

# Population Vs Sample

Population: any collection of all objects or individuals of interest.

⇒ Parameter: the summary number, an average or percent, that comes from the entire population (actual)

Sample: representative group from the population

⇒ Statistic: summary number, an average or percent, that comes from the sample. (estimate)

## PARAMETER OR STATISTIC?

1. For the studies described, identify the population, sample, population parameters, and sample statistics:

a) The Gallup Organization conducted a poll of 1003 Americans in its household panel to determine what percentage of people plan to cancel their summer vacation because of the increase in gasoline prices.

Pop: All American households Sample: 1003 American household

b) Harris Interactive surveyed 2435 U.S. adults nationwide and asked them to rate quality of American public schools.

Pop: All U.S. adults Sample: 2435 U.S. adults

c) The American Institute of Education conducts an annual study of attitudes of incoming college students by surveying approximately 261,000 first-year students at 462 colleges and universities. There are approximately 1.6 million first-year college students in this country.

Pop:  $\approx$  1.6 million 1<sup>st</sup> yr students Sample: 261,000 1<sup>st</sup> yr students

d) In a USA Today Internet poll, readers responded voluntarily to the question "Do you consume at least one caffeinated beverage every day?"

Pop: All USA Today readers Sample: USA Today voluntary responders

e) Astronomers typically determine the distance to galaxy by measuring the distances to just a few stars within it and taking the mean (average) of these distance measurements.

Pop: All stars in galaxy Sample: few stars in galaxy  
Parameter: actual average distance Stat: average distance from the sample

2. Determine whether the numerical value is a parameter or a statistic (and explain):

a) A survey of 1103 students was taken from the university with 19,500 students.

b) The 2006 team payroll of the New York Mets was \$101,084,963.  
Pop. Parameter, payroll salary for all New York Mets

c) In a recent study of physics majors at the university, 15 students were double majoring in math.

Sample: Statistic, we need all students at the university for a parameter

d) A recent survey by the alumni of a major university indicated that the average salary of 10,000 of its 300,000 graduates was \$125,000.

Pop: 300,000 graduates Sample: 10,000 graduates  
Parameter: actual average salary Stat: \$125,000 average salary

e) The average salary of all assembly-line employees at a certain car manufacturer is \$33,000.