

HOMEWORK 1
PROB. AND STAT. FOR ENG. (STAT:2020; BOGNAR)

1. There are 16 students in Justin's class
 - (a) In how many ways can Justin arrange the class list?
 - (b) Justin gives out three medals at the end of every semester; a gold medal to the student with the highest grade in the class, a silver medal to the student with the second highest grade in the class, and a bronze medal for a student with the third highest grade in the class. In how many ways can Justin hand out the medals?
 - (c) Justin gives out three prizes at the end of the semester to the three students with the highest grades. The prizes are all the same. In how many ways can Justin hand out the prizes?
2. Brandon has 17 patients who want to get their flu shots. He only has 8 shots available.
 - (a) In how many ways can he select 8 patients to receive the shot?
 - (b) Suppose 3 of Brandon's patients are allergic to eggs (flu shots are cultured in eggs). In how many ways can he choose 8 patients where 0 have an egg allergy?
 - (c) Suppose 3 of Brandon's patients are allergic to eggs. If he randomly selects 8 patients, what is the probability that 0 of the selected patients have an egg allergy?
 - (d) Suppose 3 of Brandon's patients are allergic to eggs. In how many ways can he choose 8 patients where 1 or more is allergic to eggs?
 - (e) Suppose 3 of Brandon's patients are allergic to eggs. If he randomly selects 8 patients, what is the probability that 1 or more of the selected patients has an egg allergy?