

# Mathematical Economics - B.S.

College of  
Arts and Sciences

The mathematical economics major offers students a degree program that combines mathematics, statistics, and economics. In today's increasingly complicated international business world, a strong preparation in the fundamentals of both economics and mathematics is crucial to success. This degree program is designed to prepare a student to go directly into the business world with skills that are in high demand, or to go on to graduate study in economics or finance. A degree in mathematical economics would, for example, prepare a student for the beginning of a career in operations research or actuarial science.

## 120 hours (minimum)

Any student earning a Bachelor of Science (BS) degree must complete a minimum of 60 hours in natural, physical, mathematical, and computer science. Please note: courses with an ECO prefix are generally not accepted towards fulfilling this 60-hour requirement. Therefore, be sure to keep this requirement in mind as you choose your course work for the requirements in the major. A complete description of College requirements for a Bachelor of Science degree, including a specific listing of courses applicable to the 60-hour requirement, can be found in the *Arts and Sciences* section of the 2024-2025 Undergraduate Catalog.

## UK Core Requirements

See the *UK Core* section of the 2024-2025 Undergraduate Catalog for the complete UK Core requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill UK Core areas. Students should work closely with their advisor to complete the UK Core requirements.

### I. Intellectual Inquiry in Arts and Creativity

Choose one course from approved list..... 3

### II. Intellectual Inquiry in the Humanities

Choose one course from approved list..... 3

### III. Intellectual Inquiry in the Social Sciences

Choose one course from approved list..... 3

### IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences

Choose one course from approved list..... 3

### V. Composition and Communication I

CIS/WRD 110 Composition and Communication I ..... 3

### VI. Composition and Communication II

CIS/WRD 111 Composition and Communication II ..... 3

### VII. Quantitative Foundations

Choose one course from approved list..... 3

### VIII. Statistical Inferential Reasoning

STA 296 Statistical Methods and Motivations ..... 3

### IX. Community, Culture and Citizenship in the USA

Choose one course from approved list..... 3

### X. Global Dynamics

Choose one course from approved list..... 3

**UK Core hours** ..... **30**

## Graduation Composition and Communication Requirement (GCCR)

ECO 491G Applied Econometrics ..... 3

**Graduation Composition and Communication Requirement hours (GCCR)** ..... **3**

## College Requirements

I. Foreign Language (*placement exam recommended*) ..... 0-14

II. Disciplinary Requirements

a. Natural Science ..... 3

b. Social Science (*completed by Major Requirements*)

c. Humanities ..... 3

III. Laboratory or Field Work ..... 1

IV. Race and Ethnicity Requirement ..... 0-3

V. Electives ..... 6

**College Requirement hours:** ..... **13-30**

## Premajor Requirements

Choose **one** of the following two sequences:

MA 113 Calculus I

MA 114 Calculus II ..... 8

**or**

MA 137 Calculus I with Life Science Applications

MA 138 Calculus II with Life Science Applications ..... 8

**Premajor hours:** ..... **8**

## Major Requirements

### Mathematics Core Requirements

MA 213 Calculus III ..... 4

MA 214 Calculus IV ..... 3

MA 320 Introductory Probability

**or**

STA 524 Probability ..... 3

MA 322 Matrix Algebra and its Applications ..... 3

**Mathematics Core hours:** ..... **13**

### Economics Core Requirements

ECO 201 Principles of Economics I ..... 3

ECO 202 Principles of Economics II ..... 3

ECO 391 Economic and Business Statistics ..... 3

ECO 401 Intermediate Microeconomic Theory ..... 3

ECO 402 Intermediate Macroeconomic Theory ..... 3

**Economics Core hours:** ..... **15**

## Other Course Work Required for the Major

### For the Mathematics Component:

Choose **one** of the following two sequences:

MA 416G Introduction to Optimization

MA 417G Decision Making Under Uncertainty

STA 525 Introductory Statistical Inference ..... 9

**OR**

– CONTINUED –

The University of Kentucky is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award associate, baccalaureate, masters, educational specialist, and doctorate degrees. The University of Kentucky also may offer credentials such as certificates and diplomas at approved degree levels. Questions about the accreditation of the University of Kentucky may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website ([www.sacscoc.org](http://www.sacscoc.org)).

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|  |   |
|--|---|
| MA 471G Advanced Calculus I                    |   |
| MA 472G Advanced Calculus II                   |   |
| MA 417G Decision Making Under Uncertainty..... | 9 |

**For the Economics Component**

|                                      |   |
|--------------------------------------|---|
| ECO 491G Applied Econometrics.....   | 3 |
| One 300+ level economics course..... | 3 |
| One 400+ level economics course..... | 3 |

**For the Statistics Component**

|   |   |
|---|---|
| Choose STA 296 or a higher level statistics course..... | 3 |
|---|---|

**Other Major hours:** ..... **21**

**Electives**

Choose electives to lead to the minimum total of 120 hours required for graduation...6

**Total Minimum hours**

**Required for Degree** ..... **120**

*\*Course used towards completion of a UK Core Requirement.*