Progress Toward Completion of the Mathematics Major

Statistics 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. Visit math.cornell.edu/major for more information.

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<tr>
<th>Student's Name</th>
<th>Net ID</th>
<th>Faculty Advisor</th>
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Courses needed to complete the major

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Math majors must complete 9 courses for the major, as described in items 1–3 below, with a minimum grade of C–. MATH courses numbered 5000–5999 do not count. No course may be used to satisfy more than one requirement.

_____ 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 4310* Linear Algebra  
_____ 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  
_____ MATH 3230* Introduction to 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 [also MAE 5790]  
_____ MATH 4220* Applied Complex Analysis  
_____ MATH 4250  Numerical Analysis and Differential Equations [also CS 4210]  
_____ MATH 4260  Numerical Analysis: Linear & Nonlinear Equations [also CS 4220; co-meets w/CS 5223]  
_____ MATH 4280* Introduction to Partial Differential Equations

*Forbidden Overlaps: Due to an overlap in content, students will receive credit for only one course in each group:
(1) MATH 3110, 4130; (2) MATH 3230, 4280; (3) MATH 3340, 3360; (4) MATH 3340, 4340; (5) MATH 4180, 4220; (6) MATH 4200, 4210; (7) MATH 4310, 4315, 4330; (8) MATH 4710, ECON 3130, BTRY 3080; (9) MATH 4720, ECON 3130, BTRY 4090; (10) MATH 4810, 4860.
3. **Concentration in Statistics.** (___ transfer credit applied, see below)

Five additional courses from (xvi), (xvii) and (xviii) below. **No substitutions are allowed for MATH 4710 or MATH 4720.** Students who have already taken a course with overlapping content should consult a member of the Math Majors Committee.

(xvi) Both:  _____ MATH 4710* Basic Probability  _____ MATH 4720* Statistics

(xvii) One additional MATH course numbered 3000 or above:

_____  

(xviii) Two courses in other departments with significant content in statistics, complementing (xvii):

- _____ BTRY 4820 Statistical Genomics: Coalescent Theory and Human Population Genomics
- _____ CS 4700 Foundations of Artificial Intelligence
- _____ CS 4780 Introduction to Machine Learning [co-meets with CS 5780]
- _____ CS 4786 Machine Learning for Data Science [co-meets with CS 5786]
- _____ ECON 3140 Econometrics
- _____ ECON 4110 Cross Section and Panel Econometrics
- _____ ORIE 4740 Statistical Data Mining I
- _____ ORIE 4741 Learning with Big Messy Data
- _____ STSCI 3100 Statistical Sampling [also BTRY 3100, ILRST 3100]
- _____ STSCI 3510 Introduction to Engineering Stochastic Processes I [also ORIE 3510]
- _____ STSCI 4030 Linear Models with Matrices [also BTRY 4030; co-meets with STSCI 5030]
- _____ STSCI 4060 Python Programming and its Applications in Statistics
- _____ STSCI 4100 Multivariate Analysis [also BTRY 4100, ILRST 4100]
- _____ STSCI 4110 Categorical Data [also BTRY 4110, ILRST 4110]
- _____ STSCI 4140 Applied Design [also BTRY 4140, ILRST 4140]
- _____ STSCI 4520 Statistical Computing [also BTRY 4520]
- _____ STSCI 4550 Applied Time Series Analysis [also ILRST 4550, ORIE 5550]
- _____ STSCI 4740 Data Mining and Machine Learning
- _____ STSCI 4780 Bayesian Data Analysis: Principles and Practice
-  

(approved by faculty advisor)

**Note:** STSCI/ORIE 3510 may not be counted toward (xviii) if MATH 4740 is used for (xvii). At most one regression course (ECON 3140 or STSCI/BTRY 4030) is allowed for (xviii). At most one of STSCI 4740, ORIE 4740, CS 4780, or CS 4786 may be used for (xviii).

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

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<th>Course Number &amp; Title</th>
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