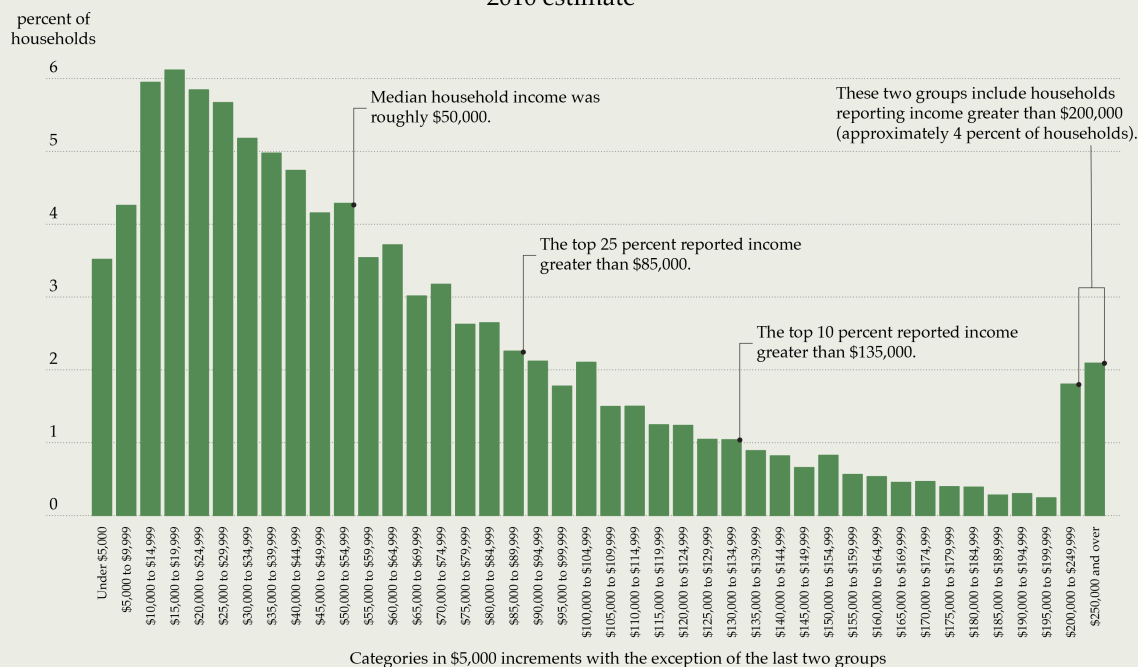# Statistics Homework 4

Mr. Grant

July 17, 2017

Due Date: Tuesday, July 18th

Turn in this homework:

- On a sheet of lined notebook paper

- With your name, the date, and the name of this class on it

- With each problem clearly numbered

- With your work shown

1. The mean of Aaliyah, Branden, Carter, and Daniel's shoe sizes is 9. Aaliyah is a size 8, Branden a size 11, and Carter a size 6.5. What is Daniel's shoe size?

2. There are 5 students in a sample: Ephraim, Felicia, Giselle, Harry, and Ingrid. Ephraim owns 8 pairs of shoes, Felicia owns 20, Giselle owns 30, and Harry owns 3. Suppose you are told that the median number of shoes owned in this sample is 8. What is the largest number of shoes that Ingrid could own? The smallest? Now suppose you are told that the median is 20. What is the largest number of shoes that Ingrid could own? The smallest?

3. In the group Jasmine, Kyungmin, Leticia, Mokoa, and Naira, Jasmine and Mokoa each have 1 sibling and Kyungmin and Leticia have 2. You are told that the mode of this group is 1. How many siblings does Naira have?

4. Draw a histogram of the shoe sizes of the Texans in the class, using bins of width 1.

5. The image below is called a "frequency histogram"; rather than the number of US households in each column, it shows the percentage of US households in each column. Your friend from Vietnam is visiting the United States for the first time, and you want to help her understand our economy by telling her what a "typical" US household earns in a year. Would you tell her the mean household income, the median income (as this graph does), or the mode? Why? (There is no right answer to this question, so what really matters is your explanation.)

Distribution of annual household income in the United States
2010 estimate

percent of households

Median household income was roughly $50,000.

These two groups include households reporting income greater than $200,000 (approximately 4 percent of households).

The top 25 percent reported income greater than $85,000.

The top 10 percent reported income greater than $135,000.

Categories in $5,000 increments with the exception of the last two groups

Source: U.S. Census Bureau, Current Population Survey, 2011 Annual Social and Economic Supplement