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. Applications are available in 310A Malott Hall.

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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 3360* Applicable 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.

(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  
[co-meets with BTRY 6820]

_____ BTRY 6790 Probabilistic Graphical Models [also CS 6782]

_____ CS 4780 Machine Learning for Intelligent Systems [co-meets with CS 5780]

_____ CS 4786 Machine Learning for Data Science [co-meets with CS 5786]

_____ ECON 3140 Econometrics (formerly ECON 3200)

_____ ORIE 3510 Introduction to Engineering Stochastic Processes I [also STSCI 3510]

_____ ORIE 4740 Statistical Data Mining I

_____ STSCI 3100 Statistical Sampling [also BTRY 3100, ILRST 3100]

_____ STSCI 3520 Statistical Computing [also BTRY 3520]

_____ STSCI 4030 Linear Models with Matrices [also BTRY 4030]

_____ 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 4550 Applied Time Series Analysis [also ILRST 4550, ORIE 5550]

_____ STSCI 4740 Data Mining and Machine Learning

(____)  

(approved by faculty advisor)

**Note:** ORIE 3510 may not be counted toward (xviii) if MATH 4740 is used for (xvii). At most one regression course (ECON 3140 [formerly 3200] or STSCI 4030/BTRY4030) is allowed for (xviii). At most one of STSCI 4740, ORIE 4740, CS 4780, or CS 4786 may be used for (xviii).

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

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