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 their 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 (Q). 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 AS.110.113 Honors Single Variable Calculus, 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 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 (https://engineering.jhu.edu/ams/computing-course-list/).

** A student may count the combination of (AS.110.201 Linear Algebra or AS.110.212 Honors Linear Algebra) AND AS.110.302 Differential Equations and Applications in place of ONE of the required 300-level courses within the AMS Department

*** January 26, 2024: CORRECTION: This statement should read, “Students may not count all 3 courses, EN.553.311 Intermediate Probability and Statistics, EN.553.420 Probability, and EN.553.430 Mathematical Statistics, toward minor requirements.”

Code    Title                                      Credits
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AS.110.445 Mathematical and Computational    3-4
         Foundations of Data Science
EN.553.385 Introduction to Computational Mathematics
EN.553.400 Mathematical Modeling and Consulting
EN.553.413 Applied Statistics and Data Analysis
EN.553.432 Bayesian Statistics
EN.553.433 Monte Carlo Methods
EN.553.436 Introduction to Data Science
EN.553.450 Computational Molecular Medicine
EN.553.463 Network Models in Operations Research
EN.553.467 Deep Learning in Discrete Optimization
EN.553.481 Numerical Analysis
EN.553.488 Computing for Applied Mathematics
EN.553.493 Mathematical Image Analysis
EN.553.494 Applied and Computational Multilinear Algebra
EN.601.433 Intro Algorithms
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 a grade of C- or higher.

• Students may not count these 3 courses, EN.553.311 Intermediate Probability and Statistics, EN.553.420 Probability, and EN.553.430 Mathematical Statistics, toward minor requirements.***