

# Chp 1

**Statistics** is the science of conducting studies to collect, organize, summarize, analyze, and draw conclusions from data.

A **variable** is a characteristic or attribute that can assume different values.

**Descriptive statistics** consists of the collection, organization, summarization, and presentation of data.

**Inferential statistics** consists of generalizing from samples to populations, performing estimations and hypothesis tests, determining relationships among variables, and making predictions.

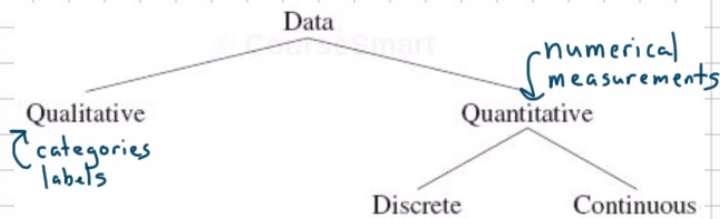
A **population** consists of all subjects (human or otherwise) that are being studied.

A **sample** is a group of subjects selected from a population.



**Discrete variables** assume values that can be counted.

**Continuous variables** can assume an infinite number of values between any two specific values. They are obtained by measuring. They often include fractions and decimals.



The **nominal level of measurement** classifies data into mutually exclusive (nonoverlapping) categories in which no order or ranking can be imposed on the data.

The **ordinal level of measurement** classifies data into categories that can be ranked; however, precise differences between the ranks do not exist.

The **interval level of measurement** ranks data, and precise differences between units of measure do exist; however, there is no meaningful zero.

The **ratio level of measurement** possesses all the characteristics of interval measurement, and there exists a true zero. In addition, true ratios exist when the same variable is measured on two different members of the population.

**Table 1-2** Examples of Measurement Scales

Nominal-level data	Ordinal-level data	Interval-level data	Ratio-level data
Zip code	Grade (A, B, C, D, F)	SAT score	Height
Gender (male, female)	Judging (first place, second place, etc.)	IQ	Weight
Eye color (blue, brown, green, hazel)	Rating scale (poor, good, excellent)	Temperature	Time
Political affiliation	Ranking of tennis players		Salary
Religious affiliation			Age
Major field (mathematics, computers, etc.)			
Nationality			

