

Producing Data

Sections 8.1, 8.2, 8.3

Lecture 16

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Outline

- 1 Population vs. Sample
- 2 Bad Sampling Methods
- 3 Assignment

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Population vs. Sample

Definition (Population)

In a statistical study, the **population** is the set of all individuals about which we want information.

Definition (Sample)

Given a population, a **sample** is a set of individuals in the population, i.e., a subset of the population, from which we obtain information.

- It is typically not practical to obtain information from every individual in the population.

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Definition (Sample)

Given a population, a **sample** is a set of individuals in the population, i.e., a subset of the population, from which we obtain information.

- It is typically not practical to obtain information from every individual in the population.
- Why not?

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The Meaning of Random

Definition (Random)

A outcome of a procedure is **random** if it is left entirely to chance.

- “Random” is often taken to mean that all outcomes are equally likely, but that is not what random means.

A Bad Sampling Method

Example (A Bad Sampling Method)

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- I start at the beginning of the class roll and toss a coin.
 - Heads, that student is selected.
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Example (Yet Another Bad Sampling Method)

- Suppose I wanted to survey a random sample of visitors to my web page.
- I add link to the web page that invites the visitor to fill out the survey.
- If the visitor fills out the survey, then the responses are stored in a database.

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Example (Yet Another Bad Sampling Method)

- Suppose I wanted to survey a random sample of visitors to my web page.
- I add link to the web page that invites the visitor to fill out the survey.
- If the visitor fills out the survey, then the responses are stored in a database.
- A week later, I check the data base to get my data.

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Assignment

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- Read Sections 8.1, 8.2, 8.3.
- Apply Your Knowledge: 1, 3, 4, 5.
- Check Your Skills: 17, 18, 20.
- Exercises 26, 27, 29 (use the TI-83).