Outline for Exam 1

- The exam will cover material from chapters 2-10. You will have a choice of problems. (For example, you might be asked to answer any six of ten questions.) Most will involve routine calculation. A few might be more thought-provoking and for these I may supply hints and guidance.

- This will be a closed-book, no-notes exam. You are allowed a simple scientific calculator only. Any device that communicates, graphs, can be programmed or display text is not permitted.

2-4. Sample spaces and σ-fields of events. Countably additive probability spaces. Probability distributions on countable sample spaces. The counting measure on a finite sample space. Kolmogorov's axioms.

5. The basic rules of probability calculus.

6. Ordered samples of size m drawn from a set of size n with or without replacement. Stirling's approximation.

7. Counting subsets. Binomial and multinomial coefficents. The binomial and multinomial theorems.

8. Discrete distributions. The Bernoulli, binomial, multinomial, geometric and Poisson distributions.

9, 10. Properties of conditional probability. Conditional probability as a countably additive probability measure. The law of total probability. Independent events.