

Application to Certify Completion of an Applied Mathematics Minor

I. Applicant's Information--Please supply the following:

Name: _____

Cornell ID#: _____

Email Address: _____

Phone: _____

Major: _____ Faculty Advisor: _____ Projected Graduation Date (month/year): _____

Minor applying for: _____

Year of Cornell Courses of Study/Engineering Handbook used for verifying minor: _____

II. Courses Applying to Minor--Please list each course you have taken, or plan to take, which will apply to the engineering minor program as described on the reverse of this form. Include the semester/year in which you completed, or plan to complete, each course. Include the grade and number of credits you received for completed courses.

NOTE: The minor must be offered by a department other than that which offers your engineering major(s), and is contingent upon successful completion of Bachelor of Science degree requirements.

	<u>Dept./Course Number</u>	<u>Semester/Year Completed</u>	<u>Credits</u>	<u>Grade</u>
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____

III: Please sign below and submit this completed form & transcript to the Administrative Contact for the department offering the minor.: By signing, you certify that the information supplied on this form is accurate and that you have completed/will complete the necessary coursework and complied with the terms of the engineering minor program.

Student's signature: _____ Date: _____

For use by the Administrative Contact:

Administrative Contact certifying minor: _____ Date: _____

Upon initial submission of your minor application form, your course selections and any available grades will be reviewed and pre-approved for use toward the minor. This form is a working copy and may be edited and resubmitted for review at any time. At the end of your final semester, when grades have been submitted for all courses listed above, your minor application will go through a final review, after which you will receive notification from the office of the administrative contact.

Original--Engineering Registrar

Copies: Student, Undergraduate Coordinator of student's major program, Undergraduate Coordinator of student's minor program.

Minor in Applied Mathematics

Offered jointly by: Sibley School of Mechanical and Aerospace Engineering and the Department of Mathematics

Contact: Professor Richard Rand, 207 Kimball Hall, 255-7145, rhr2@cornell.edu

Eligibility: Engineering undergraduates affiliated with all Engineering Majors are eligible to participate in the Applied Mathematics minor.

Educational Objectives:

This minor is aimed at providing a focus for students who are interested in applied mathematics.

Requirements:

To complete the minor, students must take MATH 2930, MATH 2940, and at least six (6) courses beyond MATH 2940, to be chosen as follows:

- a) At most one course may be chosen from each of groups 1 – 4 (see sample program below)
- b) At least three courses must be chosen from groups 5 and 6.
- c) At most one 2000-level course may be chosen.
- d) At most one course may be chosen that is offered by the student's Major department.

SAMPLE PROGRAM:	<i>MAE 3100 (Group 1)</i>	<i>MAE 4730/5730 (Group 5)</i>
	<i>ENGRD 3220 (Group 2)</i>	<i>MAE 6810 (Group 5)</i>
	<i>ENGRD 2700 (Group 3)</i>	<i>MATH 3320 (Group 6)</i>

Group 1: Analysis:

AEP 4210: Mathematical Physics I
MATH 3230: Introduction to Differential Equations
MATH 4200: Differential Equations and Dynamical Systems
MAE 3100: Introduction to Applied Mathematics I

Group 2: Computational Methods:

CS 4210: Numerical Analysis and Differential Equations
ENGRD 3200: Engineering Computation
ENGRD 3220: Introduction to Scientific Computation
ORIE 3300: Optimization I

Group 3: Probability and Statistics:

CEE 3040: Uncertainty Analysis in Engineering
ECE 3100: Intro. to Probability and Inference for Random Signals
ENGRD 2700: Basic Engineering Probability and Statistics
MATH 4710: Basic Probability
ORIE 3500: Engineering Probability and Statistics II

Group 4: Applications:

AEP 3330: Mechanics of Particles and Solid Bodies
CEE 3310: Fluid Mechanics
CEE 3710: Structural Modeling and Behavior
CHEME 3230: Fluid Mechanics
CS 2800: Discrete Structures
CS 2850: Networks
ECE 3200: Networks and Systems
ECE 4250: Digital Signal Processing
MAE 3230: Introductory Fluid Mechanics
MSE 3030: Thermodynamics of Condensed Systems

Group 5: Advanced Courses:

Only one of the following may be chosen:
AEP 4220: Mathematical Physics II
MATH 4220: Applied Complex Analysis

Only one of the following two may be chosen:

ECE 4110: Random Signals in Communications and Signal Processing
ORIE 3510: Introduction to Engineering Stochastic Processes I

Also, you may choose from:

CS 3810: Introduction to Theory of Computing
CS 4820: Introduction to Analysis of Algorithms
ORIE 3310: Optimization II
ORIE 4330: Discrete Models
ORIE 4350: Introduction to Game Theory
ORIE 4520: Introduction to Engineering Stochastic Processes II
ORIE 5600: Financial Engineering with Stochastic Calculus I
ORIE 5610: Financial Engineering with Stochastic Calculus II
MAE 4730/5730: Intermediate Dynamics and Vibrations
MAE 5790: Nonlinear Dynamics and Chaos
MAE 6810: Methods of Applied Mathematics I
MAE 6820: Methods of Applied Mathematics II

Group 6: Mathematics Courses:

Any 3000+ level course offered by the Mathematics Department in algebra, analysis, probability/statistics, geometry, or logic, with the following exceptions:

- (i) MATH 3230 or MATH 4200, if any course from group 1 is chosen.
- (ii) MATH 4710, if any course from group 3 is chosen.
- (iii) MATH 4220, if AEP 4220 is chosen from group 5.
- (iv) Only one of the following may be chosen:
 - MATH 3320: Introduction to Number Theory
 - MATH 3360: Applicable Algebra

Academic Standards:

At least C in each course in the minor.