Real Analysis	3
or M 365C	Real Analysis I	
M 343K	Introduction to Algebraic Structures	3
or M 373K	Algebraic Structures I	
M 427J	Differential Equations with Linear Algebra	4
Hours chosen from: (courses used above may not also be counted for this requirement)		9
M 328K	Introduction to Number Theory	
M 339J	Probability Models with Actuarial Applications	
M 339U	Actuarial Contingent Payments I	
M 343K	Introduction to Algebraic Structures	
M 343L	Applied Number Theory	
M 348	Scientific Computation in Numerical Analysis	
M 361	Theory of Functions of a Complex Variable	
M 365C	Real Analysis I	
M 365D	Real Analysis II	
M 368K	Numerical Methods for Applications	
M 373K	Algebraic Structures I	
M 373L	Algebraic Structures II	
M 375D	Discovery: An Introduction to Advanced Study in Mathematics	
M 378K	Introduction to Mathematical Statistics	
Hours chosen from:		3
ACC 310F	Foundations of Accounting	
or ACC 311	Fundamentals of Financial Accounting	
ARE 323K	Project Management and Economics	
AST 307	Introductory Astronomy	
AST 352K	Stellar Astronomy	
AST 352L	Positional, Dynamical, and Kinematical Astronomy	
AST 358	Galaxies and the Universe	

AST 367M	Physical Science: Methods of Astronomy	
CH 301	Principles of Chemistry I	
or CH 301C	Foundations of Chemistry I	
C E 321	Transportation Systems	
C E 341	Introduction to Environmental Engineering	
C S 303E	Elements of Computers and Programming	
C S 313E	Elements of Software Design	
ECO 420K	Microeconomic Theory	
ECE 302	Introduction to Electrical Engineering	
ECE 366	Engineering Economics I	
ECE 366L	Statistics for Manufacturing	
GEO 346C	Introduction to Physical and Chemical Hydrogeology	
GEO 354	Physics of Earth	
GEO 476K	Groundwater Hydrology	
GOV 341M	Decision Theory	
HDF 322	Personal and Family Finance	
M E 320	Applied Thermodynamics	
M E 326	Thermodynamics	
M E 366L	Operations Research Models	
M E 366Q	Deterministic Methods for Operations Research	
M E 366R	Stochastic Methods for Operations Research	
PGE 311	Numerical Methods and Programming	
PHY 301	Mechanics	
PHY 303K	Engineering Physics I	
PHY 303L	Engineering Physics II	
PSY 325K	Advanced Statistics	
PSY 332	Behavioral Neuroscience	
<i>Subtotal</i>		<i>37</i>
<i>Middle Grades Certification (with a grade of at least C-; mathematics certification only)</i>		
EDC 339E	Secondary School Literacy across the Disciplines	3
<i>Subtotal</i>		<i>3</i>
Total Hours		40

Mathematics, Physical Science, and Engineering Certification

Code	Title	Hours
Hours chosen from:		3
M 325K	Discrete Mathematics	
M 328K	Introduction to Number Theory (Mathematics 328K is recommended for students with substantial experience in writing proofs)	
M 427J	Differential Equations with Linear Algebra	4
M 333L	Structure of Modern Geometry	3
M 341	Linear Algebra and Matrix Theory	3
M 358K	Applied Statistics	3
M 362K	Probability I	3
M 361K	Introduction to Real Analysis	3
or M 365C	Real Analysis I	
M 375D	Discovery: An Introduction to Advanced Study in Mathematics	3
PHY 301	Mechanics	3
PHY 101L	Laboratory for Physics 301	1
PHY 316	Electricity and Magnetism	3

PHY 116L	Laboratory for Physics 316	1
PHY 315	Wave Motion and Optics	3
PHY 115L	Laboratory for Physics 315	1
CH 301	Principles of Chemistry I	3
or CH 301C	Foundations of Chemistry I	
CH 302	Principles of Chemistry II	3
or CH 302C	Foundations of Chemistry II	
CH 204	Introduction to Chemical Practice	2
E S 301	Engineering Design and Problem Solving	3
M E 377K	Projects in Mechanical Engineering (upon approval of the projects by the UTeach Program)	3
Total Hours		51