Tutorial 9 – Probability

The Assignment Due Date Paradox

You're taking 4 courses. All four Assignment 1's are due in week 4. Each prof independently chooses one weekday (Monday to Friday) for the due date.

1. How many ways are there overall?

2. How many ways are there such that all 4 assignments are due on different days, i.e., no two assignments are due on the same day? And so what is the probability that this happens?

3. How many ways are there such that at least two assignments are due on the same day? And probability?

4. You always have two assignments due on the same day, or two midterms on the same day. Is that conspiracy? Or just probability? :)

The ith Ball

There are 6 red balls and 9 blue balls in a bag; when you draw a ball from the bag, each ball in the bag is equally likely drawn. Randomly draw 3 balls from the bag without replacement—after a ball is drawn, do not put it back into the bag. Find the probability that the ith ball, $(1 \leq i \leq 3)$, is one of the red balls.