Dear ECE 314 students,

The first midterm exam (on coming Thursday, 16 March, 6:00 p.m. through 8:00 p.m.) is approaching fast.

As I announced in class, the exam problems will be restricted to material covered in the first two sections of the course: section 1 (experiments, models, and probabilities) and section 2 (discrete random variables).

For the preparation of the exam, it may help you if you remember that most problems that we covered in class and in the homework were of the following types:

1. Determine the total number of outcomes of a sequential experiment.
2. For a given sequential experiment, determine the number of outcomes that are within certain events $A, B, C, \ldots$
3. Determine the probability of an event $A$.
4. Determine the conditional probability of an event $A$ given $B$.
5. Identify the PMF of a R.V. defined by a verbal experiment description and by the function $X(s)$ that maps outcomes to real numbers.
6. Find the PMF of a R.V. $X$ from the CDF of $X$; find the CDF of a R.V. $X$ from the PMF of $X$.
7. Calculate moments (expected value, variance, higher moments) of a R.V. $X$ and of a derived R.V. $Y=g(X)$.

Here is some advice:

- Go through the examples covered in class, the homework assignments, and the homework solutions and think about how you can approach the types of problems listed above in a systematic fashion.
- Once you have recognized a solution pattern, write down or sketch a “roadmap” that includes the relevant definitions and theorems.
- Before the exam, make sure that you have understood the relevant concepts, definitions and theorems. (If you have to think about the meaning of definitions and theorems during the exam, you may run out of time!!!)

For the First Midterm Exam, you will be allowed to bring only

- Pens, pencils, erasers
- A single one-sided, letter-size, handwritten page (no Xerox!!!) that includes definitions, theorems, “roadmaps”, etc. that you don’t want to memorize.

Best wishes,

Andreas Muschinski