

Economics Graduate School Track

Old course numbers and names are in parentheses (xxxxx)

(PR: xxxx) = Prerequisite

Although economics graduate programs have varying admissions requirements, graduate training in economics is highly mathematical. Most economics Ph.D. programs expect applicants to have had advanced calculus, differential equations, linear algebra, and basic probability theory. Many applicants have completed a course in real analysis. This means that you need to take 1-2 mathematics courses each semester.

About half of the students entering Ph.D. programs in economics earn a Master's degree beforehand. Many shore up their math preparation during this period.

Math Recommendation (beyond the required math/stats required for the economics major):

Minimal Recommendation for entrance into a Master's program

M-171Q (Math 181): Calculus I (Calculus and Analytic Geometry I)
M-172Q (Math 182): Calculus II (Calculus & Analytic Geometry II) (PR: M-171Q (Math 181))
M-221 (Math 221): Introduction to Linear Algebra (Matrix Theory) (PR: M-172Q (Math 182))

Additional Highly Recommended Courses for Master's program preparation

M-273Q (Math 224): Multivariable Calculus (Calculus of Functions of Several Variables) (PR: M-172Q (Math 182))
M-242 (Math 256): Methods of Proof (Introduction to Higher Mathematics) (PR: M-172Q (Math 182))*
Stat 410: Methods for Data Analysis I (PR: M-161 (Math 170) and Stat 217)**
Stat 412: Methods for Data Analysis II (PR: Stat 410)**

Minimal Recommendation for entrance into a Ph.D. program. The above plus:

M-274 (Math 225): Intro to Differential Equations (Intro to Differential Equations) (PR: M-172 (Math 182))
M-333 (Math 333): Linear Algebra (PR: M-221 (Math 221))
M-381 (Math 361): Advanced Calculus I (PR: M-273 (Math 224) and either M-333 (Math 333) or M-242 (Math 256))*
M-382 (Math 362): Advanced Calculus II (PR: M-381 (Math 361))*
Stat 421: Probability (PR: M-273Q (Math 224))
Stat 422: Mathematical Statistics (PR: Stat 421 or M-421 (Math 421))

Additional Recommended Courses for Ph.D. preparation (ranked in order of recommendation)

M-505 (Math 505): Principles of Mathematical Analysis (PR: M-382 (Math 362))
Stat 505: Linear Models (PR: Stat 502)
Stat 509: Stochastic Processes (PR: Stat 420)
M-547 (Math 547): Real Analysis (PR: M-382 (Math 362))

Note: A Math minor requires: M-171Q (Math 181), M-172Q (Math 182), M-221 (Math 221), M-273Q (Math 224), M-274 (Math 225), and 9 credits from any of the 300+ Math courses above (or others).

Economics Electives Recommendation: Rigorous courses in economics and econometrics are also expected of incoming students. When considering economics electives for the major, we recommend:

ECNS 401 (ECON 401): Microeconomic Theory (PR: ECNS 301 (Econ 301))
ECNS 403 (ECON 403): Intro to Econometrics (PR: ECNS 201IS (Econ 201), Stat 216, M-161Q (Math 170))
ECNS 406 (ECON 406): Industrial Organization (PR: ECNS 301 (Econ 301))

* Students preparing for Ph.D. programs should substitute M-381 & M-382 (MATH 361 & 362) for M-242 (MATH256), as the marginal gain from taking the 381/2 (361/2) sequence and M-242 (256) is small.

** Econ 561 has some similarities in methods as Stat 410-412. For Ph.D. track students, Stat 422 would be preferred to Stat 410.