

REQUIREMENTS FOR THE B.A. ECONOMICS MAJOR WITH *QUANTITATIVE EMPHASIS* UNIVERSITY OF COLORADO AT BOULDER

The Economics Major with Quantitative Emphasis is designed for well-qualified economics majors with an interest in courses with a quantitative emphasis both within the Economics Department and in other departments. Students completing the program will receive a certificate from the Economics Department upon graduation.

This program is recommended for Economics majors who are considering careers or graduate programs in theoretical and applied economics. Students planning to pursue graduate studies in economics are urged to follow the theoretical track (II.B.1 below), while those interested in applied quantitative research should pursue the applied track (II.B.2). As an alternative to the Quantitative Emphasis program, students might also consider a minor in either Mathematics or Applied Mathematics. Requirements for either of these minors are available from their respective departments.

Students interested in the Economics Major with Quantitative Emphasis degree must apply to the Economics Department by October 15 or by March 15. Applications may be submitted after the student has completed six credit hours in Economics courses and six credit hours in the Department of Mathematics. Recommended courses are presented below. Applicants should have at least a 3.0 GPA in Economics and Mathematics courses completed at CU.

In addition to these requirements, transfer students must complete 6 hours of upper division Economics courses (if they have not completed ECON 3070 and 3080, they must complete at least one of these two courses) before being considered for admission.

CREDIT HOURS IN ECONOMICS

Majors in Economics with Quantitative Emphasis must present 30 hours of Economics courses (29 under track A1 below) with grades of C- or better depending on options described below. These courses must include the required courses listed below, plus enough 4000-level Economics electives to meet the total 30 hour major requirement. Majors must have a 2.0 grade average in all major work attempted. At least 24 of the semester hours must be Economics upper division courses. Hours in elective courses in excess of the 30/29-hour requirement may be taken on a pass/fail basis. Not more than 45 semester hours of economics course work may be counted toward the hours required for the B.A.

All Economics and ancillary courses must be completed with grades of C- or better. Overall and major GPA must be at least 2.0.

I. REQUIRED ECONOMICS COURSES

- A. Lower Division - Econ Requirements Note: Students may not receive credit for Econ 2010/2020 and Econ 1000.
 choose one Track 1 Econ 1000 Introduction to Economics (4 hrs.) **OR**
 Track 2 Econ 2010 Prin. of Microeconomics AND Econ 2020 Prin. of Macroeconomics (8 hrs.)
- B. Upper Division
 take both Econ 3070 Intermediate Microeconomic Theory (3 hrs.)
 Econ 3080 Intermediate Macroeconomic Theory (3 hrs.)
- C. Statistics Note: Admission to APPM and MATH courses requires satisfying APPM or MATH prerequisites.
 take one APPM 4570 Statistical Methods (3 hrs.) OR
 MATH 4520 Introduction to Mathematical Statistics (3 hrs.)
 ECON 3818 Introduction to Statistics with Computer Applications (4 hrs.)

D. Quantitative Courses in Economics

- choose two Econ 4070 Topics in Microeconomics (3 hrs.)
 Econ 4808 Intro. to Mathematical Economics (3 hrs.)
 Econ 4818 Intro. to Econometrics (3 hrs.)
 Econ 4828 Mathematical Economics: Special Topics (3 hrs.)
 Econ 4838 Microcomputer Applications in Economics (3hrs.)

Students wanting more advanced work may look into 6000-level Economics courses with permission of instructor.

E. Elective Courses in Economics

Additional Economics courses as needed to complete the minimum 29 hour major requirement for those under Track A1 above, or 30 hours for Track A2.

II. MATHEMATICS COURSES

Note: Many of the courses listed below have prerequisites. Students are responsible for completing prerequisites before enrolling in these courses.

A. Required Calculus Courses

- take both Math 1300 Analytic Geometry and Calculus 1 (5 hrs.)
 Math 2300 Analytic Geometry and Calculus 2 (5 hrs.)

B.1. Mathematics Courses for Theoretical Track

Math 2400 Calculus 3 (4 hours) AND

Six credit hours selected from the following list of courses:

- Math 3130 Intro. to Linear Algebra (3 hrs.)
Math 4310 Introduction to Analysis (3 hrs.)
Math 4120 Introduction to Operations Research (3 hrs.)
Math 4430 Ordinary Differential Equations (3 hrs.)
Math 4510 Introduction to Probability Theory (3 hrs.)*
Math 4520 Introduction to Mathematical Statistics (3 hrs.)*⁺

*APPM 3570 and APPM 4520 may substitute for MATH 4510 and 4520, respectively.

B.2. Applied Mathematics Courses for Applied Track

A total of three courses selected from courses listed below:

APPM 2360 Introduction to Linear Algebra and Differential Equations (3 hrs.) OR
Math 2400 Calculus 3 (4 hrs.)

- APPM 4570 Statistical Methods (3 hrs.)⁺
APPM 4120 Introduction to Operations Research (3 hrs.)
APPM 4580 Statistical Methods for Data Analysis (3 hrs.)

CSCI 1200 Introduction to Programming 1 (4 hrs.) OR
CSCI 1300 Introduction to Computing (4 hrs.)

⁺ Math 4520 and APPM 4570 may **not** be taken to satisfy both requirements I.C. and II.B. Each course may be used to fulfill one requirement.

For further information, please contact Janet Horn in Economics 212 or call (303) 492-5408.