BOSTON UNIVERSITY
METROPOLITAN COLLEGE
COMPUTER SCIENCE DEPARTMENT

MET CS 546 QUANTITATIVE METHODS FOR INFORMATION SYSTEMS

Course Overview

The first part of this course lays down the mathematical foundation for the study of Probability Theory and Statistics. Functions, Combinatorial Mathematics, Differentiation and Integration fundamentals are covered. The second part of the course concentrates on the study of Discrete and Continuous Distributions.

Prerequisites

High School/College Algebra

Learning Objectives

By the end of this course the student will have learned:
Techniques to find limits of sequences and functions, differentiating and integrating techniques, continuous functions, asymptotes and graphing techniques, permutations and combinations, the classical and statistical definitions of probability, conditional probability, random variables, the mathematical expectation and the variance of random variables, Binomial, Poisson and Geometric distributions, the strong law of large numbers, discrete and continuous distribution functions, Normal distribution and the central limit theorem

Textbook:

  Recommended book:
1. **Forgotten Calculus** by Barbara Bleau, Barron's Educational Series. ISBN #: 0-7641-1998-2

Evaluation and Grading

Lecture material should be reviewed before the next class since any questions on old material will be addressed only at the beginning of class.

Homework assignments will be made in class and will be due the following class.

There will be two exams. If any grading criteria event is missed it will be the responsibility of the student to arrange a mutually agreeable schedule for completion of work.

Grades will be based on:
Quizes   60%
Final Exam   30%
Class participation   10%

Academic Honesty

The course is governed by the Academic Conduct Committee policies regarding plagiarism (any attempt to represent the work of another person as one's own). This includes copying (even with modifications) of a program or segment of code. You can discuss general ideas with other people, but the work you submit must be your own. Collaboration is not permitted.

Instructor Information

Andrew Gorlin
Email: asgorlin@bu.edu

Office hours: Monday, 4-6 p.m.

Classes are scheduled at: 808 Commonwealth Ave., room 133

Schedule of Classes

9/11 and 9/18: **Module 1**: Functions, images and preimages, one-to-one functions, limit of a sequence of numbers, continuous functions, derivatives of functions, rules of differentiation, points of local maximum and minimum, and graphs of functions.

9/25 and 10/2: Module 2: Horizontal and vertical asymptotes, Inflection points, the antiderivative of a function, the definite integral of a function, and the fundamental theorem of calculus. **Quiz for Module 1 on 9/25.**

10/10 and 10/16: **Module 3:** K-samples, permutations, combinations, sample space, events, and the classical and statistical definitions of probability. **Quiz for Module 2 on 10/10.**

10/23 and 10/30: **Module 4:** Independent events, discrete random variables, Binomial distribution, and the approximation of the Binomial distribution. **Quiz for Module 3 on 10/23.**

11/6 and 11/13: **Module 5:** Geometric distribution, the math expectation and the variance of a random variable, independent random variables, strong law of large numbers, and the properties of distribution functions. **Quiz for Module 4 on 11/6.**

11/20 and 11/27: **Module 6:** Continuous distribution functions, density functions, the math expectation, and the variance of a continuous random variable, standard deviation, normal distribution, and the Central Limit Theorem. **Quiz for Module 5 on 11/20.**

12/4: Quiz for Module 6 on 12/4. Final review. Make up date for missed quizes.

12/11: Final test