

Text; A First Course in Probability by Sheldon Ross

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Week by week syllabus.

Weeks 1 and 2. Combinatorics, Computing probabilities in simple situations involving counting.

Week 3. Conditional Probability.

Week 4. 5. Random variables and Discrete distributions. Expectation and variance. Binomial Poisson

Negative Binomial etc. (Monday of week 5 is a Holiday), Expectation, Variance, Generating

functions, independent sums

Week 6. 7. Continuous probability distributions, Change of variables. Uniform, Normal, Gamma, Beta,

Cauchy etc, Mid Term on March 7.

Week 8 Spring Break.

Week 9,10,11. Multivariate distributions, change of variables Jacobians, Multivariate normal, Distribution

of sample mean, sample variance etc, conditional distributions,

Week 12 Limit Theorems, Law of large numbers, Central Limit Theorem

Week 13 Additional Topics, Markov Chains, Poisson Process

Week 14 Simulation, Catch up

Week 15 Revision

Week 16 Finals

Grading: 25% Homework, 25% Midterm, 50% Finals.