Graduate Mathematics Requirement
Department of Aeronautics and Astronautics
June 8, 2009

The purpose of the graduate math requirement is to give students exposure to advanced mathematical concepts at the graduate level. Although mathematics is an integral part of all engineering curricula, it is our experience that additional math subjects can add significantly to the student's problem solving capabilities.

The Department's policy regarding the math requirement is as follows. For S.M. students, 12 units of total credit are required. For Ph.D. students, 24 units of total credit are required. The following subjects may be used to fulfill the graduate math requirement:

1. Any subject offered by the Department of Mathematics designated as G or H-Level for students who are not Mathematics majors.

2. Selected subjects offered by departments other than Mathematics can also be used toward the math requirement. The list of acceptable subject is as follows:

A. Probability and Statistics
1.151 Probability and Statistics in Engineering; 3-0-9; H
6.262 Discrete Stochastic Processes; 3-0-9; H
6.431 Applied Probability; 4-0-8; G
14.382 Econometrics I; 4-0-8; H
15.064J/ESD.751J Engineering Probability and Statistics; 4-0-8; H
16.391J/6.434J Statistics for Engineers and Scientists; 3-0-9; H
16.470J/ESD.756J Statistical Methods in Experimental Design; 3-0-9; H
16.76J/1.203J/6.281J/15.073J/ESD216J Logistical & Transportation Planning Methods; 3-0-9; H
HST.191 Intro to Biostatistics and Epidemiology; 3-0-3; H

B. Optimization
6.251J/15.081J/Intro to Mathematical Programming; 4-0-8; H
15.082J/6.855J/ESD.78J Network Optimization; 3-0-9; H
15.083J/6.859J Integer Programming and Combinatorial Optimization; 3-0-9; H
15.084J/6.252J Nonlinear Programming; 3-0-9; H
15.093J//6.255J Optimization Methods; 4-0-8; H

C. Numerical Methods
16.910J/2.096J/6.336J Intro to Numerical Simulation; 3-0-9; H
16.920J/ 2.097J/6.339J Numerical Methods for Partial Differential Equations; 3-0-9; H
16.940J/1.128J/2.089J Computational Geometry; 3-0-9; H

In cases where a Course 16 subject is jointly listed, Aero/Astro students would register under the Course 16 number. Also, please check the current MIT Course Catalogue for course descriptions and years offered.

For Ph.D. students, the subjects used to fulfill this math requirement may also be used in the student's major and minor program (subject to approval by the student's doctoral committee and, if appropriate, minor advisor). Further, subjects from an S.M. earned at MIT can be used to satisfy this Ph.D. math requirement. Subjects from an S.M. earned outside MIT potentially can be used to satisfy the Ph.D. requirement; in this case, the student can submit these subjects to the department's Graduate Committee for approval (see attached form).

External Subject Request for Ph.D Mathematics Requirement
Department of Aeronautics & Astronautics

The purpose of this form is to request the use of a graduate-level mathematics subject from outside MIT towards the doctoral graduate mathematics requirement in Aero/Astro.

Subject name:

University at which subject was taken:

Subject number or identifier:

Grade received in subject:

Textbook(s):

MIT subject(s) that are similar:

Additional comments (not required):

Please also attach to this request:
- **Official transcript from university at which subject was taken**
- **Syllabus of subject including list of topics covered**

Graduate Committee Response:

Reduction of Graduate Mathematics Requirement (in terms of units):