

ECONOMICS

THE SCHOOL OF SOCIAL SCIENCES

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DEGREES OFFERED: BA, MA, PHD

Undergraduates may major in economics or mathematical economic analysis (but not both). The major in mathematical economic analysis is recommended for students who intend to pursue graduate work in economics or a business or governmental job in which extensive analytical and quantitative skills are required.

Please note that it is primarily the responsibility of the student to satisfy all degree requirements, including the university credit requirements and university distribution requirements specified elsewhere in *General Announcements*. Students are advised that the relevant departmental requirements are those in effect on the day that the student declares economics as their major. Major requirements are not reduced for students with multiple majors, although some courses can satisfy the requirements for more than one major.

The nine fields of specialization available for graduate study are econometrics, economic development, economic theory, energy economics, industrial organization and regulation, international trade and finance, labor, macroeconomics and/or monetary theory, and public finance.

DEGREE REQUIREMENTS FOR BA IN ECONOMICS

1. All economics majors must present a minimum of 12 courses with a grade point average of at least 2.0. When students repeat courses or complete more than the minimally required number of courses, the departmental GPA will be based on the set of courses that (i) satisfies all requirements for the degree and (ii) results in the highest GPA for the student.
2. The 12 courses presented for the major in economics must include the following:

- (a) **Two courses in mathematics and statistics:**
- MATH 101 *Single Variable Calculus I* or the combination of MATH 111 *Fundamental Theorem of Calculus* and MATH 112 *Calculus and Its Applications*
 - STAT 280 *Elementary Applied Statistics*
- (b) **Four core courses in economics and econometrics:**
- ECON 201 *Microeconomics I*
 - ECON 301 *Microeconomics II*
 - ECON 303 *Macroeconomics*
 - ECON 309 *Applied Econometrics* or ECON 409 *Econometrics*
- (c) **Six electives selected from the following list (or an approved alternative). At least three of the chosen electives must be at the 400 level.**
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|---|--|
| ECON 205 <i>Introduction to Game Theory</i> | ECON 437 <i>Energy Economics</i> |
| ECON 239 <i>Business, Law, and Economics</i> | ECON 439 <i>Torts, Property, and Contracts</i> |
| ECON 243 <i>Corporate Finance</i> | ECON 443 <i>Financial Economics</i> |
| ECON 245 <i>Organizational Design</i> | ECON 445 <i>Managerial Economics</i> |
| ECON 252 <i>Religion, Ethics, and Economics</i> | ECON 447 <i>Advanced Topics in Energy Economics</i> |
| ECON 255 <i>Financial Markets</i> | ECON 450 <i>World Economic and Social Development</i> |
| ECON 284 <i>Foundations of Public Sector Economics</i> | ECON 451 <i>The Political Economy of Latin America</i> |
| ECON 307 <i>Probability and Statistics</i> | ECON 455 <i>Money and Financial Markets</i> |
| ECON 309 <i>Applied Econometrics</i> | ECON 461 <i>Urban Economics</i> |
| ECON 399 <i>Independent Research</i> | ECON 479 <i>Economic Modeling and Public Policy</i> |
| ECON 401 <i>Mathematical Structure of Economic Theory</i> | ECON 480 <i>Environmental Economics</i> |
| ECON 405 <i>Game Theory and Economic Behavior</i> | ECON 481 <i>Health Economics</i> |
| ECON 409 <i>Econometrics</i> | ECON 482 <i>Distributive Justice</i> |
| ECON 415 <i>Labor Economics</i> | ECON 483 <i>Public Finance: Tax Policy</i> |
| ECON 420 <i>International Economics</i> | ECON 484 <i>Public Goods and Public Expenditure Theory</i> |
| ECON 421 <i>International Finance</i> | ECON 485/486 <i>Special Topics in Economics</i> |
| ECON 435 <i>Industrial Organization</i> | |
| ECON 436 <i>Economics of Regulation</i> | |

TRANSFER CREDIT

In some cases, transfer credit may be awarded for courses taken at other schools after the student has matriculated at Rice. Students may present a maximum of three such transfer courses in fulfilling item (2). (Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major.) AP credits and credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the limit on transfer courses, but all students must complete more than half of their upper-level major work at Rice. In order to receive transfer credit for ECON 201, students must pass a qualifying examination. Students wishing to take the ECON 201 qualifying examination must apply to the economics department office in Baker Hall 255. For additional information on transfer credits, consult “Procedures for Transfer Credit,” available on the economics department’s website at <http://www.ruf.rice.edu/~econ/undergrad.html>.

DEGREE REQUIREMENTS FOR BA IN MATHEMATICAL ECONOMIC ANALYSIS

1. All MTEC majors must present a minimum of 16 courses with a grade point average of at least 2.00. When students repeat courses or complete more than the minimally required number of courses, the departmental GPA will be based on the set of courses that (i) satisfies all requirements for the degree and (ii) results in the highest GPA for the student.
2. The 16 courses presented for the major in mathematical economic analysis must include the following:

(a) Four courses in mathematics:

MATH 101 *Single Variable Calculus I*

MATH 102 *Single Variable Calculus II*

MATH 211 *Ordinary Differential Equations* or

MATH 355 *Linear Algebra* or CAAM 335 *Matrix Analysis*

MATH 212 *Multivariable Calculus*

(b) Six core courses in economics and statistics/econometrics:

ECON 201 *Microeconomics I*

ECON 301 *Microeconomics II*

ECON 303 *Macroeconomics*

ECON 307/STAT 310 *Probability and Statistics*

or STAT 410 *Introduction to Regression and Statistical Computing* or STAT 431 *Overview of Mathematical Statistics*

ECON 401 *Mathematical Structure of Economic Theory*

ECON 409 *Econometrics*

(c) Six electives selected from the following list (or an approved alternative). At least three of the chosen electives must be at the 400 level.

ECON 205 *Introduction to Game Theory*

ECON 239 *Business, Law, and Economics*

ECON 243 *Corporate Finance*

ECON 245 *Organizational Design*

ECON 252 *Religion, Ethics, and Economics*

ECON 255 *Financial Markets*

ECON 284 *Foundations of Public Sector Economics*

ECON 309 *Applied Econometrics*

ECON 399 *Independent Research*

ECON 405 *Game Theory and Economic Behavior*

ECON 415 *Labor Economics*

ECON 420 *International Economics*

ECON 421 *International Finance*

ECON 435 *Industrial Organization*

ECON 436 *Economics of Regulation*

ECON 437 *Energy Economics*

ECON 439 *Torts, Property, and Contracts*

ECON 443 *Financial Economics*

ECON 445 *Managerial Economics*

ECON 447 *Advanced Topics in Energy Economics*

ECON 450 *World Economic and Social Development*

ECON 451 *The Political Economy of Latin America*

ECON 455 *Money and Financial Markets*

ECON 461 *Urban Economics*

ECON 479 *Economic Modeling and Public Policy*

ECON 480 *Environmental Economics*

ECON 481 *Health Economics*

ECON 482 *Distributive Justice*

ECON 483 *Public Finance: Tax Policy*

ECON 484 *Public Goods and Public Expenditure Theory*

ECON 485/486 *Special Topics in Economics*

TRANSFER CREDIT

In some cases, transfer credit may be awarded for courses taken at other schools after the student has matriculated at Rice. Students may present a maximum of two such transfer courses in fulfilling requirement (2a). Additionally, students may present a maximum of three such transfer courses in fulfilling requirements (2b) and (2c) combined. (Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major.) AP credits and credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the limit on transfer

courses, but all students must complete more than half of their upper-level major work at Rice. In order to receive transfer credit for ECON 201, students must pass a qualifying examination. Students wishing to take the ECON 201 qualifying examination must apply to the economics department office in Baker Hall 255. For additional information on transfer credits, consult "Procedures for Transfer Credit," available on the economics department's website at <http://www.ruf.rice.edu/~econ/undergrad.html>.

REQUIREMENTS FOR DEPARTMENTAL HONORS

1. Candidates for departmental honors in economics or mathematical economic analysis must achieve an average grade of at least 3.67 in the courses presented for their major.
2. Candidates for departmental honors in economics and honors in mathematical economic analysis also must submit a research paper for review by the departmental Honors Review Committee.
 - The paper may be the product of an earlier class, or it may be the product of an ECON 399 project. In either case, the paper must be more substantial than what would typically be produced in only one semester.
 - The paper must be nominated for honors review by the faculty member under whose instruction the paper was written.
 - Departmental honors will require committee affirmation that the paper meets the standard for honors research. In particular, the paper must contain a core component of work that is original to the student and that reflects the student's own independent thought. Survey papers that mainly summarize the work of others will not meet this standard. Submitted papers must conform with proper citation practices as described in the Honor Council's "Blue Book." Please note that students must cite advisors' contributions as well.
 - Students are urged to complete either an ECON 399 project or a suitable paper for another course before their final semester at Rice. Students could then extend and improve their work as necessary prior to the honors review that would occur near the end of their final semester at Rice.

For additional information regarding departmental honors, please refer to the economics department website.

CONCENTRATION IN BUSINESS ECONOMICS

Students who complete the requirements for a major in economics or a major in mathematical economic analysis also may request a certification from the department that they have completed the requirements for a concentration in business economics. To qualify, a student must have completed the following courses with minimum grade point average of at least 2.0:

- BUSI 305 *Introduction to Accounting*
- ECON 239 *Business, Law, and Economics*
- ECON 243 *Corporate Finance*
- ECON 255 *Financial Markets*
- ECON 445 *Managerial Economics*

DEGREE REQUIREMENTS FOR PHD IN ECONOMICS

Preparation for PhD Program. Applicants to the PhD program should have had at least two semesters in calculus and one in linear algebra. Students who have not met these requirements may complete these prerequisites as Class

III students (Graduate Students section, pages 24–25) before being admitted to the graduate program. All applicants are required to take the Graduate Record Exam.

Requirements. For general university requirements, see Graduate Degrees (Graduate Students section, page 3–4). Candidates for the PhD degree usually spend from two to two and a half years in full-time course work and at least one year writing the dissertation; four to five years is a reasonable goal for completing the program. For the PhD, students must:

- Complete an approved program of at least 18 courses (including approved courses in other departments), no more than four of which are research workshops
- Perform satisfactorily on the written general examinations in microeconomics, macroeconomics, and econometrics
- Demonstrate proficiency in a major field by taking the relevant courses in that field and performing satisfactorily on a written examination
- Complete and defend orally a doctoral dissertation setting forth in publishable form the results of original research

See ECON in the Courses of Instruction section.