

Exam 1 Study Guide
MATH 165 - Fall 2020
Tufts University, Department of Mathematics

- **Discrete Random Variables:** distributions, finite and infinite sample spaces, uniform r.v., binomial r.v., Poisson r.v., geometric r.v., hypergeometric r.v.,
- **Continuous Random Variables:** densities, cdfs, uniform r.v., exponential r.v., Gaussian r.v.
- **Combinatorics:** binomial coefficients, combinations, permutations, Stirling's approximation, union bound, inclusion-exclusion principle
- **Properties of Distributions:** conditionality, independence, Bayes' theorem, expectation

The exam will consist of four questions, and will last for 120 minutes. It is closed book— no books, notes, or other any other outside resources are permitted. It is recommended to study the homework first, then the class notes, then the textbook.