

Progress Toward Completion of the Mathematics Major

Mathematics 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.

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–**. 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
- _____ MATH 3360* Applicable Algebra
- _____ MATH 4315* Linear Algebra with Supplements

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 Mathematics. (___ transfer credit applied, see below)

(i) Four additional MATH course numbered 3000 or above:

At least one of the four courses must be among the geometry/topology courses. Eligible courses include: MATH 3210, 4500, 4520, 4530, 4540, 4550, 4560.

Note: MATH 3210 is eligible only if not used for the analysis requirement; MATH 4500 and MATH 4560 are eligible only if not used toward the algebra requirement.

(ii) One course dealing with mathematical models. Eligible courses include MATH 3610 and any course outside mathematics with serious mathematical content that deals with scientific matters. Serious mathematical content includes, but is not limited to, extensive use of calculus or linear algebra. Any course from another department that would satisfy one of the other concentrations may be used.

Or one of the following may be used:

- _____ CS 2110 Object-Oriented Programming and Data Structures [also ENGRD 2110]
- _____ PHYS 1116 Physics I: Mechanics and Special Relativity
- _____ PHYS 2208 Fundamentals of Physics II
- _____ PHYS 2213 Physics II: Electromagnetism
- _____ PHYS 2217 Physics II: Electricity and Magnetism [also AEP 2170]

Other 1000-level physics course and PHYS 2207 may *not* be used. AP credit may *not* be used.

Transfer Credit / Study Abroad Courses Applied to the Major

Course Number & Title	Institution	Requirement
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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.