

BACHELOR OF SCIENCE IN MATHEMATICS (4-8 MATHEMATICS CERTIFICATION)

Web Site: <https://twu.edu/mathematics/undergraduate-programs/>

The B.S. in Mathematics with 4-8 Mathematics Certification program prepares educators to expand their understanding of mathematics through the study of a wide variety of mathematics and receive pedagogical preparation within a mathematical context. The need for quality 4-8 mathematical teachers in our schools is great and abundant career opportunities exist for qualified individuals. At TWU, small class sizes provide quality learning environments and active engagement with university faculty.

Marketable Skills

Defined by the Texas Higher Education Coordinating Board's 60x30 Strategic Plan (<https://reportcenter.highered.texas.gov/agency-publication/miscellaneous/the60x30-strategic-plan/>) as, "Those skills valued by employers that can be applied in a variety of work settings, including interpersonal, cognitive, and applied skills areas. These skills can be either primary or complementary to a major and are acquired by students through education, including curricular, co-curricular, and extracurricular activities."

Degree Skills

1. Apply mathematical theories and techniques to the solution of practical problems in business, engineering, the sciences, or other fields.
2. Develop mathematical or statistical models of phenomena to be used for analysis or for computational simulation.
3. Determine appropriate methods for data analysis.
4. Perform computations and apply methods of numerical analysis to data.
5. Demonstrate personal accountability and work habits, integrity, and ethical behavior.
6. Assemble sets of assumptions and explore the consequences of each set.
7. Proficient in the software tools to achieve the skills listed, such as Matlab and R, SAS, SPSS, modeling software.

Teacher Certification Skills

1. Appropriately explain the impact of effective planning and communication (within the chosen area of concentration) to relevant internal and external stakeholders in an education or community setting.
2. Identify, select, and implement entry-level instructional plans when serving as an instructor in the school setting.
3. Successfully manage organizational and student behavior when teaching in the school setting.
4. Efficiently and accurately assess student progress and use data to develop and modify instruction for K-12 students.
5. Work effectively and collaboratively with students and families from diverse backgrounds.

Admissions

Teacher Certification

In addition to the general undergraduate admissions requirements (<http://catalog.twu.edu/undergraduate/admission-information/>), to obtain acceptance into the undergraduate Educator Preparation Program (<https://twu.edu/epp/>) (and prior to taking EDUC 3003, EDUC 3482, EDUC 4113, EDUC 4243, and Clinical Student Teaching) students must have:

- A cumulative GPA of 2.75 (includes **all** courses, whether posted to TWU transcript or used on a degree plan. Excludes developmental and repeated courses);
- Completed EDUC 2003 with a C or higher;
- Demonstrated basic skills in reading, written communication, and mathematics by meeting the requirements of the Texas Success Initiative;
- Completed the Digital Literacy Pre-assessment;
- Successfully completed a pre-admission departmental interview with an interview panel;
- A minimum of 12 to 15 semester credit hours in the subject-specific content area for the certification sought;
- Completed department application for admission to the Educator Preparation Program;
- Completed a Commitment Contract acknowledging awareness and understanding of the Professional Dispositions Policy and Educators' Code of Ethics;
- Submitted a non-refundable Texas Education Agency Fee; and
- Acknowledged and accepted admission to the Educator Preparation Program.

Please note:

- All accepted students must maintain the admission requirements to remain in the TWU Education Preparation Program.
- Admission requirements are determined by Texas Education Agency policies and are subject to change without notice.
- Students seeking Bilingual certification must meet minimum proficiency in Spanish.
- Students seeking Deaf/Hard of Hearing certification must meet minimum proficiency in sign.

Contact the Office of Educator Preparation Services (<https://twu.edu/epp/>) (OEPS) at copeadvising@twu.edu or 940-898-2829 with any questions.

Degree Requirements

Total Semester Credit Hours (SCH): 126

Major: 42 SCH **Required Minor:** 29 SCH

Program Code: MATH.BS.4-8EDUC **CIP Code:** 27.0101.00

Texas Core Curriculum

Code	Title	SCHs
ENG 1013	Composition I	3
ENG 1023	Composition II	3
Mathematics		3
Life & Physical Sciences		6
Language, Philosophy, & Culture		3

Creative Arts		3
HIST 1013	History of the United States, 1492-1865	3
HIST 1023	History of the United States, 1865 to the Present	3
POLS 2013	U.S. National Government	3
POLS 2023	Texas Government	3
Social & Behavioral Sciences		3
CAO: Women's Studies		3
CAO: First Year Seminar, Wellness or Mathematics		3
Total SCHs		42

Courses Required for Major

Code	Title	SCHs
Required Mathematics Courses		
MATH 1533	Mathematics Concepts II	3
MATH 1543	Mathematics Concepts III	3
MATH 2014	Calculus I	4
MATH 2024	Calculus II	4
MATH 3104	Calculus III	4
MATH 3013	Discrete Mathematics	3
or MATH 3083	Elementary Number Theory	
MATH 3053	Abstract Algebra	3
MATH 3063	Linear Algebra	3
or MATH 3073	Matrix Methods	
MATH 4003	Mathematical Concepts in the Educational Setting	3
MATH 4013	Probability and Statistics	3
MATH 4203	Problem Solving in the Mathematics Classroom	3
MATH 4303	Algebra in the Mathematics Classroom	3
MATH 4313	Geometry in the Mathematics Classroom	3
Total SCHs		42

Departmental Requirements

Code	Title	SCHs
CSCI 3002	Advanced Computing Technology	2
CSCI 3013	Applied Computational Thinking	3
BIOL 1023	Environmental Biology	3
SCI 1114	Sustainable Physical Science	4
Elective		3
Total SCHs		15

Professional Education Studies

Admission to the Educator Preparation Program is required. Students must apply for admission into the Educator Preparation Program prior to enrolling in EDUC 3003/EDUC 3482, EDUC 4113/EDUC 4243, and EDUC 4946. Information is available from the Office of Educator Preparation Services (<https://twu.edu/teacher-certification/>).

Code	Title	SCHs
Pedagogical and Professional Responsibility		
EDUC 2003	Schools and Society	3
EDUC 3003	Learning Theory and Development	3

EDUC 3482	Teaching Diverse Learners Through Technology Integration	2
EDUC 4113	Design and Implementation of Instruction and Assessment	3
EDUC 4243	Classroom Environment and Management	3
EDUC 4946	Clinical Student Teaching	6
Related Studies in Education		
EDSP 3203	Learners with Exceptionalities	3
READ 3013	Literacy and Learning across the Curriculum	3
READ 3423	Literacy Foundations: 4-8	3
Total SCHs		29

Notes:

- EDUC 2003 may be taken at a community college. Check with the Office of Educator Preparation Services (<https://twu.edu/teacher-certification/>) to make sure the course has the equivalent number.
- EDUC 4113 and EDUC 4243 must be taken during the same semester.

Recommended Plan of Study

First Year

Fall	TCCN	SCHs
MATH 1313	Elementary Analysis II	MATH 1316 3
MATH 1533	Mathematics Concepts II	MATH 1351 3
ENG 1013	Composition I	ENGL 1301 3
HIST 1013	History of the United States, 1492-1865	HIST 1301 3
POLS 2013	U.S. National Government	GOVT 2305 3
UNIV 1231	Learning Frameworks: The First Year Experience	EDUC 1100, 1 EDUC 1200, 1 EDUC 1300 1
SCHs		16

Spring

TCCN	SCHs	
MATH 1543	Mathematics Concepts III 3	
MATH 1703	Elementary Statistics I 3	
ENG 1023	Composition II 3	
HIST 1023	History of the United States, 1865 to the Present 3	
POLS 2023	Texas Government 3	
GOVT 2306	3	
Life/Physical Science Core	3	
SCHs		18

Second Year

Fall	TCCN	SCHs
MATH 2014	Calculus I	MATH 2413 4
MATH 4303	Algebra in the Mathematics Classroom	3
CSCI 3002	Advanced Computing Technology	2
Life/Physical Science Core		3
Language, Philosophy, and Culture Core		3
EDSP 3203	Learners with Exceptionalities	3
SCHs		18

Spring

TCCN	SCHs
MATH 2024	Calculus II 4
MATH 2414	4

MATH 2053	Women and Minorities in Engineering, Mathematics, and Science		3
MATH 3013	Discrete Mathematics		3
BIOL 1023	Environmental Biology (recommended)	BIOL 2406	3
READ 3423	Literacy Foundations: 4-8		3
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	SCHs		16
Third Year			
Fall		TCCN	
MATH 3104	Calculus III		4
MATH 4313	Geometry in the Mathematics Classroom		3
EDUC 2003	Schools and Society	EDUC 1301	3
	Additional Science (SCI 1114 recommended)		4
READ 3013	Literacy and Learning across the Curriculum		3
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	SCHs		17
Spring		TCCN	
MATH 3073	Matrix Methods		3
MATH 4003	Mathematical Concepts in the Educational Setting		3
MATH 4203	Problem Solving in the Mathematics Classroom		3
CSCI 3013	Applied Computational Thinking		3
EDUC 3003	Learning Theory and Development		3
EDUC 3482	Teaching Diverse Learners Through Technology Integration		2
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	SCHs		17
Fourth Year			
Fall		TCCN	
MATH 3053	Abstract Algebra		3
MATH 4013	Probability and Statistics		3
	Creative Arts Core		3
	Social/Behavioral Science Core		3
EDUC 4113	Design and Implementation of Instruction and Assessment		3
EDUC 4243	Classroom Environment and Management		3
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	SCHs		18
Spring		TCCN	
EDUC 4946	Clinical Student Teaching		6
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	SCHs		6
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	Total SCHs:		126