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| **Chapter 10:** Observational Studies and Experiments (pages 257 – 278) |

**OBJECTIVES:**

* Know the differences between an observational study, a sample survey, and an experiment. (These methods collect data in different ways and lead us to different conclusions.)
* Know that only well-designed experiments can let us reach cause-and-effect conclusions.
* Manipulate levels of treatment in an experiment to see if a factor that is being investigated produces differences in our response variable.
* Know and apply the principles of experimental design: control, randomize, and replicate.
* Establish the value of having a control group and of using blinding and placebo controls.
* Recognize the problems posed by the confounding variables in experiments and the lurking variables in obsevational studies.
* Design an observational study.
* Design an experiment.

**Vocabulary*:*** *observational studies, retrospective study, prospective study, experiment, random assignment, response variable, subjects or participants, experimental units, levels, treatment, control, randomize, replicate, The 3 Principles of Experimental Design*

**MONDAY, 2.10.25**

**Homework Check and Discussion of the previously assigned homework**: Pages 282, 283 (#33 – 35, 37, 38, 40, 41).

**Study for your Chapter 10 Quiz** to be taken on Wednesday. You may use one page of notes when you take this quiz.

**WEDNESDAY, 2.12.25**

**Chapter 10 Quiz:** You may use one page of notes when you take this quiz.

**Class work/Homework: Read and take notes on** Chapter 11, *Using Randomness*, pages 285 – 301.

**Be sure to define the following vocabulary words.**

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| **Chapter 11 Vocabulary:** random, generating random numbers, simulation, simulation component, trial, response variable, statistical significance |
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| **CHAPTER 11 OBJECTIVES:** |
| * Recognize random outcomes in a real-world situation. |
| * Know when to use a simulation to usefully model random behavior in the real world. |
| * Generate random numbers. |
| * Choose a random sample. |
| * Randomly assign subjects to experimental treatments. |
| * Simulate real-world outcomes. |
| * Describe a randomization process or a simulation explicitly so that others can understand your plan and repeat the process. |
| * Discuss results of a simulation study and draw conclusions about the question being investigated |

**FRIDAY, 2.14.25 B-DAY, NO CLASS**