Progress Toward Completion of the Mathematics Major

Operations Research 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* **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 Operations Research. (___ transfer credit applied, see below)

Five additional courses from (xiv) and (xv) below.

(xiv) At least one MATH course numbered 3000 or above:

_____ _____

_____ _____

(xv) At least three courses in ORIE in which the primary focus involves mathematical techniques:

_____ ORIE 3300 - Optimization I
_____ ORIE 3310 - Optimization II
_____ ORIE 3500 - Engineering Probability and Statistics II
_____ ORIE 3510 - Introduction to Engineering Stochastic Processes I [also STSCI 3510]
_____ ORIE 4350 - Introduction to Game Theory
_____ ORIE 4580 – Simulation Modeling and Analysis
_____ ORIE 4600 - Introduction to Financial Engineering
_____ ORIE 4630 - Operations Research Tools for Financial Engineering [also STSCI 4630]
_____ ORIE 4740 - Statistical Data Mining I
_____ ORIE 4741 - Learning with Big Messy Data
_____ ORIE 5600 - Financial Engineering with Stochastic Calculus I
_____ ORIE 5610 - Financial Engineering with Stochastic Calculus II
_____ ORIE 5640 - Statistics for Financial Engineering [also STSCI 5640]

_____ _____ (approved by faculty advisor)

Transfer Credit / Study Abroad Courses Applied to the Major

Course Number &Title	Institution	Requirement

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