APPLIED MATHEMATICS AND STATISTICS, MINOR

The minor in applied mathematics and statistics should be attractive to students majoring in a variety of disciplines, in both the School of Engineering and the School of Arts and Sciences. The minor provides formal recognition of the depth and strength of a student's quantitative knowledge beyond the minimal requirements of his/her major.

Program Requirements

The requirements of the minor in applied mathematics and statistics are the following:

- Completion of an approved program of study containing at least 18 credits in courses coded Quantitative Studies. The first two courses in calculus (AS.110.106 Calculus I (Biology and Social Sciences) and AS.110.107 Calculus II (For Biological and Social Science) or AS.110.108 Calculus I (Physical Sciences & Engineering) and AS.110.109 Calculus II (For Physical Sciences and Engineering) or their equivalents) may not be used to fulfill this requirement.
- Among the courses comprising the 18 Q credits, there must be
  - at least four courses in the Department of Applied Mathematics and Statistics (each of these must be a 3- or 4-credit course); and
  - at least three 3- or 4-credit courses coded Q at the 300-level or above, of which at least two must be in the Department of Applied Mathematics and Statistics; and
  - an approved semester course based on a high-level computer language chosen from the list below or one of the courses approved to meet the AMS Master's/PhD Computing Requirement (http://engineering.jhu.edu/ams/courses-approved-meet-ams-mastersph-d-computing-requirement/).

Code	Title	Credits
Select one of the following:		3-4
AS.250.205	Introduction to Computing	
EN.553.281	Introduction to Mathematical Computing	
EN.553.383	Scientific Computing with Python	
EN.553.385	Numerical Linear Algebra	
EN.553.386	Scientific Computing: Differential Equations	
EN.553.388	Scientific Computing: Differential Equations in Vector Spaces	
EN.553.400	Mathematical Modeling and Consulting	
EN.553.413	Applied Statistics and Data Analysis	
EN.553.433	Monte Carlo Methods	
EN.553.436	Introduction to Data Science	
EN.553.443	Financial Computing in C++	
EN.553.450	Computational Molecular Medicine	
EN.553.488	Computing for Applied Mathematics	
EN.553.493	Mathematical Image Analysis	
EN.560.220	Civil Engineering Programming	
EN.580.242 & EN.580.244	Biological Models and Simulations and Nonlinear Dynamics of Biological Systems	
EN.601.475	Machine Learning	
EN.601.482	Machine Learning: Deep Learning	

- All courses used to meet AMS departmental minor requirements must be taken for a letter grade and passed with grade of C- or higher.
- Students may not count all 3 courses, EN.553.310 Probability & Statistics for the Physical Sciences & Engineering/EN.553.311 Probability and Statistics for the Biological Sciences and Engineering, EN.553.420 Introduction to Probability, and EN.553.430 Introduction to Statistics toward minor requirements.
- A student wishing to complete a minor in applied mathematics and statistics may obtain more information from the Applied Mathematics and Statistics Department office.