

STATISTICS 211 Tutorial 1

1. True or false.
 - (a) In a study on smoking, the smokers from the treatment group and the nonsmokers are the controls, so this is a controlled experiment. _____
 - (b) In an experiment, historical controls, if they are available, are better than randomized controls. _____
 - (c) An observational study does not necessarily show cause and effect. _____
2. In assigning volunteers to nicotine patch therapy or a placebo, would it be acceptable if the half who volunteered first were put into treatment and the other half were given the placebo? Explain.
3. After 8 weeks, 46% of the nicotine group and 20% of the placebo group had quit smoking. This was defined by an expired air carbon monoxide level of 8ppm or less measured by a nurse. Could this study be single blind and/or double blind. Explain

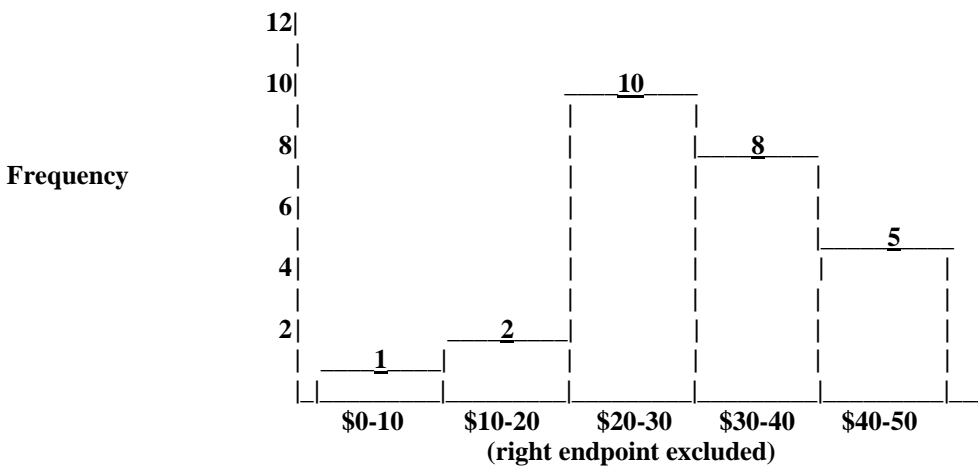
4. Consider the following times in minutes (rounded to the nearest minute) to complete a task, recorded for 50 people.

TIME	FREQUENCY
8-9	10
10-11	10
12-14	20
15-19	<u>10</u>
	50

Construct a histogram for this data. Add the necessary columns to the table to show your work, and construct a histogram using the density scale (i.e. area under the histogram is 100%). Label the axes. Answer the following questions.

Answer the following questions.

- A. What percentage of subjects took 13 minutes to complete the task?
 - B. What percentage of subjects took 10 minutes or more to complete the task?
 - C. What percentage of subjects took between 12 and 13 minutes to complete the task?
 - D. What percentage of subjects took more that 16 minutes to complete the task?
5. The 1995 payroll amounts for all major-league baseball teams are shown below (in millions). Answer the following questions concerning this graph



- A. How many of the major-league payrolls exceeded \$10 million in 1995?
- B. How many of the major-league payrolls are between \$10 million and under 40 million?
- C. What percentage of major-league payrolls exceeded \$10 million in 1995?

6. Circle the correct answer. A histogram represents percents by {height, area}.
7. Identify the type of data collected.
- A. A dealership manager records the colours of automobiles on a used car lot. Identify the type of data collected.
Qualitative Quantitative
- B. A postal worker counts the number of complain letters received by the US Postal Service in a given day. Identify the type of data collected.
Qualitative Quantitative
- C. An usher records the number of seats in a movie theatre.
Qualitative Quantitative
8. Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 160 students and carefully recorded their parking times.
- (a) Identify the variable of interest to the university administration.
- (b) Identify the data collection method used by the administration in this study
A. data from a designed experiment B. data collected observationally
C. data from a published source D. data from a survey
9. The legal profession conducted a study to determine the percentage of cardiologists who had been sued for malpractice in the last five years. The sample was randomly chosen from a national directory of cardiologists. What is the variable of interest in this study?
10. A statistics student researched her statistics project in the library and found a reference book that contained the median family incomes for all 10 provinces. On her project, she would report her data as being collected using:
A. observational data B. a published source
C. survey D. a designed experiment
11. What method of data collection would you use to collect data for a study where a political pollster wishes to determine if his candidate is leading in the polls?
A. use a published source B. Take a census
C. a designed experiment D. a use a survey
12. A report sponsored by the California Citrus Commission concluded that cholesterol levels can be lowered by drinking at least on glass of a citrus product each day. Use statistical thinking to comment on the report.
13. A local newspaper ran a survey by asking, "Do you support the deployment of a weapon that could kill millions of innocent people?" Determine whether the survey question is biased?

14. Complete the following table.

Grade on exam	Frequency	Relative frequency	Cumulative rel. frequency
A		.09	.09
B	42	.14	
C		.43	
D			.82
F			
Total	300	1	

15. Do as many questions as possible from chapter 1,2 and 3.

