

# Mathematics-Economics

The Mathematics Economics concentration is designed to give a background in economic theory plus the mathematical tools needed to analyze and develop additional theoretical constructions. The emphasis is on the abstract theory itself. Students may choose either the standard or the professional track, both award a Bachelor of Arts degree. If you are interested in declaring a concentration in Mathematics Economics, please refer to this page for more information regarding the process.

## Standard Mathematics-Economics Concentration Honors:

### Economics

ECON 1130	Intermediate Microeconomics (Mathematical) <sup>1</sup>	1
ECON 1210	Intermediate Macroeconomics	1
ECON 1630	Mathematical Econometrics I	1
Two courses from the "mathematical-economics" group: <sup>2</sup>		2
ECON 1170	Welfare Economics and Social Choice Theory	
ECON 1225	Advanced Macroeconomics: Monetary, Fiscal, and Stabilization Policies	
ECON 1255	Unemployment: Models and Policies	
ECON 1470	Bargaining Theory and Applications	
ECON 1490	Designing Internet Marketplaces	
ECON 1545	Topics in Macroeconomics, Development and International Economics	
ECON 1560	Economic Growth	
ECON 1640	Mathematical Econometrics II	
ECON 1660	Big Data	
ECON 1670	Advanced Topics in Econometrics	
ECON 1680	Machine Learning, Text Analysis, and Economics	
ECON 1750	Investments II	
ECON 1770	Crisis Economics	
ECON 1805	Experimental and Behavioral Economics	
ECON 1820	Theory of Behavioral Economics	
ECON 1860	The Theory of General Equilibrium	
ECON 1870	Game Theory and Applications to Economics	
One course from the "data methods" group: <sup>2</sup>		1
ECON 1301	Economics of Education I	
ECON 1310	Labor Economics	
ECON 1315	Health, Education, and Social Policy	
ECON 1330	Gender and Development	
ECON 1340	Economics of Global Warming	
ECON 1345	Climate Change and the Commons	
ECON 1355	Environmental Issues in Development Economics	
ECON 1360	Health Economics	
ECON 1375	Inequality of Opportunity in the US	
ECON 1385	Intergenerational Poverty in America	
ECON 1400	The Economics of Mass Media	
ECON 1410	Urban Economics	
ECON 1430	The Economics of Social Policy	
ECON 1510	Economic Development	
ECON 1530	Health, Hunger and the Household in Developing Countries	
ECON 1629	Applied Research Methods for Economists	
ECON 1640	Mathematical Econometrics II	

ECON 1660	Big Data	
ECON 1670	Advanced Topics in Econometrics	
ECON 1680	Machine Learning, Text Analysis, and Economics	
ECON 1825	Behavioral Economics and Public Policy	
ECON 1830	Behavioral Finance	
Two additional 1000-level economics courses <sup>3</sup>		2
<b>Mathematics</b>		
Calculus: MATH 0180 or higher		1
Linear Algebra - one of the following:		1
MATH 0520	Linear Algebra	
MATH 0540	Linear Algebra With Theory	
Probability Theory - one of the following:		1
MATH 1210	Probability (Formerly MATH 1610)	
MATH 1620	Mathematical Statistics	
APMA 1650	Introduction to Probability and Statistics with Calculus	
Analysis - one of the following:		1
MATH 1010	Analysis: Functions of One Variable	
MATH 1630	Real Analysis I (Formerly MATH 1130)	
MATH 1640	Real Analysis II (Formerly MATH 1140)	
Differential Equations - one of the following:		1
MATH 1110	Ordinary Differential Equations	
MATH 1120	Partial Differential Equations	
One additional course from the Probability, Analysis, and Differential Equations courses listed above		1
<b>Total Credits</b>		<b>14</b>

<sup>1</sup> Or ECON 1110 with permission. For students matriculating at Brown in Fall 2021 or later, note that if ECON 1110 is used, then one additional course from the mathematical-economics group will be required

<sup>2</sup> No course may be "double-counted" to satisfy both the mathematical-economics and data methods requirement.

<sup>3</sup> Students may apply, at most, one Economics course whose number is in the range of 1000 to 1099 toward the concentration. Note that ECON 1620, ECON 1960, and ECON 1970 (independent study) cannot be used for concentration credit. However, ECON 1620 and ECON 1960 can be used for university credit and up to two 1970s may be used for university credit.

<sup>4</sup> MATH 1630 (formerly MATH 1130) is a prerequisite for MATH 1640 (formerly MATH 1140).

## Honors

Students who meet stated requirements are eligible to write an honors thesis in their senior year. Students should consult the listed honors requirements of whichever of the two departments their primary thesis advisor belongs to, at the respective departments' websites.

## Professional Track:

The requirements for all undergraduate professional tracks within concentrations are standardized and additional information can be found here:

<https://bulletin.brown.edu/undergradprotrack/>