Homework due **Sep 22 Mon** in class. Problems with * are recommended but not required.

- Reading: Textbook¹ Chapter 3.1.
- Hand-in Problems: You may give your final results in terms of factorials.
 - 1. Textbook Chapter 3.1, Exercises 12, 14 (in part (b) assume every button must be used once).
 - 2. 3 boys and 4 girls are asked to stand in a line.
 - (a) How many possible orders are there in total?
 - (b) If in addition girls are asked to stand in front of boys, how many possible orders are there in total?
 - (c) If every boy must stand next to girls, and every girl must stand next to boys, how many possible orders are there in total?
 - 3. 3 boys and 4 girls are asked to stand in a circle, and two standings are considered different only if the relative orders are different.
 - (a) How many possible orders are there in total?
 - (b) Suppose one of the girls, Emma, is standing next to two other boys. How many possible orders are there in total?
 - 4. A deck of ordinary cards is shuffled and 13 cards are dealt.
 - (a) What is the probability that the first card dealt is an ace and the last card dealt is a king?
 - (b) What is the probability that the first and last cards dealt are both aces?
- Not hand-in Problems:
 - 1. Textbook Chapter 3.1, Exercises 2, 3, 5, 6, 7, 8, 10, 13. We will work some of these problems out during the lectures.

¹Introduction to Probability, Second Revised Edition, Grinstead and Snell. See textbook website for solutions of odd-number exercises.