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Introduction

Most people become familiar with probability and statistics through various media (radio, TV, Internet, newspapers, and magazines)

- The cost of raising a child from birth to age 17 is $233,610, not including college expenses
- Americans own 42% of the guns in the world.
- There are 2.3 million Google searches per second.
- Motorists spend, on average, 17 hours per year searching for a parking space
- Almost 80% of time spent on social media platforms happens on a mobile device
- The median age of a person living in Georgia is 35.3 years, based on the 2010 US Census report
Statistics is used on almost all fields of human endeavor

- **Sports**: a statistician may keep records of the number of yards a running back gains during the football game or number of hits a baseball player gets in a season.
- **Education**: a teacher might want to know if new teaching methods are better than old ones.
- **Criminal Justice**: a researcher uses a statistical model to predict increased risks of crime.
- **Public Health**: an administrator might be concerned with the number of residents who contract a new strain of flu virus.
- **Quality Control**: a manager needs to determine if the bottle filling machine is working properly.
- **Media/Communications**: a weatherperson predicts the chance of precipitation on any given day.
Why should we study Statistics?

We should study Statistics so we are able to

- read and understand various statistical studies performed in their fields—requires a knowledge of the vocabulary, symbols, concepts, and statistical procedures
- conduct research in their fields—requires ability to design experiments which involves collection, analysis, and summary of data
- become better consumers and citizens
For many students, this will be their first true encounter with Statistics.

At least, initially, learning Statistics is similar to learning a new language. Statistics uses vocabulary and concepts that are unique to the field. In this module, you will be introduced to statistics vocabulary, types of data, and sampling techniques.

- Lesson One: Statistics Vocabulary
- Lesson Two: Types of Data
- Lesson Three: Sampling Techniques
What is statistics?

- **Definition 1:** Statistics **IS** the science of gathering, describing, and analyzing data.

- **Definition 2:** Statistics **ARE** the actual numerical descriptions of sample data.
Two Branches of Statistics

Descriptive Statistics
This is the branch that most people are familiar with or have some knowledge about

- This is the branch that involves the collection, organization, summarization, and presentation of data

- In this branch, we refer to the sample without making any assumptions about the population

- We use the raw data to create graphs, tables, and numerical summaries

- "Just the facts"

Inferential Statistics

- This branch involves the use of descriptive statistics to make inferences or generalized statements about the population

- In this branch, we interpret the information from the sample and apply that information to the population. We estimate the population parameters.
Module One Topic Objectives

At the end of this module, the student will be able to

- Demonstrate knowledge of basic vocabulary of statistics
- Classify data by type and level of measurement
- Identify basic sampling techniques