- Read and attempt to understand Sections 2.8 and 3.1 through 3.3 in the Ross book.
- Continue into Section 3.4 as far as you can (it's 15 pages long).

Which category best describes you as a student?

A Statistics graduate student
B Math or CSE graduate student
C Other graduate student
D Undergraduate student

Notes: Good mix of all 4 categories of students.

If you roll two 6-sided dice, how many outcomes are in the sample space?

A 6
B 12
C 21
D 36

Notes: Answer: D. Most got this; we discussed the fact that the sample space consists of all different possible outcomes of the physical *experiment; for instance, the answer does not change if we cannot distinguish between the two dice because somehow they are physically different even if we cannot tell which is which.*

For any events E and F, and probability function P, $P(E \cup F) = ?$

A $P(E) + P(F)$
B $P(E) + P(F) - P(E \cap F)$
C $P(E) + P(F) - P(E)P(F)$
D $P(E)P(F)$

Notes: Answer: B. Most got this, though C was also common. We discussed the fact that C is correct in the special case of independent events, whereas A is correct in the special case of disjoint events.

There are about 40 people in this room. Which of the following is closest to P(at least one pair of people in this room have matching birthdays)?

A 0.9
B 0.1
C 0.09
D 0.01

Notes: Answer: A. (Actually, the exact answer under the usual assumptions is 0.8912.) This was not a popular answer; many seemed a bit puzzled here. We demonstrated how to use conditioning to obtain the result.

If events E and F are independent, then $P(E \mid F) =$?

A $P(E)$
B $P(E \cap F)$
C $P(E \cup F)$
D $P(E)/P(F)$

Notes: Answer: A. Nice intuitive explanation here. Several chose D but not too many.

A test for detecting a certain disease has probability 0.99 of being correct in all cases. If 1% of the population has the disease and a randomly selected individual tests positive, which is closest to the probability that he/she actually has the disease?

A 0.99
B 0.5
C 0.09
D 0.05

Notes: Answer: B. Responses were all over the place, with many not responding at all. We did a quick demo in the classroom and suddenly most answers changed to B. Did not have time to show why this is also a special case of Bayes' Formula, but it is.