

**Stat 150**  
**Randomized Trials in Minitab**

Suppose we are interested in assigning students in our class to one of two treatment groups: Group A or B.

**GOAL: We want to use a method that will ensure that the assignments are made randomly and also that there are an equal number of subjects in Group A and B.**

(1) Below is a list of all subjects. The heading of Chapter 2 of Super Crunchers is “Creating Your Own Data with the Flip of a Coin” ... let us do just that. With the help of a partner, use the results of the flip of a coin to determine random treatment assignment in the following way:

- If the outcome is “Heads”, the subject is assigned to Group A
- If the outcome is “Tails”, the subject is assigned to Group B

Do this assignment method for all subjects in the table below. Count the number of subjects in Group A and B and write this number at the bottom.

<b>Coin Flipping Method</b>	
<b>Subject</b>	<b>Trt Group</b>
Allison, Ryan	
Beemer, Josh	
Ghirardo, Mike	
Klingmann, Max	
Maddalena, Julia	
Maxwell, Alex	
Moore, Chris	
Nelson, Suzanne	
Pool, Ben	
Popoff, Zoya	
Powers, Nick	
Said, Diana	
Samuels, Melody	
Shaffer, Matt	
Watts, Camille	
Williams, Greg	
<b># in Group A =</b>	
<b># in Group B =</b>	

At this point, whether by looking at your group's results or that of another group's, you should notice a deficiency in strictly using the flip of a coin to determine random assignments. Describe the problem that is keeping us from achieving our main goal?

(2) One way to make random assignments is via Minitab's random number generator.

One type of random variable is called a uniform variable. Minitab can generate a random decimal number from 0 to 1. Such a variable is known as the **uniform** variable on the interval (0,1). Let's assign to each subject a uniform random value:

Launch Minitab and apply the following steps:

1. First, type in the label "Rand" for column C2.
  
2. Calc -> Random data -> Uniform
  - Number of rows to generate (16, as we have 16 subjects)
  - Store in column (C2)

Now, with your partner discuss how to use these random numbers (with the corresponding names) in order to randomly create groups for a balanced treatment allocation. Write your idea(s) below:

## Sorting

Note that **sorting** allows us to randomly assign subjects in a balanced way.

Apply the following steps:

Data -> Sort

- Sort column(s): [Use C1 and C2]
- By column: [Use C2]
- Store sorted data in: [Column(s) of current worksheet: Type C3 C4]

Based on your results, determine the treatment allocation in the table below:

Sorting Method	
Subject	Trt Group
Allison, Ryan	
Beemer, Josh	
Ghirardo, Mike	
Klingmann, Max	
Maddalena, Julia	
Maxwell, Alex	
Moore, Chris	
Nelson, Suzanne	
Pool, Ben	
Popoff, Zoya	
Powers, Nick	
Said, Diana	
Samuels, Melody	
Shaffer, Matt	
Watts, Camille	
Williams, Greg	
# in Group A =	
# in Group B =	