Mission Statement

The Department of Mathematical Sciences is committed to providing quality instruction in the mathematical sciences to all UWSP students. Our introductory courses will ensure mastery of elementary mathematical methods and techniques. Our intermediate courses will provide effective support for students enrolled in any UWSP degree program. Our advanced courses will permit students to obtain necessary specialization sufficient for entry into professional careers and graduate education.

The Department of Mathematical Sciences has a commitment to research activities which complement our teaching mission. We hold the position that all original research, including that done with undergraduate students as part of their education, as well as that done individually for its own purpose or that done in collaboration with faculty from other disciplines for purposes of application, extends the frontiers of mathematical knowledge.

The Department of Mathematical Sciences is committed to community service. We will educate and train exemplary secondary teachers of mathematics. We will promote a greater understanding of the power and beauty of mathematics in human thought, by providing educational outreach opportunities to community members of all ages.

\[ e^{i\pi} + 1 = 0 \]

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Ph.D., Illinois State University  
Mathematics Education

Andy Felt, Professor  
Ph.D., Washington State Univ.  
Operations Research

Hurlee Gonchigdanzan,  
Professor  
Ph.D., University of Cincinnati  
Probability

Daniel Harnett, Assistant Professor  
Ph.D., University of Kansas  
Probability, Stochastic Analysis

Edwin Herman, Associate Professor  
Ph.D., University of Oregon  
Analysis

Patricia Jaberg, Associate Professor  
Ph.D., Illinois State University  
Mathematics Education

Garrett Jones, Visiting Assistant Prof.  
Ph.D., University of Iowa  
Knot Theory, Math Biology

Andrea Knapp, Associate Professor  
Ph.D., Illinois State University  
Mathematics Education

Robert Kreczner, Professor  
Ph.D., University of Wisc.-Milwaukee  
Applied Mathematics

Cindy McCabe, Professor  
Ph.D., University of Iowa  
Knot Theory

Rick Mitchell, Professor  
Ph.D., University of Wyoming  
Mathematics Education

Dale M. Rohm, Professor  
Ph.D., Oregon State University  
Topology/Analysis

Michael Simmers, Assistant Professor  
Ed.D., University of North Dakota  
Mathematics Education

Kirsten Stor, Assistant Professor  
Ph.D., University of Vermont  
Graph Theory

Susan Talarico, Associate Professor  
Ph.D., Northern Illinois University  
Mathematics

Matthew Welz, Assistant Professor  
Ph.D., University of Vermont  
Abstract Algebra

Nate Wetzel, Professor  
Ph.D., University of Minnesota  
Statistics

Adjunct Faculty

George Adams, Associate Lecturer  
M.A.T., Indiana University  
Mathematics Education

Vicki Hay, Associate Lecturer  
M.A., Univ. of Minnesota  
Mathematics Education

Jo Ellen Immel, Senior Lecturer  
M.Ed., Univ. of Arizona  
Mathematics

Ann Kiefer, Lecturer  
BBA., UWSP  
Business Administration

Maggie Milkovich, Senior Lecturer  
MEPD, UW-LaCrosse  
Statistics

Laurence Steiner, Lecturer  
M.Ed., UWSP  
Precalculus Mathematics

Jeffrey Strick, Associate Lecturer  
M.S., UW-Oshkosh Mathematics

Robert VanDenHeuvel,  
Associate Lecturer  
M.S., UWSP Mathematics
Mathematics Education classes are taught in our two model classroom teaching laboratories where students learn best practices for teaching mathematics with modern manipulatives, software, calculators, and classroom equipment. One of these model classrooms is equipped with a connected 30-seat computer laboratory completely equipped with the current versions of most commonly used mathematical software.

All upper-level mathematics courses are taught in sections with about 20 students. All classrooms are equipped with computer workstations and allow for multimedia presentation.
All lower-level mathematics courses are taught in sections with about 35 students. All courses in the majors and minors offered by the department, including calculus, are only taught by regular faculty with terminal degrees.

Extra help for introductory mathematics courses is available in the Department sponsored Math Room. The Department hires advanced mathematics students to provide drop-in tutoring. The Math Room is a great place for small study groups!

Students hired by the Center for Athletic Scheduling use Mixed Integer Linear Programming methods from operations research to solve the real-world problems of their clients. The CAS is a self-supporting, non-profit, student-run organization whose mission is to provide athletic schedules, optimally meeting specified constraints, to intercollegiate athletic conferences across the country.
Overview

The Mathematics Major allows you to specialize, or to acquire a broad background, in mathematics by selecting from various areas of mathematics. Students are able to ensure that their coursework will qualify them for many different professional and graduate programs requiring the skills and techniques taught in the Mathematical Sciences. This major is especially valuable to those students who are also seeking a minor or a second complementary major in a natural science. Our graduates with this major have continued on to enter graduate programs in mathematics, statistics, operations research, chemistry, physics, materials science, and even law.

The Mathematics Major consists of at least 44 credits plus at least 12 credits in Natural Sciences to complete a Bachelor of Science degree.

Sample 4-year program of study for the Mathematics Major

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year One</td>
<td>Math 120 (4 cr.) Calculus I</td>
<td>Math 121 (4 cr.) Calculus II</td>
</tr>
<tr>
<td></td>
<td>General Education courses (11 cr.)</td>
<td>Physics 150 or 203 (5 cr.)</td>
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<tr>
<td></td>
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<td>General Education courses (6 cr.)</td>
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<tr>
<td>Year Two</td>
<td>Math 222 (4 cr.) Calculus III</td>
<td>Math 300 (3 cr.) Introduction to Proof...</td>
</tr>
<tr>
<td></td>
<td>Math 213 (4 cr.) Introduction to Linear Algebra</td>
<td>Math 3xx (3 cr.) Core Elective</td>
</tr>
<tr>
<td></td>
<td>General Education &amp; Minor courses (6 cr.)</td>
<td>General Education &amp; minor courses (6 cr.)</td>
</tr>
<tr>
<td>Year Three</td>
<td>Math 3xx (3 cr.) Core Elective</td>
<td>Math 3xx (3 cr.) Depth Elective</td>
</tr>
<tr>
<td></td>
<td>Math 3xx (3 cr.) Depth Elective</td>
<td>Math 3xx (3 cr.) Breadth Elective</td>
</tr>
<tr>
<td></td>
<td>General Education &amp; Minor courses (9 cr.)</td>
<td>General Education &amp; Minor courses (9 cr.)</td>
</tr>
<tr>
<td>Year Four</td>
<td>Math 3xx (3 cr.) Breadth Elective</td>
<td>Math 380 or 381 (3 cr.) Capstone course</td>
</tr>
<tr>
<td></td>
<td>Math 3xx (3 cr.) Breadth Elective</td>
<td>General Education &amp; Minor courses (12 cr.)</td>
</tr>
<tr>
<td></td>
<td>General Education &amp; Minor courses (9 cr.)</td>
<td></td>
</tr>
</tbody>
</table>

Mathematics Core Electives
Math 324 : Complex Variables
Math 327 : Advanced Calculus
Math 330 : Intermediate Linear Algebra
Math 331 : Abstract Algebra-Rings and Fields
Math 332 : Abstract Algebra-Group Theory

Mathematics Breadth Electives
Math 305 : Discrete Mathematics
Math 310 : Operations Research I
Math 315 : Operations Research II
Math 320 : Differential Equations
Math 335 : Number Theory
Math 356 : Probability and Statistics I
Math 357 : Probability and Statistics II
Math 367 : Mathematics of Decision and Choice
Math 372 : Topology
Mathematics Major Academic Standards
1. You must have a minimum GPA of 2.00 in courses used to satisfy requirements of major.
2. Grades of C or better must be earned in at least 18 credits of courses numbered 300 and above used to satisfy the requirements of the major.

Mathematics Major with Actuarial Emphasis

Overview
The Mathematics Major with Actuarial Emphasis requires students to specialize in those mathematical areas with particular value to actuarial science. Following the recommendations of professional actuarial societies, the emphasis includes a strong concentration in applied mathematics courses, including linear algebra and probability & statistics, along with other courses in applied mathematics, computing, and actuarial science. Successful completion of two of the national actuarial examinations during your time at UWSP is encouraged in this major. The Mathematics Major with Actuarial Emphasis consists of at least 61 credits to complete a Bachelor of Science degree.

Sample 4-year program of study for the Mathematics Major with Actuarial Emphasis

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year One</strong></td>
<td></td>
</tr>
<tr>
<td>Math 120 (4 cr.) Calculus I</td>
<td>Math 121 (4 cr.) Calculus II</td>
</tr>
<tr>
<td>CIS 102 (1 cr.) Practicum in Computing</td>
<td>General Education courses (12 cr.)</td>
</tr>
<tr>
<td>General Education courses (9 cr.)</td>
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</tr>
<tr>
<td><strong>Year Two</strong></td>
<td></td>
</tr>
<tr>
<td>Math 222 (4 cr.) Calculus III</td>
<td>Math 362 (3 cr.) Theory of Interest</td>
</tr>
<tr>
<td>Math 213 (4 cr.) Introduction to Linear Algebra</td>
<td>Econ 110 (3 cr.) Macroeconomics</td>
</tr>
<tr>
<td>CIS 110 (4 cr.) Object Oriented Programming</td>
<td>Acct 210 (3 cr.) Introductory Financial Accounting</td>
</tr>
<tr>
<td>General Education courses (4 cr.)</td>
<td>General Education courses (6 cr.)</td>
</tr>
<tr>
<td><strong>Year Three</strong></td>
<td></td>
</tr>
<tr>
<td>Math 300 (3 cr.) Intro to Proof...</td>
<td>Math 357 (3 cr.) Probability and Statistics II</td>
</tr>
<tr>
<td>Econ 111 (3 cr.) Microeconomics</td>
<td>Math 3xx (3 cr.) Core Elective</td>
</tr>
<tr>
<td>Act 211 or CIS 210 or Engl 351 (3 or 4 cr.)</td>
<td>Bus 350 (3 cr.) Principles of Finance</td>
</tr>
<tr>
<td>General Education course (3 cr.)</td>
<td>General Education course (3 cr.)</td>
</tr>
<tr>
<td><strong>Year Four</strong></td>
<td></td>
</tr>
<tr>
<td>Math 3xx (3 cr.) Breadth Elective</td>
<td>Math 3xx (3 cr.) Breadth Elective</td>
</tr>
<tr>
<td>Bus 353 (3 cr.) Investments</td>
<td>Math 380 or 381 (3 cr.) Oral comm. course</td>
</tr>
<tr>
<td>Graduation Elective (3 cr.)</td>
<td>Graduation Elective (3 cr.)</td>
</tr>
<tr>
<td>General Education courses (6 cr.)</td>
<td>General Education courses (6 cr.)</td>
</tr>
</tbody>
</table>
Actuarial Breadth Electives
Math 305 : Discrete Mathematics    Math 330 : Intermediate Linear Algebra
Math 315 : Operations Research II   and Fields
Math 324 : Complex Variables       Theory
Math 327 : Advanced Calculus       Math 367 : Mathematics of Decision
                                   and Choice

Mathematics Major with Actuarial Emphasis
1. You must have a minimum GPA of 2.00 in courses used to satisfy
requirements of major.
2. Grades of C or better must be earned in at least 18 credits of courses
numbered 300 and above used to satisfy the requirements of the major.

Take math — lots of it! I have quickly learned that you can never learn enough mathematics.
— Alex Richter
(Class of 2007)
Mathematics Major for Teacher Certification
(Secondary/Middle)

**Overview**

The Mathematics Major for Teacher Certification is structured to ensure that you will satisfy the Wisconsin Department of Public Instruction licensing requirements for secondary/middle school teacher certification. This major includes dedicated geometry and statistics courses containing integrated educational methods. Additional mathematics courses from the areas of analysis, abstract algebra, and discrete mathematics provide comprehensive content preparation. Additional educational training in mathematics teaching technology, mathematics educational methods, and the history of mathematics will ensure your subject competency. Collateral requirements of the School of Education will ensure your degree meets all breadth and competency requirements for state licensing. This major is completed by a secondary student teaching experience.

The Mathematics Major for Teacher Certification:Secondary/Middle consists of at least 54 credits plus at least 12 credits in Natural Sciences to complete a Bachelor of Science degree.

**Sample 4-year program of study for the Mathematics Major for Teacher Certification**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year One</strong></td>
<td></td>
</tr>
<tr>
<td>Math 120 (4 cr.) Calculus I</td>
<td>Math 121 (4 cr.) Calculus II</td>
</tr>
<tr>
<td>General Education courses (11 cr.)</td>
<td>Education &amp; Gen. Ed. courses (11 cr.)</td>
</tr>
<tr>
<td><strong>Year Two</strong></td>
<td></td>
</tr>
<tr>
<td>Math 222 (4 cr.) Calculus III</td>
<td>Math 300 (4 cr.) Intro to Proof…</td>
</tr>
<tr>
<td>Math 213 (4 cr.) Intro. to Linear Algebra</td>
<td>MathEd 334 (4 cr.) Tech. Tools for Math…</td>
</tr>
<tr>
<td>General Education courses (9 cr.)</td>
<td>General Education &amp; Physics (8 cr.)</td>
</tr>
<tr>
<td><strong>Year Three</strong></td>
<td></td>
</tr>
<tr>
<td>Math/MathEd 340 (4 cr.) Teaching Geometry</td>
<td>Math/MathEd 350 (4 cr.) Teaching Probability and Statistics</td>
</tr>
<tr>
<td>Math 331 or 332 (3 cr.) Abstract Algebra</td>
<td>Mathematics Breadth Electives (6 cr.)</td>
</tr>
<tr>
<td>Education &amp; Gen. Ed. courses (10 cr.)</td>
<td>Education courses (7 cr.)</td>
</tr>
<tr>
<td><strong>Year Four</strong></td>
<td></td>
</tr>
<tr>
<td>MathEd 335 (4 cr.) Techniques in Sec. Ed.</td>
<td>MathEd 398 (12 cr.) Student Teaching</td>
</tr>
<tr>
<td>Math 3xx (3 cr.) Breadth Elective</td>
<td>Educ 400 (1 cr.) Seminar on Teaching</td>
</tr>
<tr>
<td>Education &amp; Gen. Ed. courses (7-10 cr.)</td>
<td></td>
</tr>
</tbody>
</table>
Mathematics Education Breadth Electives

Math 305 : Discrete Mathematics  Math 332 : Abstract Algebra-Group Theory
Math 310 : Operations Research I Math 335 : Number Theory
Math 324 : Complex Variables Math 367 : Mathematics of Decision and
Math 327 : Advanced Calculus Choice
Math 331 : Abstract Algebra-Rings and Fields

Mathematics Major for Teacher Certification

Academic Standards

1. You must have a minimum GPA of 2.00 (2.75 to be approved for student
teaching) in courses used to satisfy requirements of major.
2. Grades of C or better must be earned in at least 18 credits of courses
numbered 300 and above used to satisfy the requirements of the major.
3. You must be accepted into the Professional Education Program of the School
of Education.

School of Education Selection Criteria

The combined limit of mathematics students allowed entry into the Professional
Education Program is 15 majors per year (minors are not included in this count).

The Mathematics Education faculty will consider the final selection based upon the
following criteria:

1. Applicants must meet the minimum requirements for admission to the
Professional Education Program as set by the School of Education.
2. Applicants must complete the following courses in the major: either Math 213
or Math 222.
3. Applicants must score “satisfactory” on the essay component of their
application.
4. Applicants must have a major GPA of at least 2.75 at the time of admission.
5. Applicants will be ranked according to their GPA sum: the sum of the overall
GPA (including transfer credits) and the major GPA (including transfer credits)
divided by two.
   a. Fall applications: Up to 10 applicants will be selected according to their
      GPA sum. During the fall application, only those applicants with a GPA
      sum of at least 3.00 will be considered.
   b. Spring applications: Applicants will be selected according to their GPA
      sum.
6. In the event that step 5b does not fill all 15 positions available for the year,
applicants with a major GPA less than 2.75 may be considered.
7. Applicants denied admission may appeal through the School of Education.
8. Applicants denied admission to the Professional Education Program will be
allowed to make one more application (a total of two applications).
**The Mathematics Minor**

The Mathematics Minor consists of 26 credits:

1. Math 120, 121, 213, 222, 300.
2. At least 6 credits from Math 305, 310, 315, 320, 324, 327, 330, 331, 332, 335, 356, 357, 367, 372.

This minor is especially appropriate for any student considering applying to a physical, social, or managerial science graduate or professional program.

**The Applied Mathematics Minor**

The Applied Mathematics Minor consists of 24 credits:

1. Math 120, 121, 213.
2. Complete one of the following sequences: Math 356 and 357 or Math 310 and 315.
3. Complete two additional courses from Math 222, 305, 310, 315, 320, 356, 357, 362, 367.

This minor is an excellent addition to any social or physical science major.

**The Mathematics Minor for Teacher Certification (Secondary/Middle)**

The Mathematics Minor for Teacher Certification consists of at least 32 credits:

1. Math 120, 121, 213, 300.
3. Complete either Math/MathEd 350 or the sequence Math 356, 357.

Teaching certification additionally requires completion of a teaching major and student teaching in mathematics. This minor is appropriate for a student completing any teaching major, but particularly in the physical sciences.

—I want to give people the ability to acquire knowledge.

— M.P.

— Teaching is a unique job where every single class period holds the opportunity to change an individual’s life.

— J.S.
Department of
Mathematical Sciences

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