Progress Toward Completion of the Mathematics Major

Mathematical Physics 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.

<table>
<thead>
<tr>
<th>Student's Name</th>
<th>Net ID</th>
<th>Faculty Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Courses needed to complete the major</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

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* Discontinued: _____ MATH 4315*
_____ 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 Discontinued: _____ MATH 3230*
_____ MATH 3270 - Introduction to Ordinary 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*
_____ MATH 4220 - Applied Complex Analysis*
_____ MATH 4250 - Numerical Analysis and Differential Equations [also CS 4210]
_____ MATH 4260 - Numerical Analysis: Linear & Nonlinear Problems [also CS 4220]
_____ MATH 4280 - Introduction to Partial Differential Equations*

*See course descriptions at math.cornell.edu/upper-level-courses for information on forbidden overlaps.
3. Concentration in Mathematical Physics. ( ___ transfer credit applied, see below)

Five additional courses from (xii) and (xiii) below.

(xii) At least one MATH course numbered 3000 or above.

____ ____________________________________________________________

____ ____________________________________________________________

(xiii) At least three physics courses that make significant use of advanced mathematics:

____ PHYS 3316 - Basics of Quantum Mechanics
____ PHYS 3317 - Applications of Quantum Mechanics
____ PHYS 3318 - Analytical Mechanics
____ PHYS 3327 - Advanced Electricity and Magnetism
____ PHYS 4230 - Statistical Thermodynamics [also AEP 4230]
____ PHYS 4443 - Intermediate Quantum Mechanics
____ PHYS 4444 - Introduction to Particle Physics
____ PHYS 4445 - Introduction to General Relativity [also ASTRO 4445]
____ PHYS 4454 - Introductory Solid State Physics [also AEP 4500]
____ PHYS 4481 - Quantum Information Processing [also CS 4812]
____ PHYS 4488 - Statistical Mechanics
____ AEP 4340 - Fluid and Continuum Mechanics
____ AEP 4400 - Nonlinear and Quantum Optics

____ ____________________________________________________________ (approved by faculty advisor)

Note: Double majors with physics may count eligible physics courses toward both the physics major and the math major’s math physics concentration; however, Physics will not approve outside concentrations in the same area as a student’s second major.

Transfer Credit / Study Abroad Courses Applied to the Major

<table>
<thead>
<tr>
<th>Course Number &amp;Title</th>
<th>Institution</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See course descriptions at math.cornell.edu/upper-level-courses for information on forbidden overlaps.*