Randomized Experiments
Sections 9.1, 9.2, 9.3, 9.4, 9.5

Lecture 20

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Outline

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The larger a simple random sample, the more likely it is to be representative of the population.

- Each group should be representative of the population in all respects except the variable that is being controlled.

Example

Example (Randomized Experiment)

- Consider again Prof. Smith, Prof. Jones, and the two statistics texts.
- Suppose we used four sections and the design

	Prof. Smith	Prof. Jones
Statistics in Practice	25	25
Basic Statistics	25	25

- We could randomly assign a total of 100 students to the four treatments.
- Describe exactly how we would do that.

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Example (Randomized Experiment)

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  - The rest go to Prof. Jones.

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  - Renumber each group 1 to 50.

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  - Number the students 1 to 100.
  - Use `randInt(1,100)` fifty times to assign 50 students to Prof. Smith.
  - The rest go to Prof. Jones.
  - Renumber each group 1 to 50.
  - Use `randInt(1,50)` twenty-five times to assign 25 students in each group to “Statistics in Practice.”

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- One possibility:
  - Number the students 1 to 100.
  - Use `randInt(1,100)` fifty times to assign 50 students to Prof. Smith.
  - The rest go to Prof. Jones.
  - Renumber each group 1 to 50.
  - Use `randInt(1,50)` twenty-five times to assign 25 students in each group to “Statistics in Practice.”
  - The rest use “Basic Statistics.”

Randomized Experiments

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- Why not?

Randomized Experiments

- Would the randomized design just described eliminate the confounding of variables?
- Why not?
- What further steps could we take?

Outline

Assignment

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- Read Sections 9.1, 9.2, 9.3, 9.4, 9.5.
- Apply Your Knowledge: 1, 2, 4, 5, 10.
- Check Your Skills: 19, 20, 21, 22.
- Exercises 29, 31, 32, 33, 34.