

Topics List for the Second Test

The student should be able to:

1. use the “at least one rule” $P(\text{at least one}) = 1 - P(\text{none})$;
2. know how to calculate conditional probabilities (easy from a table! otherwise use formula in 1);
3. be able to use the **Fundamental Rule of Counting** (if independent, multiply);
4. apply the two rules for selecting a subset from a set: order counts ${}_n P_x$ (permutations) and order does not count ${}_n C_x$ (combinations);
5. word jumbles with repeated letter will not be on the test (or final);
6. recall the difference between **discrete** (separate values) and **continuous** variables (no gaps or breaks);
7. find the mean (aka **expected value**), standard deviation (and possibly variance) of a discrete probability distribution (usually **1-Var Stats L₁, L₂**);
8. recognize **binomial probability distributions** (fixed number n of independent identical trials, each with two outcomes: success and failure; with probability of success p fixed);
9. use **binompdf**(n, p, x) and **binomcdf**(n, p, x) on your calculator; and
10. find the expected value (mean) $\mu = np$ and standard deviation $\sigma = \sqrt{npq}$ for binomial distribution; use them to find the **usual range**;
11. recognize **Poisson probability distributions** (number of events over an interval, events independent and uniform over interval);
12. use **poissonpdf**(μ, x) and **poissoncdf**(μ, x) on your calculator; and
13. find the variance $\sigma^2 = \mu$ and standard deviation $\sigma = \sqrt{\mu}$ for Poisson distributions.

(Warning: spend plenty of time practicing counting and calculating probabilities!)

Disclaimer: This is only a guide to possible exam topics. Your exam could include any topic discussed in class or on our homework!