I. **Sections to Read** (All content from Blitzstein and Hwang's *Introduction to Probability* unless otherwise noted)

- Read sections 3.3 - 3.5, 3.11

II. **Videos to Watch** (All videos from Blitzstein's Math 110 YouTube channel, unless otherwise noted)

- Lecture 8: Random Variables and Their Distribution

III. **Objectives**

- Define the probability mass function of a random variable, and give explicit descriptions of this function for Bernoulli, Binomial, Hypergeometric and Uniform random variables.
- Identify quantities which have the Bernoulli, Binomial, Hypergeometric and Uniform distributions in a variety of probability models.
- Simulate Bernoulli, Binomial, Hypergeometric and Uniform variables in R

IV. **Quiz Questions** (Submit answers on Gradescope)

1) Let $p(n) = \frac{C}{n}$ for $n \in \{0, 1, 2, 3, \dots\}$. Does there exist a value of C so that p is a valid probability mass function?
2) Suppose X and Y are both random variables with the Bernoulli (0.5) distribution. Does this imply that $X = Y$? Explain.
3) Use R to simulate 1000 independent Binomial random variables with $p = 0.5$ and $n = 10$. Based on your sample, approximate $P(X = 5)$. Then compare to the exact probability given by `dbinom`.