ADVANCED COURSES FOR NON-MAJORS

Because of the fundamental role that mathematics plays in all types of scientific and technical endeavor, the advanced course offerings of the Mathematics Department must serve a group considerably larger than those preparing for a career in mathematics exclusively.

Economics, Business Administration and Computer Science

The following basic subjects are recommended to master's degree candidates as preparation for work in their profession; they also provide a solid background for students who intend to pursue doctoral studies after completion of the master's program:

Code	Title	Credits
Numerical Methods		
MAT 5100	Numerical Methods I	3
MAT 5110	Numerical Methods II	3
Algebra		
MAT 5420	Algebra I	4
Operations Research		
MAT 5770	Mathematical Models in Operations Research	3
Probability Theory		
MAT 5700	Introduction to Probability Theory	4
Statistical Methods, Applied Time Series and Design of Experiments		
STA 5800	Introduction to Mathematical Statistics	4
STA 5830	Applied Time Series	3

Engineering and Physical Applications

The Mathematics Department has several sequences in applied mathematics that provide experienced engineers and scientists from industry and government the means to acquire and maintain the technical competence needed to work at the frontiers of their fields (for additional courses to those listed below, see the Graduate Bulletin):

Code	Title	Credits
Numerical Methods		
MAT 5100	Numerical Methods I	3
MAT 5110	Numerical Methods II	3
Applied Analysis		
MAT 5220	Partial Differential Equations	4
MAT 5230	Complex Variables and Applications	4
Probability Theory and Random Processes		
MAT 5700	Introduction to Probability Theory	4
Differential Geometry		
MAT 5530	Elementary Differential Geometry and its Applications	3

Students who feel that they eventually would like to pursue mathematical studies beyond the level of the above sequences should make every effort to take the mathematics sequences that begin with MAT 5600, and MAT 5420, respectively, and MAT 6600. These courses will help them to understand and work with abstract concepts in advanced courses.

Statistics

Students requiring only an introduction to basic statistics are referred to STA 1020 or STA 2210. Those whose work demands a good foundation in mathematical statistics are referred to MAT 5700 and STA 5800. STA 5830 is useful for students interested in applied statistics.

In addition to the interdepartmental course listed below, specialized courses in statistics are offered by individual departments:

Code	Title	Credits
ECO 5100	Introductory Statistics and Econometrics	4
ECO 6100	Introduction to Econometrics	4
MAT 5700	Introduction to Probability Theory	4
PSY 2030	Statistical Methods in Psychology	4
STA 2210	Probability and Statistics	4
STA 6830	Design of Experiments	3