

Progress Toward Completion of the Mathematics Major

(Operations Research Concentration)

Student's Name _____

Net ID _____

Faculty Advisor _____

Courses Needed to Complete the Major

Filled Out By

Initials _____

Date _____

Students must complete nine courses, as described in items 1– 3 below, under the following constraints:

- At least two of the MATH courses taken must be at the 4000 level (or above).
- A course may be counted toward the major only if it is taken for a letter grade and a grade of C– or better is received for the course.
- No course may be used to satisfy more than one requirement for the major.
- 2-credit courses count as half courses.
- MATH courses numbered between 5000 and 5999 do not count toward the major.

1. Two Courses in Algebra.

Transfer Credit: _____

_____ MATH 3320 Introduction to Number Theory

_____ MATH 3360 Applicable Algebra

_____ MATH 4310 Linear Algebra / _____ 4330 Honors Linear Algebra

_____ MATH 4320 Introduction to Algebra / _____ 4340 Honors Introduction to Algebra

_____ MATH 4370 Computational Algebra

_____ MATH 4500 Matrix Groups

2. Two Courses in Analysis.

Transfer Credit: _____

_____ MATH 3110* Introduction to Analysis

_____ MATH 3210 Manifolds and Differential Forms

_____ MATH 3230* Introduction to Differential Equations

_____ MATH 4130* Honors Introduction to Analysis I

_____ MATH 4140 Honors Introduction to Analysis II

_____ MATH 4180* Introduction to the Theory of Functions of One Complex Variable

_____ MATH 4200 Differential Equations and Dynamical Systems

_____ MATH 4220* Applied Complex Analysis

_____ MATH 4240 Wavelets and Fourier Series

_____ MATH 4250 Numerical Analysis and Differential Equations [also CS 4210]

_____ MATH 4260 Numerical Analysis: Linear and Nonlinear Problems [also CS 4220]

_____ MATH 4280* Introduction to Partial Differential Equations

***Overlapping content:** Students will receive credit for only one course in each group: (1) MATH 3110, 4130; (2) MATH 3230, 4280; (3) MATH 4180, 4220; (4) MATH 4310, 4330; (5) MATH 4320, 4340; (6) MATH 4710, ECON 3130 (formerly 3190), BTRY/ILRST/STSCI 3080 (formerly 4080); (7) MATH 4720, ECON 3130 (formerly 3190), BTRY 4090.

3. Concentration in Operations Research.

Transfer Credit: _____

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

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

(xiii) 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 4150 Economic Analysis of Engineering Systems
 - _____ ORIE 4300 Optimization Modeling
 - _____ ORIE 4320 Nonlinear Optimization
 - _____ ORIE 4330 Discrete Models
 - _____ ORIE 4350 Introduction to Game Theory
 - _____ ORIE 4360 A Mathematical Examination of Fair Representation
 - _____ ORIE 4520 Introduction to Engineering Stochastic Processes II
 - _____ ORIE 4600 Introduction to Financial Engineering
 - _____ ORIE 4630 Operations Research Tools for Financial Engineering
 - _____ ORIE 4710 Applied Linear Statistical Models (half course)
 - _____ ORIE 4712 Regression (half course)
 - _____ ORIE 4740 Statistical Data Mining I
 - _____ ORIE 4850 Applications of Operations Research and Game Theory to Information Technology
 - _____ ORIE 5600 Financial Engineering with Stochastic Calculus I
 - _____ ORIE 5610 Financial Engineering with Stochastic Calculus II
 - _____ ORIE 5640 Statistics for Financial Engineering
- _____ (approved by faculty advisor)

Transfer Credit / Study Abroad Courses Applied to the Major

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

***Overlapping content:** Students will receive credit for only one course in each group: (1) MATH 3110, 4130; (2) MATH 3230, 4280; (3) MATH 4180, 4220; (4) MATH 4310, 4330; (5) MATH 4320, 4340; (6) MATH 4710, ECON 3130 (formerly 3190), BTRY/ILRST/STSCI 3080 (formerly 4080); (7) MATH 4720, ECON 3130 (formerly 3190), BTRY 4090.