STAT/MA 41600
Practice Problems #2: November 14, 2014

1. There are 2000 flights that arrive at the Denver airport each day, 70% of which are on time. What is the approximate probability that strictly more than 1420 of the flights are on time in one day? Assume that the flights' delays are relatively independent.

2. There is a big exam tonight, and all of the 400 students are invited to attend the help session. From past experience, the instructor finds that each student is 60% likely to attend the help session. If the students behave independently, find the probability that between 230 and 250 (inclusive) students attend the help session.

3. Bob is a professional crayon inspector. Each crayon he checks has a 5% chance of being broken. If he checks 12,000 crayons during a certain production run, what is the approximate probability that there are between 580 and 620 (inclusive) crayons that are broken?

4. If 6% of passengers are screened with an extra round of security at the airport, and Southwest has 8 flights with 180 passengers each, what is the approximate probability that 80 or more of them will receive this extra level of screening?

5. Jeff typically makes 80% of his field goals. Steve typically makes 60% of his field goals. If Jeff tries 120 times to get a field goal during a season, and Steve tries 164 times to get a field goal during a season, and their attempts are independent, approximate the probability that Jeff gets strictly more field goals than Steve.

6. Design your own problem and solution. Create your own problem about normal approximation to a Binomial random variable with a large parameter n. Design your problem in such a way that you would find it enjoyable and also interesting (i.e., not completely trivial) if you found this problem in a probability book. Please provide the answer for your problem too.