1) Three hundred undergraduate students at the University of Florida volunteer to be subjects in an experiment whose purpose is to look at the effect that both dosage level and type of drug have on a performance task (a quiz). There are 4 levels of drug to be tested: 0mg (placebo), 200mg, 500mg, 750mg. There are two types of drugs to be tested as well: A and B. All levels of the drug can be administered in the same size/shape pill. We will be measuring the students’ scores on the performance task.

   a. What are the treatments?

   b. What are the explanatory variables? (there are 2 of them)

   c. What is the response variable?

   d. Who are the individuals/subjects?

   e. Design a completely randomized experiment (Draw a diagram):

   f. What are some lurking/confounding variables?
You have developed a weight loss treatment that involves exercise and diet pills. You have 400 overweight male volunteers. You are looking at 3 types of exercise programs (low, medium, high) and diet pills (placebo and 100mg). You will measure the percent of weight lost by the subjects.

2) a. What are the treatments? (there are 6 of them)

b. What are the explanatory variables? (there are 2 of them)

c. What is the response variable?

d. Who are the individuals/subjects?

e. What are some lurking/confounding variables?

f. You are told that of your 400 volunteers, 120 are under 30 years old, 180 are 30 – 55 years old, and 100 are over 55 years old. Using this information, design a block design experiment. **DRAW** a diagram, be sure to indicated where random assignment is occurring:
3) Pizza Hut has hired your company to study the reactions to two different versions of a future television advertisement. Two different versions of ads are for the same product. Pizza Hut wants to know which version of the ad they should air. There are 130 people available for the experiment.

   a. What are the treatments? (there are 2 of them)

   b. What is the explanatory variable?

   c. What is the response variable?

   d. Who are the individuals/subjects?

   e. Design a matched pairs design experiment:

   f. Of the 130 people, 50 are men and 80 are women. Re-do your matched pairs design, but block for gender as well.