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. Applications are available in 310A Malott Hall.

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<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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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 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; 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.

Any course from outside mathematics with serious mathematical content and dealing 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:

_____ CS 2110 Object-Oriented Programming and Data Structures [also ENGRD 2110]
_____ MATH 3610 Mathematical Modeling
_____ 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, but some courses in other fields may be accepted. AP credit may *not* be used.

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

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