

Day14

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Problem 5.5

- a) Variance of several groups = True
- b) Mean of one group = False
- c) Means of several groups = True
- d) Variance of one group = False

Problem 5.9

The three main reasons to randomize the assignment of treatments to units are:

- 1) justify the use of a probability model
- 2) Protect against bias and confounding
- 3) support inference about cause-and-effect

Problem 5.13

Major - Categorical, would have to use ANOVA

Sex - Categorical, can use two-sample t test

Class year - Categorical, would have to use ANOVA

Political inclination - Categorical, would have to use ANOVA

Sleep time last night - Quantitative

Study time last week - Quantitative

BMI - Quantitative

Total amount of money spent on textbooks - Quantitative

Problem 5.15

- a) Explanatory: font used on exam
- Response: final exam score

- b) This is an randomized treatment because the instructor actively (and randomly) assigned fonts to her students.
- c) The random assignment takes care of the independence condition. **Important!!!**

Problem 5.16

- a) Explanatory: main ingredient in dog food
Response: amount of energy that dogs have
- b) This is a randomized experiment because the food ingredient was randomly assigned
- c) The random assignment takes care of the independence condition.

Problem 5.17

- a) The units are each student
- b) The treatments are the 4 kinds of fonts: Times, Courier, Helvetica, Comic Sans
- c) She would need 10 students in each font category

Problem 5.18

- a) the units are the dogs
- b) the treatments are the kind of main ingredient: salmon, chicken, and beef
- c) Each diet needs 15 dogs on it