MATHEMATICAL SCIENCES (BA)

The Department of Mathematical Sciences offers courses in pure and applied mathematics to help students reach a wide variety of intellectual, academic, and career goals.

Many students come to the department to obtain the mathematical background needed to be successful in programs in the natural sciences, computer science, social sciences, and business. Such students may choose to supplement their major in their home department by obtaining a minor in mathematics.

Other students come to the department seeking a program leading to an undergraduate or graduate degree in one of the mathematical sciences. Undergraduate students majoring in mathematical sciences may choose one of seven areas of concentration:

- Pure Mathematics
- Statistics
- Actuarial Science
- Financial Mathematics
- Quantitative Analysis and Operations Research
- Applied and Computational Mathematics
- In consultation with a mathematics faculty advisor, undergraduate students may also create an individualized program of courses leading to a degree in mathematical sciences.

A thesis option is available to mathematics majors who wish to pursue an extended independent project related to a theoretical or applied focus of the program. Students would work under the guidance of a faculty mentor. At least 4 credits must be completed over one or two quarters prior to the thesis submission. Interested students are strongly encouraged to enroll in MAT 390 during their junior year.

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College Core Requirements

Modern Language Requirements
Students who intend to graduate with the Bachelor of Arts (BA) degree will be required to demonstrate competence in a modern language equivalent to the proficiency attained from one year of college-level language study. Such competence may be demonstrated in one of several ways:

- completing the last course in the fourth-year high school sequence of any language
- completing the last course in the first-year college sequence of any language
- completing a college course beyond the first-year level in any language
- achieving a satisfactory score on any of the Modern Language placement examinations administered at DePaul
- achieving a satisfactory rating in a proficiency examination accepted by DePaul
- achieving a score of 3 or higher on the Advance Placement (AP) test for any language
- achieving a score of 5 or higher in the Language B assessment from a Standard or Higher Level International Baccalaureate (IB) program
- achieving a satisfactory score on the CLEP examination

For further information regarding satisfactory scores and possible credit from the DePaul placement, AP, CLEP, or IB examinations, please contact Student Records.

Students who complete an Inter-College Transfer (ICT) to the College of Science and Health will abide by the College of Science and Health Modern Language Requirement in place on the effective date of the ICT.

BA students who meet College requirements and wish to pursue further work in the language may elect the "Modern Language Option" of the Liberal Studies Program. While Bachelor of Science (BS) students are not required to demonstrate competency in a modern language, the "Modern Language Option" is available to them for language study at any level.

Major Declaration Requirements

All students in the College are required to declare a major field prior to beginning their junior year. After researching College programs, the student should declare a major field by visiting Campus Connection and using the Declarations and Inter-College Transfer tool. The student will then be assigned a faculty advisor or staff advisor in the department or program and should make an appointment to see that advisor at his or her earliest convenience.

To change major fields, or to declare a minor or concentration, the student must use the Declarations and Inter-College Transfer tool described above. However, for the purpose of exploring the possibility of changing a major field, the student should consult an academic advisor in the College or an academic advisor in the Office for Academic Advising Support.

Liberal Studies Requirements

Honors program requirements can be found in the individual Colleges & Schools section of the University Catalog. Select the appropriate college or school, followed by Undergraduate Academics and scroll down.
Course Title Hours
First Year Program Chicago Quarter
LSP 110 DISCOVER CHICAGO or LSP 111 or EXPLORE CHICAGO 4

Focal Point
LSP 112 FOCAL POINT SEMINAR 4

Writing
WRD 103 COMPOSITION AND RHETORIC I 4
WRD 104 COMPOSITION AND RHETORIC II 4

Quantitative Reasoning & Technological Literacy
Not Required

Sophomore Year
Multiculturalism in the US
LSP 200 SEMINAR ON MULTICULTURALISM IN THE UNITED STATES 4

Junior Year
Experiential Learning
Required 4

Senior Year
Capstone
MAT 398 SENIOR CAPSTONE SEMINAR 4

1 Students must earn a C- or better in this course.
2 Students with a primary major in Mathematics are required to complete the Capstone offered by the Mathematics department. Students double majoring or pursuing dual degrees with the primary major or primary degree in Mathematics are required to complete the Capstone offered by the Mathematics department. Mathematics students in the University Honors Program shall take the University Honors Capstone. They are not expected to take both the Honors Capstone and the primary major or primary degree Capstone.

Learning Domains
Arts and Literature (AL) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/arts-and-literature/)
• 3 Courses Required

Historical Inquiry (HI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/historical-inquiry/)
• 2 Courses Required

Philosophical Inquiry (PI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/philosophical-inquiry/)
• 2 Courses Required

Religious Dimensions (RD) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/religious-dimensions/)
• 2 Courses Required

Scientific Inquiry (SI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/scientific-inquiry/)
• 1 SWK Course or Lab Course Required

Social, Cultural, and Behavioral Inquiry (SCBI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/social-cultural-and-behavioral-inquiry/)
• 3 Courses Required

Notes
Courses offered in the student’s primary major cannot be taken to fulfill LSP Domain requirements. If students double major, LSP Domain courses may double count for both LSP credit and the second major. Students who choose to take an experiential learning course offered by the major may count it either as a general elective or the Experiential Learning requirement.

Major Requirements

Course Requirements
Common Core
Course Title Quarter Hours
Select one of the following three-course Calculus sequences: 12-18

Sequence One
MAT 150 CALCULUS I
MAT 151 CALCULUS II
MAT 152 CALCULUS III

Sequence Two
MAT 147 CALCULUS WITH INTEGRATED PRECALCULUS I
MAT 148 CALCULUS WITH INTEGRATED PRECALCULUS II
MAT 149 CALCULUS WITH INTEGRATED PRECALCULUS III

Sequence Three
MAT 160 CALCULUS FOR MATHEMATICS AND SCIENCE MAJORS I
MAT 161 CALCULUS FOR MATHEMATICS AND SCIENCE MAJORS II
MAT 162 CALCULUS FOR MATHEMATICS AND SCIENCE MAJORS III

Sequence Four
MAT 170 CALCULUS FOR LIFE SCIENCES I
MAT 171 CALCULUS FOR LIFE SCIENCES II
and one of the following:
MAT 149 CALCULUS WITH INTEGRATED PRECALCULUS III
MAT 152 CALCULUS III
MAT 162 CALCULUS FOR MATHEMATICS AND SCIENCE MAJORS III

Sequence Five
MAT 155 SUMMER CALCULUS I
MAT 156 SUMMER CALCULUS II
MAT 260  MULTIVARIABLE CALCULUS I  4
MAT 261  MULTIVARIABLE CALCULUS II  4
MAT 262  LINEAR ALGEBRA  4

Select one of the following options:  4-8

MAT 215  INTRODUCTION TO MATHEMATICAL REASONING

MAT 140 & MAT 141  DISCRETE MATHEMATICS I and DISCRETE MATHEMATICS II (Discrete Mathematics Sequence)

CSC 241  INTRODUCTION TO COMPUTER SCIENCE I (or a more advanced course in any programming language)

MAT 398  SENIOR CAPSTONE SEMINAR (Liberal Studies Program Capstone)  4

Data Analysis Requirement, which can be satisfied via one of the following:

AP Statistics credit (score of 3 or better)

One of the following electives: MAT 137, MAT 242, MAT 341 MAT 348, IT 223, PSY 240, BIO 206, ENV 260, OR SOC 279

Courses from a concentration. The following concentration areas will automatically satisfy the data analysis requirement:

*Actuarial Science
*Financial Math
*Quantitative Analysis and Operations Research
*Statistics

1 This Calculus sequence is offered only during the summer, in two 6-credit hour courses. Students successfully completing MAT 131, MAT 147, MAT 150 or MAT 160 should enroll in MAT 155; students who successfully complete MAT 148, MAT 151 or MAT 161 should enroll in MAT 156. Students who successfully complete MAT 155 may enroll in either MAT 151 or MAT 156.

Concentration Requirements

Students must also complete the requirements from one of the following concentrations: Pure Mathematics; Statistics; Actuarial Science; Financial Mathematics; Quantitative Analysis and Operations Research; Applied and Computational Mathematics; or Individualized.

If the student chooses to declare more than one Mathematical Sciences concentration, then the student must complete the requirements for each concentration, and take at least three additional 300-level courses overall. For example, a student earning two concentrations would have taken at least nine 300-level courses, and a student earning three concentrations would have taken at least twelve 300-level courses.

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Concentrations, tracks and specializations provide focus to the major. In addition to any college core requirements, liberal studies requirements and major requirements, students are required to choose one of the following:

• Actuarial Science Concentration, Mathematical Sciences (BA) (https://catalog.depaul.edu/programs/mathematical-sciences-ba/actuarial-science-concentration-mathematical-sciences-ba/)