



Mathematics Education, B.S. *major* (Teacher Licensure)

The Mathematics Bachelor of Science (Teacher Licensure) follows the guidelines of the National Council of Teacher of Mathematics for undergraduate programs for teachers of mathematics. Students majoring in this degree should also check the Education requirements found in Education: Secondary.

Note: If the student's high school mathematics courses and/or the Mathematics Placement Test indicate a lack of readiness for calculus, the student will be placed in one of the following precalculus sequences: MATH 1470; or MATH 1170 and MATH 1180; or MATH 1170 and MATH 1470. Students who need to take more than one course in preparation for calculus may not be able to complete this program without exceeding 120 credits.

A total of 120 semester credits are needed for the **Mathematics Education (Teacher Licensure) B.S.** degree and include the following:

- Completion of a minimum of 40 upper division credits (level 3000/4000)
- Completion of all required major credits
- Completion of Core Curriculum credits (Minnesota Transfer Curriculum [MnTC] Goal Areas 1-10 with a minimum of 40 credits) required for all baccalaureate degrees
- Completion of BSU Focus and Nisidotaading Course Requirements

Dual Degrees

Students wishing to complete two degrees concurrently, (example: Bachelor of Science and Bachelor of Arts) must complete a minimum of an additional 30 credits above the required 120 credits.

Multiple Credentials

Any additional major, minor or certificate in a degree must have at least 6 credits of course work not used to meet the requirements of another major, minor or certificate in the degree.

Required Credits: 79

Required GPA: 2.50

I REQUIRED CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- MATH 2210 Discrete Mathematics (4 credits)
- MATH 2471 Calculus I (5 credits)
- MATH 2472 Calculus II (5 credits)
- MATH 2480 Multivariable Calculus (4 credits)
- MATH 3310 Linear Algebra (4 credits)

II REQUIRED ELECTIVES

COMPLETE THE FOLLOWING COURSES:

- MATH 3065 Mathematical Foundations of Algebra (4 credits)
- MATH 3560 Classical and Modern Geometry (3 credits)

SELECT 1 OF THE FOLLOWING COURSES:

- MATH 3067 Data, Probability, and Statistics (4 credits)
- STAT 2610 Applied Statistics (4 credits)
- STAT 3631 Probability and Statistics I (4 credits)

SELECT 1 OF THE FOLLOWING COURSES:

- MATH 4350 Abstract Algebra (3 credits)
- MATH 4371 Modern Algebra (3 credits)

III REQUIRED CONCENTRATION, SECOND EDUCATION MAJOR OR

COMPLETE ONE OF THE FOLLOWING OPTIONS: Note: If taken under II. above, MATH 3067 or STAT 3631 may be used to complete this requirement.

A. APPLIED MATHEMATICS/ CALCULUS CONCENTRATION

COMPLETE 2 OF THE FOLLOWING COURSES:

- MATH 2490 Differential Equations (4 credits)
- MATH 3710 Mathematical Modeling (3 credits)
- MATH 3720 Numerical Methods (3 credits)
- MATH 4410 Introduction to Analysis (3 credits)
- MATH 4760 Topics in Applied Mathematics (3 credits)

B. COMPUTER SCIENCE CONCENTRATION

COMPLETE 2 OF THE FOLLOWING COURSES:

- CS 2270 Introduction to Web Programming (3 credits)
- CS 2321 Computer Science I (4 credits)
- CS 2322 Computer Science II (4 credits)

C. MIDDLE LEVEL MATHEMATICS CONCENTRATION

COMPLETE THE FOLLOWING 2 COURSES:

- MATH 3066 Geometry and Technology (4 credits)
- MATH 3067 Data, Probability, and Statistics (4 credits)

D. STATISTICS CONCENTRATION

COMPLETE 2 OF THE FOLLOWING COURSES:

- STAT 3610 Time Series Analysis (3 credits)
- STAT 3631 Probability and Statistics I (4 credits)
- STAT 3632 Probability and Statistics II (3 credits)

E. COMPLETE A SECONDARY EDUCATION MAJOR (OTHER THAN MATHEMATICS)

F. COMPLETE A MIDDLE LEVEL ENDORSEMENT (OTHER THAN MATHEMATICS)

REQUIRED PROFESSIONAL EDUCATION COURSES

COMPLETE THE FOLLOWING COURSES:

- ED 1100 Education & Society (3 credits)
- ED 2110 Educational Psychology and Learning Theories (3 credits)
- ED 3140 Human Diversity and Educational Equity (3 credits)
- ED 3350 Principles and Strategies of Teaching (3 credits)
- ED 3440 Mathematics Methods in the Secondary School (4 credits)
- ED 3780 Inclusive Teaching and Classrooms (3 credits)
- ED 4737 Content Area Reading (3 credits)
- ED 4778 Teacher Leadership (3 credits)

COMPLETE 12 CREDITS OF THE FOLLOWING COURSE

- ED 4830 Student Teaching - Secondary (1-12 credits)

Program Learning Outcomes | Mathematics Education, B.S.

1. Knowledge: Students will understand the content and methods of the core areas of undergraduate mathematics.

2. Analysis: Students will identify, interpret and analyze problems, discern structure and pattern and make conjectures.
3. Application: Students will apply appropriate procedures and technology to solve problems.
4. Proof: Students will apply creative and analytic thinking to develop clear and valid mathematical arguments.
5. Communication: Students will communicate mathematical ideas and understanding effectively.
6. Pedagogy: Student will develop an understanding of a variety of pedagogical techniques and be able to apply them to the design of lessons and curriculum that communicate mathematical concepts to learners with diverse learning styles and ability levels.
7. Career Readiness: Students will be prepared for careers in education and further study in mathematics.