MAIN TOPICS FOR EXAM 2

(1) Inclusion-Exclusion
(2) Shuffling
    (a) 2-shuffle model
    (b) Variation distance
(3) Conditional probability
    (a) Discrete conditional distribution functions
    (b) Continuous conditional density functions
    (c) Independent events
    (d) Joint distributions and independence for discrete random variables
    (e) Joint distributions and independence for continuous random variables
    (f) Bayes' Formula and applications
(4) Important distributions
    (a) Discrete uniform distribution
    (b) Binomial distribution
    (c) Geometric distribution
    (d) Negative binomial distribution
    (e) Poisson distribution and connections to binomial/exponential distributions
    (f) Exponential distributions
    (g) Normal distributions
(5) Functions of a continuous random variable
    (a) Images that have no Riemann density function of random variables with a density function
    (b) Images under increasing/decreasing maps

Expect several True/False questions, followed by 2 other questions (possibly with multiple parts).

Use of notes, books, or calculators will not be permitted during the exam.