**Topic description:** This is the first part of a two-part course introducing probability and statistics. In this first half, key fundamental concepts of probability, random variables and their distributions, expectations, and conditional probabilities will be covered.

**Prerequisites:** MATH 1970 and either MATH 2230 or MATH 2030 or permission of instructor.

**Textbooks:** John E Freund’s Mathematical Statistics with Applications, 8th edition by Miller & Miller (Required); Statistical Inference, 2nd Edition by Casella & Berger (Optional).

**Grading:** Students will be graded based on homework, a midterm, and a final exam.

**Learning Objectives:**

1. You will recognize the important role that probability distributions play in the modelling of real processes.

2. You will learn basic, set-theoretic notions of probability, along with standard ideas of conditional probability, including Bayes’ Rule.

3. You will learn the properties of standard “named” distributions.