# Progress Toward Completion of the Mathematics Major

## Economics Concentration

*Arts and Sciences students may be admitted to the math major after successfully completing a semester of multivariable calculus, a semester of linear algebra, and a 3- or 4-credit computer programming course. To apply, visit math.cornell.edu/major.*

**Student's Name** _____ **Net ID** _____ **Faculty Advisor** _____

**Courses needed to complete the major**

_____ initials _____

_____ date _____

Math majors must complete **9 courses** for the major, as described in items 1–3 below, with a **minimum grade of C–**. No course may be used to satisfy more than one requirement. MATH courses numbered between 4980 and 5999 do not count.

_____ At least two of the MATH courses taken must be at the 4000 level (or above).

### 1. Two Courses in Algebra. ( ___ transfer credit applied, see reverse)

_____ MATH 3320 - Introduction to Number Theory
_____ MATH 3340 - Abstract Algebra*
_____ MATH 3360 - Applicable Algebra*
_____ MATH 4310 - Linear Algebra* **Discontinued:** _____ MATH 4315*
_____ MATH 4330 - Honors Linear Algebra*
_____ MATH 4340 - Honors Introduction to Algebra*
_____ MATH 4370 - Computational Algebra
_____ MATH 4500 - Matrix Groups
_____ MATH 4560 - Geometry of Discrete Groups

### 2. Two Courses in Analysis. ( ___ transfer credit applied, see reverse)

_____ MATH 3110 - Introduction to Analysis*
_____ MATH 3210 - Manifolds & Differential Forms **Discontinued:** _____ MATH 3230*
_____ MATH 3270 - Introduction to Ordinary Differential Equations*
_____ MATH 4130 - Honors Intro Analysis I*
_____ MATH 4140 - Honors Intro Analysis II
_____ MATH 4180 - Complex Analysis*
_____ MATH 4200 - Differential Equations and Dynamical Systems*
_____ MATH 4210 - Nonlinear Dynamics and Chaos*
_____ MATH 4220 - Applied Complex Analysis*
_____ MATH 4250 - Numerical Analysis and Differential Equations [also CS 4210]
_____ MATH 4260 - Numerical Analysis: Linear & Nonlinear Problems [also CS 4220]
_____ MATH 4280 - Introduction to Partial Differential Equations*

*See course descriptions at math.cornell.edu/upper-level-courses for information on **forbidden overlaps**.

**3. Concentration in Economics.** ( ___ transfer credit applied, see below)

Five additional courses from (vii), (viii) and (ix) below.

(vii) At least one MATH course numbered 3000 or above:

_____ _____

_____ _____

(viii) At least three ECON courses with significant mathematical content.

_____ ECON 3130 - Statistics and Probability* *or* ECON 6190 - Econometrics I
_____ ECON 3140 - Econometrics *or* ECON 6200 - Econometrics II
_____ ECON 3810 - Decision Theory I
_____ ECON 3825 - Networks II: Market Design [also CS 4852, INFO 4220]
_____ ECON 4020 - Game Theory I
_____ ECON 4022 - Game Theory II
_____ ECON 4110 - Cross Section and Panel Econometrics
_____ ECON 4130 - Statistical Decision Theory
_____ ECON 4907 - The Economics of Asymmetric Information and Contracts
_____ ECON 6090 - Microeconomic Theory I
_____ ECON 6100 - Microeconomic Theory II
_____ ECON 6130 - Macroeconomics I
_____ ECON 6140 - Macroeconomics II

Note: Undergraduate enrollment in ECON graduate courses requires permission of instructor.

(ix) Courses in ORIE with significant mathematical content dealing with material of interest in economics.

_____ ORIE 3300 - Optimization I
_____ ORIE 3310 - Optimization II
_____ ORIE 4350 - Introduction to Game Theory
_____ ORIE 4580 - Simulation Modeling and Analysis
_____ ORIE 4600 - Introduction to Financial Engineering
_____ ORIE 4740 - Statistical Data Mining I
_____ ORIE 4741 - Learning with Big Messy Data
_____ ORIE 5600 - Financial Engineering with Stochastic Calculus I
_____ ORIE 5610 - Financial Engineering with Stochastic Calculus II

_____ _____ (approved by faculty advisor)

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## Transfer Credit / Study Abroad Courses Applied to the Major

| Course Number &Title | Institution | Requirement |
|---|---|---|
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*See course descriptions at math.cornell.edu/upper-level-courses for information on **forbidden overlaps**.