ECONOMICS & MATHEMATICS

1019 Milstein Learning Center
212-854-3454
Department Administrator: Regina Roberts

Mission

The Economics and Mathematics major provides the student with a grounding in economic theory comparable to that provided by the general economics major and exposes the student to rigorous and extensive training in mathematics. The program will be particularly useful for students planning to do graduate work in economics, which frequently demands greater mathematical training than that acquired through the minimum requirements of the basic economics degree.

Economics Department Representative: Sharon Harrison
Mathematics Department Representative: David Bayer

Requirements for the Major

The Economics & Mathematics track requires a minimum of 15 courses (48 minimum credits).

Economics (8 courses)

ECON BC1003	Introduction to Economic Reasoning	3
ECON BC3018	ECONOMETRICS	4
ECON BC3033	INTERMEDTE MACROECONOMC THEORY	4
ECON BC3035	INTERMEDIATE MICROECONOMICS	4
ECON BC3041	THEORETICL FOUNDTNS-POLIT ECON	3.00
Select one of the following:		4
ECON BC3062	SENIOR THESIS II (two semesters of the Senior Thesis are optional)	
ECON BC3063	SENIOR SEMINAR *	
Two economics electives with an intermediate micro- or macroeconomic theory course as prerequisite		

Mathematics (7 courses)

MATH UN1102 & MATH UN1201	CALCULUS II and CALCULUS III	6
MATH UN2010	LINEAR ALGEBRA	3
MATH UN2500	ANALYSIS AND OPTIMIZATION **	3
SIEO W3600	INTRO PROBABILITY/STATISTICS (or STAT GU4001)	4
Two electives at or above the 2000 level ***		

* MATH UN3951 UNDERGRADUATE SEMINARS I, or an equivalent approved by the Chairs of the Mathematics and Economic departments is an acceptable alternative to ECON BC3063 SENIOR SEMINAR.

** MATH GU4061 INTRO MODERN ANALYSIS I is an acceptable alternative to MATH UN2500 ANALYSIS AND OPTIMIZATION.

*** MATH UN2030 ORDINARY DIFFERENTIAL EQUATIONS is an approved Mathematics elective. Also approved is MATH UN3951 UNDERGRADUATE SEMINARS I.

Students must obtain approval from each department representative before selecting electives. In exceptional cases, these may be from related fields; other courses can be taken with prior approval.

Cross-Listed Courses
Economics (Barnard)

ECON BC3018 ECONOMETRICS. *4.00 points*.
Prerequisites: ECON BC3033 or ECON BC3035, and ECON BC2411 or STAT W1111 or STAT W1211, or permission of the instructor. Prerequisites: ECON BC3033 or ECON BC3035, and ECON BC2411 or STAT W1111 or STAT W1211, or permission of the instructor. Specification, estimation and evaluation of economic relationships using economic theory, data, and statistical inference; testable implications of economic theories; econometric analysis of topics such as consumption, investment, wages and unemployment, and financial markets

Spring 2025: ECON BC3018

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3018	001/00848	M W 1:10pm - 2:25pm 504 Diana Center	Sinem Sonmez	4.00	16/60

Fall 2025: ECON BC3018

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3018	001/00067	M W 10:10am - 11:25am 152 Horace Mann Hall	0. FACULTY	4.00	0/60

ECON BC3033 INTERMEDTE MACROECONOMC THEORY. *4.00 points*.
Prerequisites: An introductory course in economics and a functioning knowledge of high school algebra and analytical geometry or permission of the instructor. Systematic exposition of current macroeconomic theories of unemployment, inflation, and international financial adjustments

Spring 2025: ECON BC3033

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3033	001/00755	M W 11:40am - 12:55pm 302 Barnard Hall	Nuria Quella	4.00	47/50
ECON 3033	002/00756	M W 1:10pm - 2:25pm 418 Barnard Hall	Nuria Quella	4.00	58/70

Fall 2025: ECON BC3033

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3033	001/00069	M W 10:10am - 11:25am 408 Zankel	0. FACULTY	4.00	0/50

ECON BC3035 INTERMEDIATE MICROECONOMICS. *4.00 points*.
Prerequisites: An introductory course in microeconomics or a combined macro/micro principles course (ECON BC1003 or ECON W1105, or the equivalent) and one semester of calculus or ECON BC1007, or permission of the instructor. Preferences and demand; production, cost, and supply; behavior of markets in partial equilibrium; resource allocation in general equilibrium; pricing of goods and services under alternative market structures; implications of individual decision-making for labor supply; income distribution, welfare, and public policy. Emphasis on problem solving

Spring 2025: ECON BC3035

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3035	001/00754	T Th 1:10pm - 2:25pm Ll003 Barnard Hall	Lalith Munasinghe	4.00	47/65

Fall 2025: ECON BC3035

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3035	001/00070	M W 11:40am - 12:55pm Ll003 Barnard Hall	Elizabeth Ananat	4.00	0/50
ECON 3035	002/00078	T Th 1:10pm - 2:25pm 152 Horace Mann Hall	John Park	4.00	0/50

ECON BC3041 THEORETICL FOUNDTNS-POLIT ECON. *3.00 points*.

Prerequisites: An introductory course in economics or permission of the instructor. Intellectual origins of the main schools of thought in political economy. Study of the founding texts in classical political economy, Marxian economics, neoclassicism, and Keynesianism

Spring 2025: ECON BC3041

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3041	001/00863	M W 4:10pm - 5:25pm 418 Barnard Hall	Kurt Semm	3.00	79/72
ECON 3041	002/00923	T Th 2:40pm - 3:55pm Ll003 Barnard Hall	Kurt Semm	3.00	79/72

Fall 2025: ECON BC3041

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3041	001/00073	M W 10:10am - 11:25am 418 Barnard Hall	Kurt Semm	3.00	0/55
ECON 3041	002/00074	M W 2:40pm - 3:55pm Ll003 Barnard Hall	Kurt Semm	3.00	0/55

ECON BC3061 SENIOR THESIS I. *4.00 points*.

Prerequisites: Permission of the instructor and completion of all courses (except for the senior requirement) required for the economics track, political economy track, or economics and mathematics majors. Exceptions to these prerequisites may be granted by the chair of the department only. Tutorials and conferences on the research for and writing of the senior thesis. This is the 1st semester of a two-semester course sequence

Fall 2025: ECON BC3061

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3061	001/00896		Elizabeth Ananat	4.00	0/8
ECON 3061	002/00897	W 2:10pm - 4:00pm 913 Milstein Center	Sharon Harrison	4.00	0/8
ECON 3061	003/00898		Kurt Semm	4.00	0/8

ECON BC3062 SENIOR THESIS II. *4.00 points*.

Prerequisites: Permission of the instructor and completion of all courses (except for the senior requirement) required for the economics track, political economy track, or economics and mathematics majors. Exceptions to these prerequisites may be granted by the chair of the department only. Tutorials and conferences on the research for and writing of the senior thesis. This is the 2nd semester of a two-semester course sequence

Spring 2025: ECON BC3062

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3062	001/00877		Elizabeth Ananat	4.00	7/7
ECON 3062	002/00876	M 12:00pm - 2:00pm 913 Milstein Center	Kurt Semm	4.00	5/6

ECON BC3063 SENIOR SEMINAR. *4.00 points*.

Prerequisites: Permission of the instructor and the completion of all courses (except for the senior requirement) required for the economics track, political economy track, or economics and mathematics majors. Exceptions to these prerequisites may be granted by the chair of the department only. Seminar sections are limited to 15 students. A topic in economic theory or policy of the instructors choice. See department for current topics and for senior requirement preference forms

Spring 2025: ECON BC3063

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3063	001/00864	Th 4:10pm - 6:00pm 214 Milbank Hall	Lalith Munasinghe	4.00	20/20
ECON 3063	002/00764	T 6:10pm - 8:00pm 912 Milstein Center	Elham Saeidinezhad	4.00	19/18
ECON 3063	003/00769	M 6:10pm - 8:00pm 308 Diana Center	Rajiv Sethi	4.00	16/16

Fall 2025: ECON BC3063

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
ECON 3063	001/00851	M 2:10pm - 4:00pm 113 Milstein Center	Sharon Harrison	4.00	0/16
ECON 3063	002/00854	W 2:10pm - 4:00pm 119 Milstein Center	Ashley Timmer	4.00	0/16

Mathematics

MATH UN1101 CALCULUS I. *3.00 points*.
Prerequisites: see Courses for First-Year Students. Functions, limits, derivatives, introduction to integrals.

Prerequisites: (see Courses for First-Year Students). Functions, limits, derivatives, introduction to integrals, or an understanding of pre-calculus will be assumed. (SC)

Spring 2025: MATH UN1101

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 1101	001/00472	M W 1:10pm - 2:25pm 263 Macy Hall	Dusa McDuff	3.00	62/90
MATH 1101	002/15277	M W 4:10pm - 5:25pm 407 Mathematics Building	Qiyao Yu	3.00	23/30
MATH 1101	003/15278	M W 6:10pm - 7:25pm 312 Mathematics Building	Brian Harvie	3.00	102/100
MATH 1101	004/15280	T Th 10:10am - 11:25am 614 Schermerhorn Hall	Roger Van Peski	3.00	24/100
MATH 1101	005/15281	T Th 1:10pm - 2:25pm 207 Mathematics Building	Roger Van Peski	3.00	22/100
MATH 1101	006/15282	T Th 4:10pm - 5:25pm 407 Mathematics Building	Che Shen	3.00	20/30

Fall 2025: MATH UN1101

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 1101	001/00293	M W 10:10am - 11:25am 263 Macy Hall	0. FACULTY	3.00	0/55
MATH 1101	002/00294	M W 1:10pm - 2:25pm 263 Macy Hall	Dusa McDuff	3.00	0/55
MATH 1101	003/00295	T Th 11:40am - 12:55pm 263 Macy Hall	Marco Castronovo	3.00	0/55
MATH 1101	004/00296	T Th 1:10pm - 2:25pm 263 Macy Hall	Marco Castronovo	3.00	0/55
MATH 1101	005/12500	M W 11:40am - 12:55pm Room TBA	Evan Sorensen	3.00	0/100
MATH 1101	006/12503	M W 2:40pm - 3:55pm Room TBA	Qiao He	3.00	0/100
MATH 1101	007/12504	M W 4:10pm - 5:25pm Room TBA	Qiao He	3.00	0/100
MATH 1101	008/12505	T Th 10:10am - 11:25am Room TBA	Roger Van Peski	3.00	0/100
MATH 1101	009/12506	M W 2:40pm - 3:55pm Room TBA	Roger Van Peski	3.00	0/100
MATH 1101	010/12507	T Th 4:10pm - 5:25pm Room TBA	Tianqing Zhu	3.00	0/100
MATH 1101	011/12508	T Th 6:10pm - 7:25pm Room TBA		3.00	0/30

MATH UN1102 CALCULUS II. *3.00 points*.
Prerequisites: MATH UN1101 *MATH V1101* or the equivalent.

Prerequisites: MATH UN1101 or the equivalent. Methods of integration, applications of the integral, Taylors theorem, infinite series. (SC)

Spring 2025: MATH UN1102

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 1102	001/00477	T Th 2:40pm - 3:55pm Ll002 Milstein Center	Lindsay Piechnik	3.00	88/90
MATH 1102	002/15285	M W 10:10am - 11:25am 312 Mathematics Building	Evan Sorensen	3.00	49/100
MATH 1102	003/00493	M W 11:40am - 12:55pm 323 Milbank Hall	Wenjian Liu	3.00	38/100
MATH 1102	004/15287	M W 4:10pm - 5:25pm 606 Martin Luther King Building	Jingbo Wan	3.00	27/30
MATH 1102	005/15289	T Th 10:10am - 11:25am 417 Mathematics Building	Peter Woit	3.00	20/64
MATH 1102	006/15291	T Th 11:40am - 12:55pm 203 Mathematics Building	Dawei Shen	3.00	23/100
MATH 1102	007/15294	T Th 1:10pm - 2:25pm 312 Mathematics Building	Andres Ibanez Nunez	3.00	8/100

Fall 2025: MATH UN1102

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 1102	001/00297	M W 11:40am - 12:55pm 263 Macy Hall	0. FACULTY	3.00	0/65
MATH 1102	002/00298	M W 1:10pm - 2:25pm 405 Milbank Hall	0. FACULTY	3.00	0/65
MATH 1102	003/12510	M W 2:40pm - 3:55pm Room TBA		3.00	0/30
MATH 1102	004/12512	T Th 8:40am - 9:55am Room TBA	Andres Ibanez Nunez	3.00	0/100
MATH 1102	005/12511	T Th 10:10am - 11:25am Room TBA	Andres Ibanez Nunez	3.00	0/100
MATH 1102	006/12513	T Th 6:10pm - 8:15pm Room TBA	Elliott Stein	3.00	0/64

MATH UN1201 CALCULUS III. *3.00 points*.
Prerequisites: MATH UN1101 *MATH V1101* or the equivalent.
Prerequisites: MATH UN1101 or the equivalent Vectors in dimensions 2 and 3, complex numbers and the complex exponential function with applications to differential equations, Cramers rule, vector-valued functions of one variable, scalar-valued functions of several variables, partial derivatives, gradients, surfaces, optimization, the method of Lagrange multipliers. (SC)

Spring 2025: MATH UN1201

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 1201	001/00494	M W 10:10am - 11:25am 405 Milbank Hall	Cristian Iovanov	3.00	31/90
MATH 1201	002/00496	M W 11:40am - 12:55pm 405 Milbank Hall	Cristian Iovanov	3.00	56/90
MATH 1201	003/15298	M W 2:40pm - 3:55pm 312 Mathematics Building	Deeparaj Bhat	3.00	93/100
MATH 1201	004/15300	T Th 1:10pm - 2:25pm 203 Mathematics Building	Deeparaj Bhat	3.00	85/100
MATH 1201	005/15301	T Th 4:10pm - 5:25pm 203 Mathematics Building	Rostislav Akhmechet	3.00	90/100
MATH 1201	006/15302	T Th 6:10pm - 7:25pm 203 Mathematics Building	Rostislav Akhmechet	3.00	88/100

Fall 2025: MATH UN1201

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 1201	001/00300	M W 8:40am - 9:55am 263 Macy Hall	Daniela De Silva	3.00	0/65
MATH 1201	002/00301	T Th 4:10pm - 5:25pm Ll002 Milstein Center	0. FACULTY	3.00	0/65
MATH 1201	003/00302	T Th 2:40pm - 3:55pm 405 Milbank Hall	0. FACULTY	3.00	0/65
MATH 1201	004/12517	M W 4:10pm - 5:25pm Room TBA	Deeparaj Bhat	3.00	0/100
MATH 1201	005/12516	M W 6:10pm - 7:25pm Room TBA	Deeparaj Bhat	3.00	0/100
MATH 1201	006/12515	T Th 10:10am - 11:25am Room TBA	Gyujin Oh	3.00	0/100
MATH 1201	007/12514	T Th 11:40am - 12:55pm Room TBA	Gyujin Oh	3.00	0/100
MATH 1201	008/12925	T Th 2:40pm - 3:55pm Room TBA	Anh Duc Vo	3.00	0/100

MATH UN2010 LINEAR ALGEBRA. *3.00 points*.
Prerequisites: *MATH V1201*, or the equivalent.
Matrices, vector spaces, linear transformations, eigenvalues and eigenvectors, canonical forms, applications. (SC)

Spring 2025: MATH UN2010

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 2010	001/00487	M W 8:40am - 9:55am 263 Macy Hall	Wenjian Liu	3.00	82/100
MATH 2010	002/00491	M W 2:40pm - 3:55pm Ll002 Milstein Center	Lindsay Piechnik	3.00	79/90
MATH 2010	003/15325	T Th 10:10am - 11:25am 312 Mathematics Building	Qiao He	3.00	62/100
MATH 2010	004/15328	T Th 11:40am - 12:55pm 312 Mathematics Building	Qiao He	3.00	78/100
MATH 2010	005/15331	T Th 4:10pm - 5:25pm 312 Mathematics Building	Elliott Stein	3.00	55/64

Fall 2025: MATH UN2010

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 2010	001/00303	M W 10:10am - 11:25am 405 Milbank Hall	0. FACULTY	3.00	0/70
MATH 2010	002/12525	M W 8:40am - 9:55am Room TBA	Yoonjoo Kim	3.00	0/100
MATH 2010	003/12524	M W 11:40am - 12:55pm Room TBA	Yoonjoo Kim	3.00	0/100
MATH 2010	004/12523	T Th 10:10am - 11:25am Room TBA	Andrew Blumberg	3.00	0/100
MATH 2010	005/12522	T Th 4:10pm - 5:25pm Room TBA	Yujie Xu	3.00	0/100

MATH UN2030 ORDINARY DIFFERENTIAL EQUATIONS. *3.00 points*.
Prerequisites: MATH UN1102 and MATH UN1201 *MATH V1102-MATH V1201* or the equivalent.
Prerequisites: MATH UN1102 and MATH UN1201 or the equivalent. Special differential equations of order one. Linear differential equations with constant and variable coefficients. Systems of such equations. Transform and series solution techniques. Emphasis on applications

Spring 2025: MATH UN2030

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 2030	001/15344	M W 10:10am - 11:25am 207 Mathematics Building	Dawei Shen	3.00	70/100
MATH 2030	002/15345	T Th 11:40am - 12:55pm 207 Mathematics Building	Panagiota Daskalopoulos	3.00	98/100

Fall 2025: MATH UN2030

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 2030	001/12528	M W 11:40am - 12:55pm Room TBA	Panagiota Daskalopoulos	3.00	0/100
MATH 2030	002/12527	M W 6:10pm - 7:25pm Room TBA	Dawei Shen	3.00	0/100
MATH 2030	003/12526	T Th 1:10pm - 2:25pm Room TBA	Dawei Shen	3.00	0/100

MATH UN2500 ANALYSIS AND OPTIMIZATION. *3.00 points*.

Prerequisites: MATH UN1102 and MATH UN1201 *MATH V1102-MATH V1201* or the equivalent and *MATH V2010*.

Prerequisites: MATH UN1102 and MATH UN1201 or the equivalent and MATH UN2010. Mathematical methods for economics. Quadratic forms, Hessian, implicit functions. Convex sets, convex functions. Optimization, constrained optimization, Kuhn-Tucker conditions. Elements of the calculus of variations and optimal control. (SC)

Spring 2025: MATH UN2500

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 2500	001/15346	T Th 10:10am - 11:25am 203 Mathematics Building	Xi Shen	3.00	100/100

Fall 2025: MATH UN2500

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 2500	001/12529	M W 10:10am - 11:25am Room TBA	Xi Shen	3.00	0/100
MATH 2500	002/12530	M W 11:40am - 12:55pm Room TBA	Xi Shen	3.00	0/100

MATH UN3951 UNDERGRADUATE SEMINARS I. *3.00 points*.

Prerequisites: two years of calculus, at least one year of additional mathematics courses, and the director of undergraduate studies' permission.

Prerequisites: Two years of calculus, at least one year of additional mathematics courses, and the director of undergraduate studies permission. The subject matter is announced at the start of registration and is different in each section. Each student prepares talks to be given to the seminar, under the supervision of a faculty member or senior teaching fellow

Fall 2025: MATH UN3951

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 3951	001/00304		Alisa Knizel	3.00	0/64

MATH GU4061 INTRO MODERN ANALYSIS I. *3.00 points*.

Prerequisites: MATH UN1202 *MATH V1202* or the equivalent, and *MATH V2010*. The second term of this course may not be taken without the first.

Prerequisites: MATH UN1202 or the equivalent, and MATH UN2010. The second term of this course may not be taken without the first. Real numbers, metric spaces, elements of general topology, sequences and series, continuity, differentiation, integration, uniform convergence, Ascoli-Arzela theorem, Stone-Weierstrass theorem

Spring 2025: MATH GU4061

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 4061	001/15369	M W 1:10pm - 2:25pm 614 Schermerhorn Hall	Julien Dubedat	3.00	49/100

Fall 2025: MATH GU4061

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
MATH 4061	002/12540	M W 2:40pm - 3:55pm Room TBA	Sven Hirsch	3.00	0/85
MATH 4061	003/12928	M W 4:10pm - 5:25pm Room TBA	Sven Hirsch	3.00	0/85

Statistics

SIEO W3600 INTRO PROBABILITY/STATISTICS. *4.00 points*.

STAT GU4001 INTRODUCTION TO PROBABILITY AND STATISTICS. *3.00 points*.

Prerequisites: Calculus through multiple integration and infinite sums. A calculus-based tour of the fundamentals of probability theory and statistical inference. Probability models, random variables, useful distributions, conditioning, expectations, law of large numbers, central limit theorem, point and confidence interval estimation, hypothesis tests, linear regression. This course replaces SIEO 4150

Spring 2025: STAT GU4001

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
STAT 4001	001/14003	T Th 6:10pm - 7:25pm 329 Pupin Laboratories	Cristian Pasarica	3.00	77/100
STAT 4001	002/14004	M W 1:10pm - 2:25pm 517 Hamilton Hall	Sumit Mukherjee	3.00	39/86