

## DEPARTMENT OF ECONOMICS

### Undergraduate Study

#### **Bachelor of Science in Economics (Course 14-1)**

Course 14-1, leading to the Bachelor of Science in Economics (<https://catalog.mit.edu/degree-charts/economics-course-14>), provides students with a breadth and depth of training in economics that is unusual at the undergraduate level. It combines training in technical economics with in-depth exploration of students' areas of interest. Students choose from a diverse set of upper-level undergraduate subjects and are encouraged to engage in independent research.

The aims of the SB in Economics degree program are threefold: to give students a firm grounding in economic theory and data analysis, to develop in-depth knowledge of particular economic issues, and to develop students' capabilities for independent research. These aims correspond roughly to the requirements in the Course 14-1 program of theory, statistics and econometrics, electives, and research.

The requirements allow substantial freedom for students in designing individual programs within economics and in balancing the program with subjects in other disciplines. The ample elective slots let students apply their technical skills to develop a deep understanding of whatever interests them, whether that is poverty in developing countries, international trade, game theory, for example. The department recommends that students interested in graduate work in economics build their technical skills with additional subjects in mathematics and computer science. Students can also complement their studies in the major with subjects in political science, history, and other social sciences.

The major is sufficiently flexible that students can transfer into the major or add it as a second major without having taken courses beyond 14.01 Principles of Microeconomics and 14.02 Principles of Macroeconomics in the first two years. Students typically complete an intermediate micro subject, 14.05 Intermediate Macroeconomics, 14.30 Introduction to Statistical Methods in Economics, and 14.32 Econometric Data Science by the third year. This satisfies the prerequisites for all subjects (including 14.33 Research and Communication in Economics: Topics, Methods, and Implementation) and prepares students for research on their thesis and in other elective subjects.

#### **Bachelor of Science in Mathematical Economics (Course 14-2)**

The SB in Mathematical Economics (<https://catalog.mit.edu/degree-charts/mathematical-economics-course-14-2>) is designed for students who desire a deeper mathematical foundation and allows them to concentrate in a subset of economics topics. This program is well suited to students interested in mathematical microeconomic theory or econometrics. Students will gain the strong mathematical

and theoretical preparation needed for subsequent graduate study in economics.

Students majoring in Mathematical Economics start with the same introductory micro and macro courses as 14-1 majors. They go on to take a program that includes rigorous mathematical training in microeconomic theory and econometrics, and substantial coursework in mathematics, including 18.100x Real Analysis, a choice between 18.06 Linear Algebra or 18.03 Differential Equations, and at least one mathematics seminar.

#### **Bachelor of Science in Computer Science, Economics, and Data Science (Course 6-14)**

The Department of Electrical Engineering and Computer Science (<https://catalog.mit.edu/schools/engineering/electrical-engineering-computer-science>) and the Department of Economics (p. 3) offer a joint curriculum leading to a Bachelor of Science in Computer Science, Economics and Data Science (Course 6-14) (<https://catalog.mit.edu/degree-charts/computer-science-economics-data-science-course-6-14>). The interdisciplinary major provides students a portfolio of skills in economics, computing, and data science that are increasingly valued in both the business world and academia. The economics and computer science disciplines have a substantial overlap both in their reliance on game theory and mathematical modeling techniques and their use of data analytics. The economics side of the program includes subjects in microeconomic theory and econometrics and electives that expose students to how economists in various fields use mathematical models and statistical evidence to think about problems. The computer science side includes a number of subjects that develop complementary knowledge, including the study of algorithms, optimization, and machine learning (which is increasingly integrated with econometrics). The program also includes coursework in several mathematical subjects, including linear algebra, probability, discrete mathematics, and statistics, which can be taken in various departments.

The Course 6-14 major is also well suited to students whose primary interest is in game theory and mathematical modeling. It can prepare students for graduate study in either discipline.

#### **Minor in Economics**

The objective of the minor is to extend the understanding of economic issues beyond the level of the concentration. This is done through specialized analytical subjects and elective subjects that provide an extensive treatment of economic issues in particular areas.

The Minor in Economics consists of six subjects arranged into three levels of study:

Tier I		
14.01	Principles of Microeconomics <sup>1</sup>	12
14.02	Principles of Macroeconomics <sup>1</sup>	12

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14.30	Introduction to Statistical Methods in Economics	12
or 18.05	Introduction to Probability and Statistics	
<b>Tier II</b>		
Select one of the following:		12
14.03	Microeconomic Theory and Public Policy	
14.04	Intermediate Microeconomic Theory	
14.05	Intermediate Macroeconomics	
<b>Tier III</b>		
Select two elective subjects in applied economics. <sup>2</sup>		24
<b>Total Units</b>		<b>72</b>

<sup>1</sup> Under no circumstances may a student complete a minor with fewer than six subjects. Any student who receives permission from the Economics Department to skip 14.01 and/or 14.02 in order to take a higher-level subject must take a replacement subject for each subject that is skipped.

<sup>2</sup> See the department's website for a list of available subjects (<http://economics.mit.edu/under/minors>).

**Inquiries**

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