1.   Most of us ask questions and make comparisons naturally and easily

Statistics can help us make rigorous and systematic comparisons of groups, their treatment, and responses and help us avoid arbitrary comparisons that cannot be generalized beyond the particular subjects being studied.

2.   Good Comparisons require critical forethought (asking good questions)

METHOD 1: The Randomized Controlled Experiment and its features

- o   Treatment (an intervention)
- o   Control (what If we never intervened)
- o   A measurable response (a real outcome)

To summarize: *The Method of Comparison in statistics is the basic method used to determine whether a treatment has an effect by comparing what eventually happens to individuals who are treated (the treatment group) with what happens to individuals who are not treated (the control group).*

3.   Even when we are clever, there can be problems

Confounding (vocabulary) -- the effect of an unforeseen characteristic, behavior, event or procedure on the response that cannot be distinguished from the proposed treatment.

4.   But there are SOLUTIONS, things you can do to control problems

- o   *Randomization(vocabulary) -- eliminates bias (vocabulary)*
- o   *Placebo (vocabulary) -- eliminates the "placebo effect" (vocabulary)*
- o   *Double Blind (vocabulary) -- eliminates bias*
- o   *Blind (vocabulary) -- may eliminate bias*
- o   *Replication (vocabulary) -- validate results*

5.   Chapter 1 goes over some actual applications or case studies

The NFIP (Polio) study. The Portacaval Shunt. Historical Controls.

6.   Summary

Statistics involves a bit of vocabulary, you can always restate these words in a way that helps you to understand the method of comparison and experiments.

The method of comparison is the basic way to answer a question in statistics

The Random Controlled Experiment (when done properly) is the best procedure to use because it eliminates confounding (and therefore bias)

Think about how you would conduct an experiment if you were in charge or if it suits you better: criticize an existing experiment. But do not be too harsh.