



Department of Mathematics and Statistics
Major in Mathematics with Concentration in Probability and Statistics
 Effective Fall 2023

Purposes of the Major

The Department of Mathematics and Statistics offers a major in Mathematical Sciences with a concentration in **Probability and Statistics**. The goals of this program are to provide students with

- broad-based and coherent preparation in the various disciplines that constitute the mathematical sciences and
- the specialized training necessary to begin a career in actuarial science, design of experiments, biostatistics, demography, and other areas related to probability and statistics.

This concentration also prepares students for continued study of the mathematical sciences at the graduate level.

The Department also offers a **minor** in Mathematics.

Advising Information

This document, **Major Requirements**, summarizes the departmental course requirements for graduating Bachelor of Science degree in mathematics with probability and statistics concentration. Consult the College Catalog for other graduation requirements, including the required **minor**.

You are strongly encouraged to talk to one or more of the **faculty advisors** in the area of probability and statistics (listed below) as you plan your academic program.

Further information about current course offerings, as well as email addresses and office hours for faculty advisors, are available through the Department's Web site at

<https://msudenver.edu/math>

Faculty Advisors in Probability and Statistics

Dr. Shahar Boneh	SI 3018	303-615-0740	bonehs@msudenver.edu
Dr. Ben Dyhr	SI 3030	303-615-0749	bdyhr@msudenver.edu
Dr. Nels Grevstad	SI 1053	303-615-0728	ngrevsta@msudenver.edu
Dr. Yanxi Li			
Dr. Elizabeth Ribble	SI 1022	303-615-0299	emcclel3@msudenver.edu

Declaring a Major

To declare a major in mathematics with concentration in probability and statistics, visit the Department of Mathematics and Statistics in SI 1022, or call (303) 615-0299. You should declare your major/concentration at least by the time you have finished the core requirements (listed below), and you absolutely must do this by the time you have completed 60 credit hours toward the degree.

Requirements for the Major ¹

Core Mathematics Courses	Semester Hours
MTH 1410 Calculus I.....	4
MTH 2410 Calculus II	4
MTH 2420 Calculus III.....	4
MTH 3100 Introduction to Mathematical Proofs.....	3

Required Mathematics Courses

All of the following courses:

MTH 3210 Probability and Statistics.....	4
MTH 3220 Statistical Methods.....	4
MTH 4210 ² Probability Theory.....	4
MTH 4230 Regression and Computational Statistics	4

One of the following two courses:

MTH 3130 Applied Methods in Linear Algebra.....	4
MTH 3140 Linear Algebra	4

One of the following four courses:

MTH 2520 R Programming	4
MTH 2540 Scientific Computing with Python.....	4
MTH 3510 SAS Programming	4
CS 1050 Computer Science I.....	4

One of the following five courses:

MTH 3230 Stochastic Processes	4
MTH 3270 Data Science	4
MTH 3430 Mathematical Modeling	4
MTH 4250 Statistical Theory	4
MTH 4410 Real Analysis I	4

Total hours required 43

¹ All courses in the major must be completed with a grade of "C-" or better

² This is the Senior Experience course

General Advising Guidelines

The suggestions below will help you complete your course of study in a timely manner. You should make every effort to follow them:

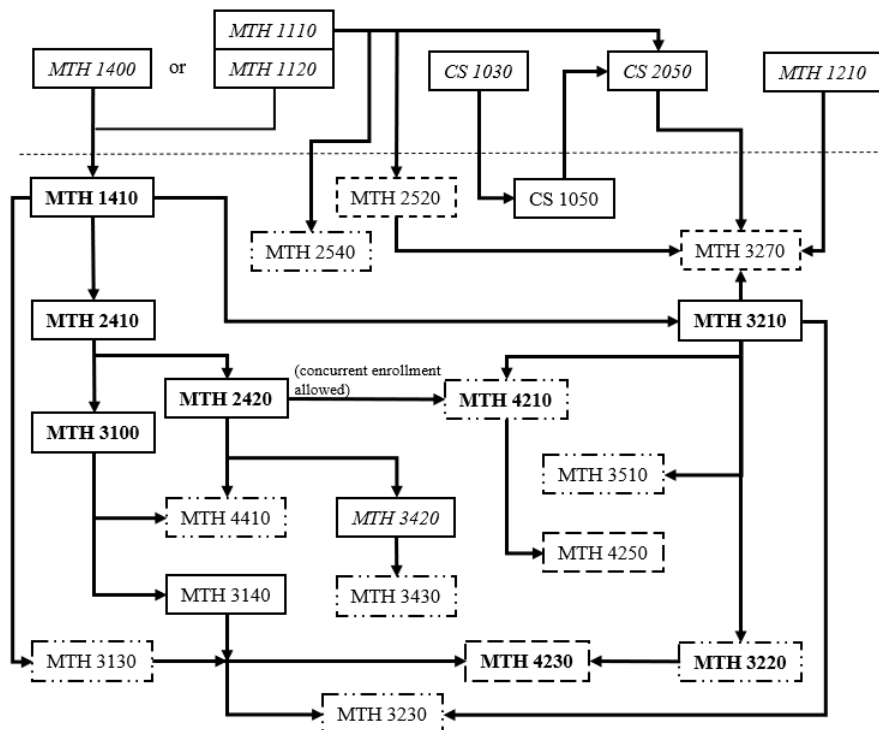
- Note that many mathematics courses are not offered every semester. Also note that, in the semesters in which they are offered, a course may only be offered during the day or in the evening. Course rotations can be found at <https://msudenver.edu/math>
- Complete the core mathematics courses and courses needed to satisfy the General Studies requirements as quickly as possible.
- Declare the major/concentration by the time you complete the core courses.
- Plan your sequence of courses with prerequisites in mind. Note that MTH 3100 is a prerequisite for most upper-division courses.
- Take no more than two upper-division mathematics courses in the same semester. To do otherwise may jeopardize your grades and content understanding.

Requirements for Transfer Students

- In order for mathematics courses from another institution to satisfy a requirement for the major, the content must match, not just the name of the course.
- You must meet all the requirements for the program based on all courses taken both at other institutions and at MSU Denver.
- You must take at least eight hours of upper-division mathematics courses at MSU Denver.
- The last 12 hours of coursework toward the degree must be taken at MSU Denver unless you have taken at least 45 hours of coursework at MSU Denver.

Prerequisite Chart for Courses in the Probability and Statistics Concentration

- *Italicized courses* are prerequisites that do not count towards the major.
- **Boldface courses** are required for the major.
- Plain text courses are electives.
- Dashed boxes indicate courses offered Spring Only.
- Dot-dashed boxes indicate courses offered Fall Only.
- Lined boxes indicate courses offered Spring & Fall.



If you would like additional information on this program or other programs offered by the Department of Mathematics and Statistics, please visit the Department's Web site at: <https://msudenver.edu/math>

Or write or call:
Metropolitan State University of Denver
Department of Mathematics and Statistics
P.O. Box 173362, Campus Box 38
Denver, Colorado 80217-3362
(303) 615-0299