

DEPARTMENT OF MATHEMATICS

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ABOUT THE DEPARTMENT AND MAJORS

Welcome to the exciting world of mathematics. Mathematics has an extensive history of developing new ideas and enriching the sciences and engineering. With the progression of technology, mathematics has become increasingly important. It is used in areas as diverse as economics, psychology, linguistics, biology, management science, computer science and agriculture. Thus, both the mathematics major and minor provide a strong and flexible background for a variety of careers. Students majoring in mathematics must take a core of required courses, while elective courses are chosen with regard to career goals. Students who plan to work in business, industry or engineering related fields after graduation choose their electives from applied mathematics courses such as differential equations and numerical analysis. Students planning to work as an actuary or toward an advanced degree in statistics would include upper level probability and statistics courses. Those who plan to teach would choose courses in discrete math and the history of mathematics. Students who plan to pursue graduate work in mathematics would choose theoretical courses in algebra, analysis and geometry. Students who plan to work in cryptology might select a number theory course, while students planning a career that uses mathematical modeling in the biological sciences might choose a differential equations course. Students with a Data Science degree will be able to apply computational, mathematical, programming, modeling, software, and statistical knowledge to solve problems across domains such as Biology, Business, Computer Science, Engineering, Geospatial Analysis, and Mathematics.

UW-Platteville graduates with a major in mathematics have pursued a variety of careers such as teachers and professors, actuaries, statisticians, financial or market analysts, researchers, computer programmers or software engineers. A degree in mathematics can open the door to many opportunities.

MISSION

The purpose of the mathematics curriculum is to provide all students with quantitative skills to function proficiently in a societal and professional capacity. In addition to offering majors and minors in mathematics, the UW-Platteville Department of Mathematics offers courses to support both the general education requirements of the university and the major and minor programs of other departments. Within this mission, the department of mathematics strives to furnish an open, enlightened environment, with frequent student/faculty interaction, resulting in a high quality undergraduate education that will develop and enhance students' computational and reasoning skills.

EDUCATIONAL GOALS AND LEARNING OUTCOMES

The goals of the mathematics major at UW-Platteville are to:

1. prepare students with the skills needed to pursue careers in education, business and industry
2. provide a theoretical foundation that will prepare students to continue their study of mathematics or statistics at the graduate level
3. provide students with opportunities to experience mathematics outside of their regular coursework

Upon graduation, mathematics majors at UW-Platteville should be able to:

1. communicate mathematics effectively
2. demonstrate a computational ability in solving a wide array of mathematical problems
3. differentiate between valid and invalid mathematical reasoning
4. develop mathematical ideas from basic axioms
5. utilize mathematics to solve theoretical and applied problems
6. identify applications of mathematics in other disciplines and in society

Students with a Data Science degree will be able to apply computational, mathematical, programming, modeling, software, and statistical knowledge to solve problems across domains such as Biology, Business, Computer Science, Engineering, Geospatial Analysis, and Mathematics. Learning outcomes will emphasize the following skills sets:

1. Data acquisition and management: Students will be able to identify problems; assess data needs; acquire, clean, and prepare data; and preserve and manage data.
2. Data analysis: Students will be able to select and perform analyses using data science technologies such as data mining, machine learning, visualization, predictive modeling, and statistics.

Students will be able to evaluate and interpret the results to extract meaningful findings, and then communicate those findings effectively through visualization as well as effective oral and written media to a broader audience. They will understand the social, legal, and ethical challenges in data science.

PLACEMENT

Initial placement of students in mathematics courses will be determined by the UW-Platteville Department of Mathematics on the basis of scores on the UW System Mathematics Placement Test or acceptable college transfer credit in mathematics. Advanced placement credit for calculus and analytic geometry is awarded only to students who satisfactorily complete the College Entrance Examination Board Advanced Placement Examination in Calculus. Upon request students will receive:

1. four credits for MATH 2640 if they receive a score of four or five on the Advanced Placement Calculus AB examination;
2. three credits for MATH 2630 if they receive a score of three on the Advanced Placement Calculus AB examination;
3. eight credits for MATH 2640 and MATH 2740 if they receive a score of four or five on the Advanced Placement Calculus BC examination; or
4. four credits for MATH 2640 if they receive a score of three on the Advanced Placement Calculus BC examination.
5. three credits for MATH 1830 Elementary Statistics is awarded to students having received a score of three, four or five on the Advanced Placement Statistics examination.

Students taking sequential courses in mathematics must attain a grade of "C-" or better before taking the succeeding course.

CALCULATOR POLICIES

Many of the courses in the department require calculators. However, there are some restrictions as to what specific types of calculators may or may not be used in specific courses. Please go to the department website at <https://www.uwplatt.edu/department/mathematics/calculator-policies-0> (<https://www.uwplatt.edu/department/mathematics/calculator-policies-0/>) to find a link to the current calculator policies.

GENERAL REQUIREMENTS BACHELOR OF SCIENCE DEGREE

Course	Title	Credits
Total for graduation		120
General education		40-53
Major studies		40 or 64
Mathematics Major OR Mathematics Major in Mathematics Education (4-12)		40
Mathematics Major with Emphasis in Actuarial Science OR Emphasis in Finance		64

ACADEMIC STANDARDS

A grade of "C-" or better is required in all mathematics courses counted toward degree requirements.

MAJORS

- Data Science Major, B.S. (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/data-science/>)
- Mathematics Major, B.S. (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/bs/>)
 - Actuarial Science Emphasis
 - Applied Mathematics Emphasis
 - Finance Emphasis
- Mathematics Major in Mathematics Education (4-12), B.S. (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/secondary-education-bs/>)

MINORS

- Applied Statistics Minor (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/statistics-minor/>)
- Data Science Minor (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/data-science-minor/>)
- Mathematics Minor (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/minor/>)
- Mathematics Minor in Secondary Education (Non-Licensure) (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/minor-secondary-education/>)¹
- Mathematics Minor for Middle Level Teachers (Non-Licensure) (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/minor-middle-level-teachers/>)¹

¹ Completion of this minor does not lead to licensure. Please contact the School of Education (<https://catalog.uwplatt.edu/undergraduate/liberal-arts-education/education/>) with further questions

FOUR-YEAR PLANS

- Data Science Major, B.S., Four-Year Plan (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/data-science/four-year-plan/>)
- Mathematics Major, B.S., Four-Year Plan (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/bs/four-year-plan/>)
- Mathematics Major in Mathematics Education (4-12), B.S., Four-Year Plan (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mathematics/secondary-education-bs/four-year-plan/>)

FACULTY AND LECTURERS

Additional information about the Faculty and Lecturers below may be found in the Faculty and Academic Staff (<https://catalog.uwplatt.edu/faculty-academic-staff/>) section of this catalog.

Allen, Daniel W.

Attenborough, Holly E.

Barnet, Barbara A.

Black, Michael S.

Borman, Frances

Calcaterra, Robert A.

Chang, Mu-Ling

Degenhardt, Erik

Deis, Timothy M.

DesJarlais, Terry F.

Framer, Christopher

Haertzen, Kevin J.

Kwon, Miyeon

Ljumanovic, Leonida

Montgomery, Hayedeh K.

Muslu, Zehra

Obielodan, Florence F.

Paler, Mary Elvi A.

Premadasa, Anguru K. (Kirthi)

Reuter, Victoria J.

Schuetz, Camille E.

Swenson, James A.

Thrun, Jason R.

Volz, Kathleen J.

Wackwitz, Daniel J.

Wills, Sheryl L.