

MATHEMATICAL ECONOMICS MAJOR
DEPARTMENT OF ECONOMICS AND BUSINESS and
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
THE COLORADO COLLEGE

OBJECTIVES

Students majoring in Mathematical Economics (ME) must successfully complete no fewer than 16 units of listed courses in Mathematics (MA) and Economics (EC), including a senior thesis. To solidify basic problem solving skills, all majors must initially take a common set of required courses in economic theory, calculus, linear algebra, and/or differential equations. Contingent on individual course prerequisites, majors may then directly fulfill the elective requirement which undertakes a more advanced treatment of mathematical economics, or complete a sequence of courses that provide exposure to the statistical modeling of data. This major provides strong training for students pursuing private sector careers in investment banking, forecasting, applied mathematics, or finance, as well as graduate work in economics, operations research, and financial engineering.

PREREQUISITES

Students desiring to major in ME are required to pass the following **prerequisites** prior to admission into the major. If a student has not taken all three of these courses, that student may be admitted only if currently scheduled for a later section or by consent of the department chair if mitigating circumstances exist.

To get started with this (and any of our department majors), students will need our gateway courses of Principles of Economics, either as a 2-block course (EC100) or as two separate blocks (EC101 and EC102). Students will also need Calculus 1 (MA125 or MA126), and Calculus 2 (MA 129),

EC100 EC101 EC102	Principles of Economics OR Principles of Microeconomics AND Principles of Macroeconomics	2 units
MA125 or MA126	Calculus 1	1 unit
MA129	Calculus 2	1 unit

International Baccalaureate (IB) Higher Level and Advanced Placement (AP) courses with registrar-approved test scores count as the equivalents of Economics 100, 101 and 102. Those scores, and answers to other IB and AP questions on course equivalents, can be found on the Registrar's website, [here](#).

COURSE OF STUDY FOR THE MATHEMATICAL ECONOMICS MAJOR

To graduate as a Mathematical Economics major, students must pass the all-college requirements, while completing major components consisting of eleven units of required courses, three units of electives, and two units of senior thesis for a total of 16 units in the major.

A. Required Courses (total of 11 units)

Math (6 Units)

MA125 or MA126	Calculus 1 or equivalent as approved by Math Department	1 unit
MA129	Calculus 2 or equivalent as approved by Math Department	1 unit
MA204	Calculus 3	1 unit
MA217 or MA237	Introduction to Probability and Statistics or Statistical Methods 1 (students with MA117 AP/IB credit must take MA237 instead)	1 unit
MA120	Applied Linear Algebra	1 unit
MA275	Sequences and Series	1 unit
		6 units

Economics (5 Units)

EC100 EC101 EC102	Principles of Economics OR Principles of Microeconomics AND Principles of Macroeconomics	2 units
EC301	Microeconomic Theory	1 unit
EC302	Macroeconomic Theory	1 unit
EC403	Econometric Theory	1 unit
		5 units

B. Electives (total of 3 units)**1. Economics elective**

At least one 300 or 400-level Economics elective, or other as approved in advance by the Chair of the Department of Economics and Business.

2. Mathematics elective

At least one elective from the following list, or other as approved in advance by the chair of the Department of Mathematics.

MA220 or MA221	Theoretical Linear Algebra (taught prior to AY 24-25) or Advanced Linear Algebra	1 unit
MA237**	Statistical Methods I ** (if student has taken MA217, MA237 may count as an elective)	
MA313	Probability	
MA315	Ordinary Differential Equations	
		1 unit

3. Mathematical Economics elective

At least one elective from the following list, or other as approved in advance by the chair of the Department of Economics and Business.

EC404	Advanced Topics in Mathematical Economics	1 unit
EC405	Mathematical Economics of Addiction	
EC406	Mathematical Economics of Game Theory	
EC407	Mathematical Economics of Growth	
		1 unit

C. EC 496 - Senior Thesis in Mathematical Economics (total of 2 units)

TOTAL MINIMUM REQUIRED CREDITS 16 units

DISTINCTION IN MATHEMATICAL ECONOMICS is awarded by action of both Departments (Math and Economics & Business) to up to the top 20% of graduating majors based on their GPA within the major with the provision that they have also received an A in Senior Thesis.