

## Minoring and Concentrating in Economics

The Economics Department offers a HASS concentration in economics and a minor in economics. For details see the websites <http://economics.mit.edu/under/concentrate> and <http://economics.mit.edu/under/minors>.

### Undergraduate Programs in Economics

The Economics Department at MIT has a long tradition of outstanding training of undergraduates. The unique analytical skills of the MIT undergraduate student body allow the faculty to offer a rigorous and comprehensive program unlike that of any other U.S. college or university. The Department of Economics offers three undergraduate majors: **Economics** (14-1), **Mathematical Economics** (14-2) and **Computer Science, Economics, and Data Science** (6-14). The 14-1 major tends to be most suitable for students who want to pursue a career in consulting, finance, public policy, and industry. The 14-2 major is tailored more to those who wish to pursue graduate study (for a career in research, policy, finance, or consulting), and provides a firmer mathematical background in preparation for such study. The 6-14 major is jointly offered with EECS and provides training for students who seek careers that apply data analysis, algorithms, and statistics to a wide range of problems (such as those in industry, technology, policy, finance, and consulting).

All three majors provide training in microeconomics, macroeconomics, statistics, and econometrics. Students also have a choice of additional applied and advanced courses to draw upon from a menu that includes economic development, economic theory, health economics, industrial organization, international economics, labor economics, monetary economics, public economics, and other courses.

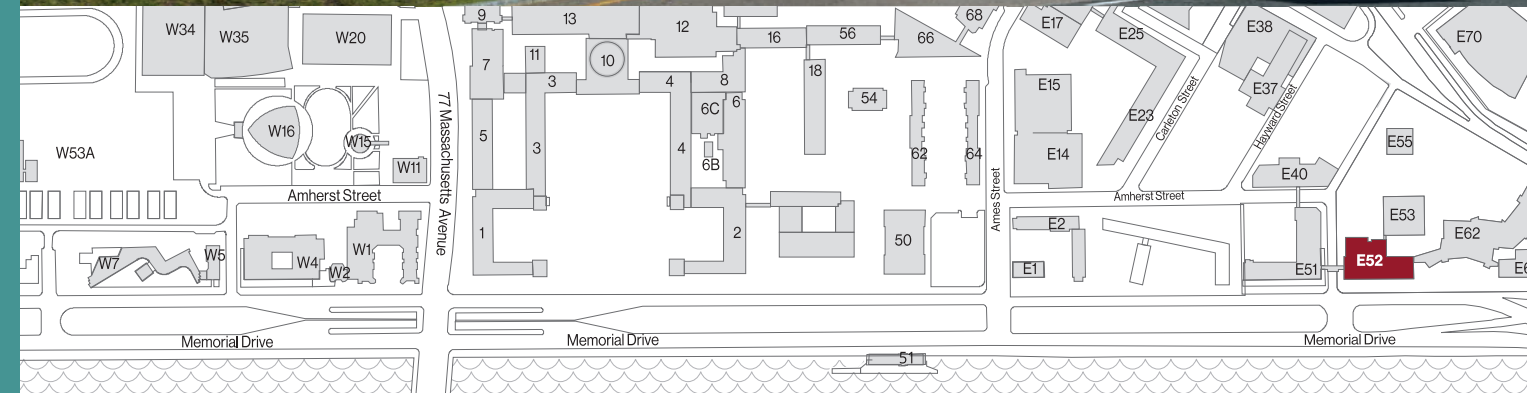
The Economics Department firmly believes that some experience with actual economic research is a vital component of MIT Economics training. In addition to the thesis, there are three primary channels through which undergraduate majors acquire research experience. The first is through the Project Lab which is required as part of 14.33 (Economics Research and Communication). Each student in 14.33 prepares a study of an applied economics question. Topics vary widely, from the measurement of how price changes affect the demand for particular products to studies of how monetary or fiscal policies have affected interest rates, unemployment, or output in various countries. The Project Lab in 14.33 provides an excellent opportunity for undergraduate majors to combine their knowledge of economic principles from intermediate subjects with careful data analysis to study a topic of their own choosing.

Second, undergraduate students take advantage of numerous opportunities to hone their research skills. One such opportunity is MIT's Undergraduate Research Opportunities Program (UROP), which fosters close ties between undergraduates and faculty members. Students in the UROP program work closely with faculty members and graduate students to bring the technical skills of modern economics to bear on questions of economic importance. UROPs supplement coursework, and UROP positions allow undergraduates to participate in ongoing research in the Department and to meet with faculty members outside of class. They perform tasks such as gathering and analyzing economic data, writing computer programs, checking mathematical calculations, and assembling research materials.

Finally, other opportunities for undergraduates to become involved in research are provided through summer employment on research projects directed by faculty members in the department, or through summer internships in government, industry, or research organizations. Each summer a few students who have made contact with faculty members through classes or UROP projects are employed as part of research teams consisting of faculty members, graduate students, and undergraduates. There is no sure-fire way of obtaining these jobs, but UROP involvement is often a first step. Alternatively, interested students should contact faculty.

# MIT Economics

MIT SCHOOL OF HUMANITIES, ARTS, & SOCIAL SCIENCES  
great ideas change the world



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## Undergraduate Studies in MIT Economics

Hal Varian, Chief Economist, Google, SB '69:  
"My MIT education taught me to ask the right questions, and every now and then come up with an answer for one of them."

"I study economics because it's never boring. You develop a way of thinking that has the power to change how you look at an enormous range of issues. What could be more exciting than that?"

"I study economics because the discipline economics imposes on the way to think helps us get answers to the most interesting and important questions in the world."

"I study economics because I want to provide rigorous empirical evidence on how best to design public policies so as to improve people's health and well-being."

"I study economics because it provides a framework for understanding a wide range of human behaviors, and offers a coherent set of analytical tools for analyzing and improving public policy."

## Economics Major (14-1)

The Course 14-1 Program leads to the degree of Bachelor of Science in Economics. In addition to fulfilling the 17 General Institute Requirements<sup>1</sup>, an economics major must complete the following subjects<sup>2</sup>:

- 14.01** Principles of Microeconomics (students with a score of 5 on the Economics AP exam may choose to substitute 14.03 Micro Theory and Public Policy.)
  - 14.02** Principles of Macroeconomics
  - 14.05** Intermediate Applied Macroeconomics (or both CI-M 14.18 and either 14.06 or 14.07)
  - 14.30** Introduction to Statistical Methods in Economics (or 18.650)
  - 14.32** Econometric Data Science
  - 14.33** Econ. Research & Communication (CI-M)<sup>3</sup>
- Choice of intermediate micro subject (see website)
- Thesis (14.18 or 14.33 is a prerequisite)<sup>4</sup>

48 units of Economics Electives (or 4 full subjects)

Course 14.01 and the intermediate micro requirement provide a strong background in microeconomic analysis, and 14.02 and 14.05 do the same for macroeconomics. These are the two broad and fundamental areas of modern economics. 14.30 and 14.32 give a firm grounding in techniques for analyzing data and testing economic models. 14.18 and 14.33 require a term paper that analyzes a body of data on an economic question.

The 48 units (or 4 full subjects) of electives may be satisfied from the list of undergraduate subjects (see link below) designed to generally enrich the background of the student in economic institutions and the analysis of policy problems:

Please visit our website for more information regarding the class list and the curriculum: <http://economics.mit.edu/under/majors><sup>5</sup>

## Double Majoring in Economics

Students may combine 14-1 major with a major in any other department. In order to receive two majors, students must complete the 17 GIRs and the departmental requirements for both majors. Some double-major combinations are more popular than others. Course 14-1 double majors with 6, 15, and 18 are especially popular.

Primary majors may count three of their economics subjects toward the eight-subject HASS requirement, whereas secondary majors may count six of their economics subjects.

## Economics and Society's Toughest Problems 14.009

Should we trade more with China? Why are some countries poor, and some countries rich? Why are the 1% getting richer? Should the U.S. have universal health insurance? How can you fix failing schools? What should we do to prevent the next Great Recession? Economics shows you how to think about some of the toughest problems facing society – and how to use data to get some answers. This exploratory course will feature a series of lectures by MIT's economics faculty, showing how their cutting-edge research can help you answer these questions and more.

This course aims to introduce students to the wide variety of challenges economists confront, the types of theoretical frameworks economists use to think about them, and how economists use data, natural experiments, and real experiments to get answers. No pre-requisites are required.

- <sup>1</sup> Note that up to three Economics elective subjects may be used in partial satisfaction of the HASS requirement, that 14.30 (Statistics) may be counted toward the REST requirement, and that 14.32 (Econometric Data Science) may be used to satisfy the Institute laboratory requirement.
- <sup>2</sup> Students must earn grades of C or better in 14.01, 14.02, 14.30, and 14.32 in order to fulfill departmental requirements.
- <sup>3</sup> Students who take 14.05 must take a CI-M in Mathematics that offers instruction in both oral and written communication (18.104, 18.204, 18.384, 18.424, 18.434, 18.504, 18.704, 18.784, 18.821, 18.904, or 18.994).

## Mathematical Economics Major (14-2)

The Course 14-2 program leads to the degree of Bachelor of Science in Mathematical Economics. In addition to fulfilling the 17 General Institute Requirements<sup>1</sup>, a mathematical economics major must take the following subjects<sup>2</sup>:

- **14.01** Principles of Microeconomics (students with a score of 5 on the Economics AP exam may choose to substitute 14.03 Micro Theory and Public Policy.)
  - **14.02** Principles of Macroeconomics
  - **14.30** Introduction to Statistical Methods in Economics (or 18.650)
  - **14.32** Econometric Data Science
  - **18.100** Real Analysis
- One of (CI-M in Economics):
- **14.05** Intermediate Macroeconomics<sup>3</sup>
  - **14.18** Mathematical Economic Modeling
  - **14.33** Econ. Research & Communication

- One of the following CI-Ms in Mathematics (or an approved alternative):

- **18.100P/Q** Real Analysis
- **18.104** Seminar in Analysis
- **18.504** Seminar in Logic
- **18.784** Seminar in Number Theory

-One of:

- **14.04** Intermediate Microeconomic Theory
- **14.12** Economic Applications of Game Theory
- **14.15J** Networks
- **14.19** Market Design

-One of:

- **18.03** Differential Equations
- **18.06 (or 18.061)** Linear Algebra

- 36 units of electives (or three full subjects - at least one in Mathematics and one in Economics)

## Double Majoring in Mathematical Economics

14-2 majors may not have a second major in Mathematics or Economics. Primary majors may count up to three of their economics subjects toward the eight-subject HASS requirement. Secondary majors may count up to six of their economics subjects toward the eight-subject HASS requirement.

## Employment Opportunities

An undergraduate major in economics opens up many possibilities for employment. Training programs in many firms – including banks, other financial institutions, and large technology, retail, and manufacturing companies – employ economists in substantial numbers.

→ **Noam Angrist** '13, SB in Economics and Mathematics; Rhodes Scholar for 2015; founder of Young Love. Noam said that his most memorable Course-14 experience was “leveraging his friends’ MIT web-scraping skills to get Yelp data for his 14.33 class.” He was determined to study the effect of the tipped minimum wage on quality of service in restaurants around the country. The higher the percentage of the waiter’s wage made up of tips (which varied by state and minimum-wage laws), the higher or lower the incentive to perform, captured by Yelp quality-of-service data. Inspired by the Big Mac index, in an attempt to control for food quality, he considered only fast-food chains with tipped waiting jobs. The results of the study were reported in Noam’s paper (“Does Merit Pay Pay?”) and presented to the class. He shares that “the whole experience taught me the nuances, challenges and thrills of research, and was a true Course 14 (economics) moment.”

# TESTIMONIALS

## Meet the instructors!



**Nikhil Agarwal**

**Favorite Book:** The Stranger by Albert Camus  
**Travel highlights:** Italy; loved the food, scenery, the art and the history, but the driving was pretty crazy



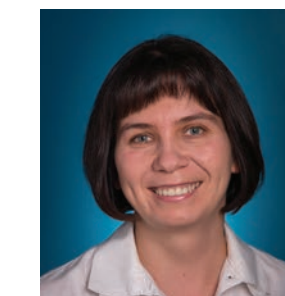
**David Autor**

**Favorite Book:** Far Tortuga by Peter Matthiessen  
**Travel highlights:** Cleveland, Ohio. Amazing how much damage deindustrialization does. But also inspiring to see a city rebuilding itself.



**Sara Ellison**

**Favorite Book:** Moby Dick (fiction), Better Angels of Our Nature (nonfiction)  
**Travel highlights:** Rome, Naples, and the Amalfi Coast—fantastic pizza



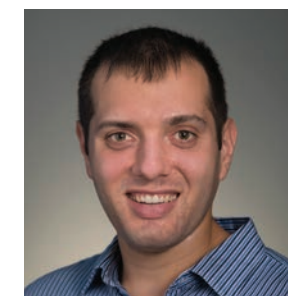
**Anna Mikusheva**

**Favorite Book:** The Handmaid’s Tale by Margaret Atwood  
**Travel highlights:** Moscow is still one of the most beautiful cities in the world



**Esther Dufo**

**Favorite Book:** Wolf Hall and Bring Up the Bodies by Hillary Mantel  
**Travel highlights:** Turkey



**Alexander Wolitzky**

**Favorite Book:** Game Theory by Drew Fudenberg and Jean Tirole  
**Travel highlights:** I spent a week hiking in the Cotswolds in England. One of the more relaxing weeks of my life.