**Math 4740 - Test 2 Study Guide**

Test 2 covers:

- HW 3 and HW 4.

Here is a breakdown of the topics.

**Homework 3:**

- **<u>Problems 4 and 6 and 9 will NOT be on the test.</u>**
  Problem 4 is a good one for more practice with conditional probability if you want a harder problem. Problems 6 and 9 show you how to reverse the conditional probability formula.

- Checking if two events are independent or not.
  **Problems 1, 2.**

- Conditional probability.
  **Problems 3, 10.**

- Law of total probability. Can use formula or draw tree.
  **Problems 2, 5, 7, 8.**

**Homework 3 extra problems:**

- Doing independent experiment over and over until either event A or B happens. Computing the probability A occurs before B with the formula P(A) / ( P(A) + P(B) )
  **Problems 1,2**

**Homework 4:**

- **<u>Problems like 2 and 5 will NOT be on the test.</u>** These are the infinite probability spaces. They are good for understanding how to make an infinite tree and multiply the branches to get probabilities like in the law of total probability.
- **<u>Problem 4 will NOT be on the test.</u>** This is a poker problem.

- Calculating $P(X = k)$, $P(X <= k)$, $P(X > 0)$, and $E[X]$. Drawing a picture of p and F.
  **Problems 1, 3, 6, 7.**

**Homework 4 extra problem:**

- $P(X = k)$ and $E[X]$
  **Problem 1.**