

A Brief Summary for Final Exam

Be familiar with the basic properties of probability and know how to use them.

Be familiar and know how to use the multiplicative theorem, the Total probability theorem, and the Bayes theorem.

Independence of events.

Basics of combinatorics.

Check whether a function is a p.d.f., determine the corresponding d.f., calculate probabilities and expectations, both for discrete and continuous r.v.'s.

Be familiar with the basic distributions (Binomial, Geometric, Poisson, Gamma, Normal and Uniform). You don't have to remember the formulas, just where and how these distributions are used.

Determine the median and the mode of a distribution.

Calculation of expectations, variances.

Definition and calculation of covariances and correlation coefficients.

Joint and marginal p.d.f.'s for two r.v.'s: know how to find the marginals from the joint.

Independence of r.v.'s: Definition, applications.

Know the consequences of independence of r.v.'s in cases such as Binomial, Poisson, and Normal.

Find the p.d.f. of two transformed r.v.'s.

The basic of order statistics, and in particular, things pertaining to the smallest and the largest order statistics Y_1 and Y_n .

Statements of the WLLN and the CLT. Know how to apply the CLT.

REMARKS

1. The exam is closed books/notes.
2. You can use calculators.
3. Bring along with you, if you wish, either up to two (one-sided) pages (not two sheets!) of notes, or up to a two-sided sheet of notes.
4. Tables will be provided, if needed.
5. You can use either blue books, or plain paper.
6. Do not forget to write your name on your paper.
7. A Sample Final Exam, along with the Answers, are posted in the website.