

Progress Toward Completion of the Mathematics Major

Mathematical Biology 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*

_____ MATH 4315 - Linear Algebra with Supplements*

_____ 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]

_____ 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 Mathematical Biology. (___ transfer credit applied, see below)

Five additional courses from (x) and (xi) below.

(x) Three biology courses that have mathematical content and provide background necessary for work at the interface between biology and mathematics:

- _____ BIOEE 3620 - Dynamic Models in Biology [also MATH 3620]
- _____ BIONB 4220 - Modeling Behavioral Evolution
- _____ BME 3110 - Cellular Systems Biology
- _____ BTRY 3080 - Probability Models and Inference* [also ILRST/STSCI 3080]
- _____ BTRY 4090 - Theory of Statistics* [also STSCI 4090]
- _____ BTRY 4820 - Statistical Genomics: Coalescent Theory and Human Population Genomics
- _____ BTRY 4830 - Quantitative Genomics and Genetics
- _____ BTRY 4840 - Computational Genetics and Genomics [also CS 4775]
- _____ NTRES 4120 - Wildlife Population Analysis: Techniques and Models

_____ (approved by faculty advisor)

(xi) Two mathematics courses numbered 3000 or above. MATH 4200 and 4710* are particularly appropriate.

Transfer Credit / Study Abroad Courses Applied to the Major

Course Number & Title	Institution	Requirement
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_____	_____	_____
_____	_____	_____

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(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.