Mathematics, B.S. *major*
Applied Emphasis

A total of 120 semester credits are needed for the **Mathematics, Applied emphasis B.S.** degree and include the following:

- 40 upper division credits (level 3000/4000)
- 40 required major core credits
- Completion of Core Curriculum credits (Minnesota Transfer Curriculum [MnTC] Goal Areas 1-10) - 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: 40
Required GPA: 2.25

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)

APPLIED EMPHASIS

A. Complete 3 courses from the following list:

- CS 2322 Computer Science II (4 credits)
- 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. Complete 3 additional courses from the following list not previously taken above:

- CS 2322 Computer Science II (4 credits)
- CS 3752 Data Mining (3 credits)
- GEOG 4265 Spatial Analysis (3 credits)
- 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)
- STAT 2610 Applied Statistics (4 credits)
- STAT 3610 Time Series Analysis (3 credits)
- STAT 3631 Probability and Statistics I (4 credits)
- STAT 3632 Probability and Statistics II (3 credits)

Program Learning Outcomes | Mathematics, 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. Career Readiness: Students will be prepared for careers in industry and further study in mathematics.

Suggested Semester Schedule | Mathematics, B.S.

The following is a list of required Mathematics Major, B.S. courses by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

Freshman

- MATH1470
- MATH2471
- MATH2472
- Core Curriculum requirements

Sophomore

- MATH2210
- MATH2480
- MATH3310
- Courses in the Field of Emphasis (consult with advisor)
- Core Curriculum requirements

Junior/Senior

- Courses in the Field of Emphasis (consult with advisor)
- Complete Core Curriculum requirements