BACHELOR OF ARTS (BA) DEGREE WITH A MAJOR IN MATHEMATICAL ECONOMIC ANALYSIS

Program Learning Outcomes for the BA Degree with a Major in Mathematical Economic Analysis

Upon completing the BA degree with a major in Mathematical Economic Analysis, students will have:

1. Learned the core principles of microeconomics, including supply and demand, utility maximization by consumers and profit maximization by firms, and equilibrium market structures.
2. Learned the core principles of macroeconomics, including the effects of monetary and fiscal policy, business cycles, determinants of growth, and a variety of approaches to researching and critically analyzing the macroeconomy.
3. Learned various statistical and econometric skills, and used statistical software to analyze economic data, interpret and communicate statistical results, both orally and in writing.
4. Learned how to apply advanced mathematical skills, including multivariate calculus, linear algebra, and optimization, to modeling of economic problems.

Requirements for the BA Degree with a Major in Mathematical Economic Analysis

For general university requirements, see Graduation Requirements (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/). Students pursuing the BA degree with a major in Mathematical Economic Analysis must complete:

- A minimum of 18-20 courses (52-59 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 8 courses (26 credit hours) taken at the 300-level or above.
- A maximum of 5 courses (15 credit hours) from study abroad or transfer credit *after* matriculation at Rice may be applied towards specific major requirements. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

Code	Title	Credit Hours
	Total Credit Hours Required for the Major in Mathematical Economic Analysis	52-59
	Total Credit Hours Required for the BA Degree with a Major in Mathematical Economic Analysis	120

Degree Requirements

Code	Title	Credit Hours
Core Requirements		
Mathematics and Statistics [1]		
MATH 101	SINGLE VARIABLE CALCULUS I	3
or MATH 105	AP/OTH CREDIT IN CALCULUS I	
MATH 102	SINGLE VARIABLE CALCULUS II [1,2]	3
or MATH 106	AP/OTH CREDIT IN CALCULUS II	
Select 1 from the following:		*3-6*
MATH 212	MULTIVARIABLE CALCULUS	
MATH 221 & MATH 222	HONORS CALCULUS III and HONORS CALCULUS IV	
Select 1 course from the following:		*3-4*
ECON 307 / STAT 310	PROBABILITY AND STATISTICS	
STAT 311	HONORS PROBABILITY AND MATHEMATICAL STATISTICS	
STAT 315 / DSCI 301	PROBABILITY AND STATISTICS FOR DATA SCIENCE	
Economics and Econometrics [1]		
ECON 100	PRINCIPLES OF ECONOMICS [1,2]	3
ECON 200	MICROECONOMICS	4
ECON 203	MACROECONOMICS	3
ECON 209	APPLIED ECONOMETRICS	4
ECON 305	GAME THEORY AND OTHER MICRO TOPICS FOR MTEC MAJORS	3
ECON 308	MATHEMATICAL ECONOMICS	4
ECON 310 / STAT 376	ECONOMETRICS	4
Select 1 from the following:		*3-6*
ECON 496	RESEARCH IN ECONOMIC THEORY	
ECON 497	RESEARCH IN ECONOMETRICS	
ECON 498 & ECON 499	HONORS PROGRAM IN ECONOMICS-I and HONORS PROGRAM IN ECONOMICS-II	
Elective Requirements [1,2,3,4]		
Select 1 course from the following:		*3*
ECON 210	BEHAVIORAL ECONOMICS	
ECON 239	LAW AND ECONOMICS	
	Courses between ECON 320-ECON 495	
Select 3 courses from the following:		*9*
	Courses between ECON 410-ECON 495	
Total Credit Hours Required for the Major in Mathematical Economic Analysis		**52-59**
Additional Credit Hours to Complete Degree Requirements [*]		30-37

University Graduation Requirements (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/) *		31
Total Credit Hours		**120**

Footnotes and Additional Information

* **Note:** University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying FWIS or distribution requirements may additionally meet other requirements, such as the Analyzing Diversity (AD) requirement, or some of the student's declared major, minor, or certificate requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 *After matriculation:* In some cases, transfer credit may be approved by the economics department for courses completed at other schools after the student has matriculated at Rice. Students may present a maximum of 2 such transfer courses in fulfilling the mathematics and statistics core requirements, and a maximum of 3 such transfer courses in fulfilling the economics/econometrics core requirements ~~and~~ elective requirements combined. (Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major.)
Before matriculation: Credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the departmental limit on transfer courses, but all students must complete more than half of their upper-level major coursework (300-level and 400-level courses) at Rice.

2 Students who have received credit for ECON 111 and ECON 113 and have made a grade of B- or better in MATH 102 (taken at Rice University) may substitute any Economics major elective for ECON 100. Students must notify the department's Director of Undergraduate Studies if they wish to exercise this option.

3 As specified in their course descriptions, the following courses do not satisfy the Electives requirement for the major in Mathematical Economic Analysis: ECON 101, ECON 103, ECON 111, ECON 113, ECON 205, ECON 260, ECON 270, ECON 275, ECON 280, ECON 499. In addition, BUSI 343 may be substituted for ECON 343, and STAT 449 may be substituted for ECON 449.

4 Students may select up to 1 course (3 credit hours) from approved coursework outside departmental (ECON) course offerings (see course list below).

Approved Electives

With advisor approval, up to 1 course (3 credit hours) from outside departmental (ECON) course offerings may be chosen to fulfill Elective Requirements.

Code	Title	Credit Hours
Approved Electives outside Economics (ECON)		
BUSI 401	FINANCIAL STATEMENT ANALYSIS	3
BUSI 447	ADVANCED CORPORATE FINANCE	3
BUSI 448	INVESTMENTS	3
BUSI 450	DERIVATIVES	3
CMOR 462	OPTIMIZATION METHODS IN FINANCE	3
STAT 482	QUANTITATIVE FINANCIAL ANALYTICS	3

Policies for the BA Degree with a Major in Mathematical Economic Analysis

Program Restrictions and Exclusions

Students pursuing the major in Mathematical Economics Analysis should be aware of the following program restrictions:

- Students pursuing the major in Mathematical Economics Analysis may not additionally declare the major in Economics.
- Students pursuing the major in Mathematical Economics Analysis may not additionally declare the major in Managerial Economics and Organizational Sciences.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/transfer-credit/). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors (https://oaa.rice.edu/advising-network/transfer-credit-advisors/) on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Mathematical Economics Analysis should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

- No more than 5 courses (15 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards specific major requirements **after** matriculation at Rice as follows:
  - No more than 2 courses (6 credit hours) of transfer credit may apply towards the mathematics and statistics core requirements
  - No more than 3 courses (9 credit hours) of transfer credit may apply towards the economics/econometrics core requirements and the elective requirements combined

Please Note: Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major. Credits awarded to transfer students for courses taken *prior* to matriculation at Rice are not counted against the departmental limit on transfer courses, but all students must complete more than half of their upper-level major coursework (300-level and 400-level courses) at Rice.

Additional Information

For additional information, please see the Economics website: https://economics.rice.edu/

Opportunities for the BA Degree with a Major in Mathematical Economic Analysis

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (https://ga.rice.edu/undergraduate-students/honors-distinctions/university/) (*summa cum laude*, *magna cum laude*, and *cum laude*) and Distinction in Research and Creative Work (https://ga.rice.edu/undergraduate-students/honors-distinctions/university/). Some departments have department-specific Honors awards or designations.

Requirements for Departmental Honors

1. To earn departmental honors in economics, students must earn a grade of B+ (3.33 grade points) or better in each semester of the department's two-semester honors program, ECON 498 and ECON 499.
2. The honors program is available to both ECON and MTEC majors.
3. To be admitted to the honors program, students:
   a. must have a GPA of 3.67 or better in all courses taken toward fulfilling their departmental major requirements at the beginning of the academic year in which they enter the honors program;
   b. must have completed all of the core requirements for their major;
   c. must have completed the 400-level course or courses most closely related to their area of research, and
   d. must be accepted to the honors program by the professor supervising the program.
4. For additional information, consult the *Honors Program* tab on the department website (https://economics.rice.edu/undergraduate-program/honors-program/).

Additional Information

For additional information, please see the Economics website: https://economics.rice.edu/