

Welcome to Sophomore Seminar

Dale Easley
University of Dubuque



Course grading

Don't let work pile up.

- 4 seminars, 10% each
- 1 presentation, 20%
- Daily work, 20%
- Podcasts, 20%
- No missing class



Presentation Guidelines

- **Topic:** Find a serious scientific article that utilizes sophisticated statistics. See me about your article choice.
- **Presentation:** Prepare a presentation containing at least 17 slides, including a title and reference slide. Aim for about 20 minutes.
- **Presentation structure:**
 - Each slide should contain 7 words or fewer in almost all cases. Graphics are necessary.
 - The presentation should contain background information, a clear thesis, 3 main points plus conclusions.

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Statistics is a tool for science.

“Statistics is a lively and fascinating subject, but studying it is too often excruciatingly dull.”

Wallis and Roberts, **Statistics, a New Approach**

Example descriptive statistics video

2050



[Hans Rosling](#)

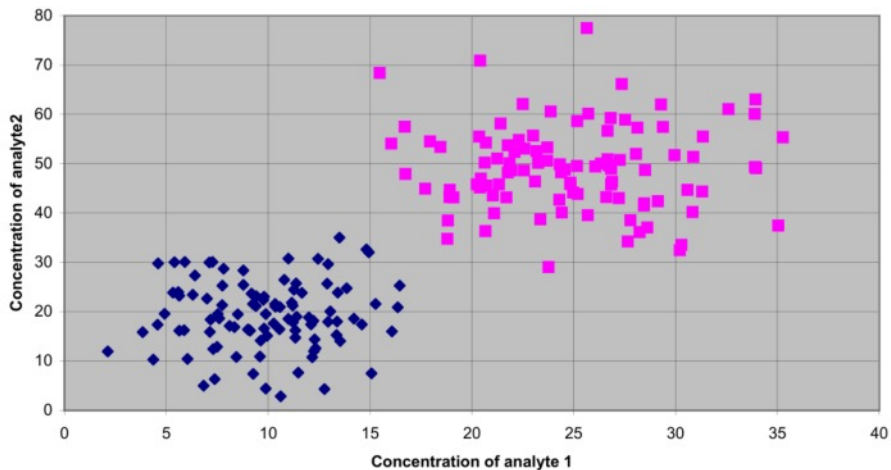
The Scientific Method

- Make observations
- Look for patterns
- Guess why they occur
- Make a prediction
- Test to see how well you did
- Try again



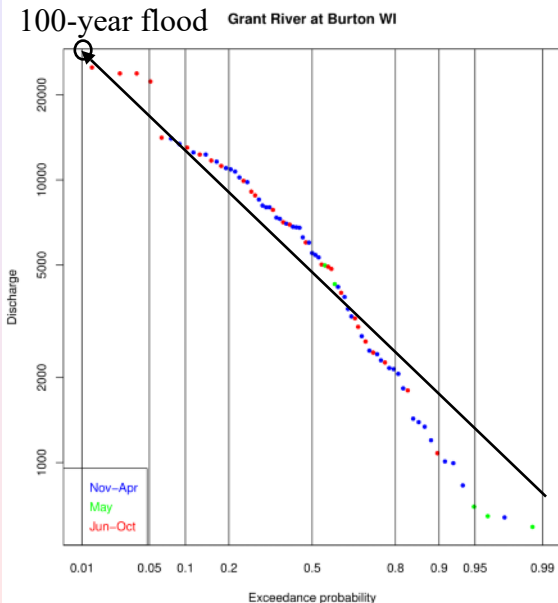
Descriptive statistics: Looking for patterns

The use of two analytes allows the separation of sources



Inferential statistics: making predictions

- Probability model
- Estimate
- Classification
- Confidence intervals
- Hypothesis testing



What do you see?



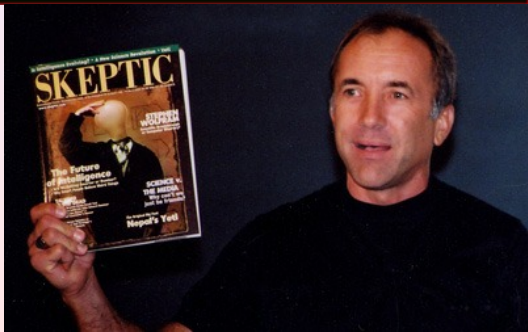
Be a skeptic



But there is only one surefire method of proper pattern recognition, and that is science.

(Michael Shermer)

[Shermer's TEDS talk](#)



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A Winning Culture Keeps Score

by John Case and Bill Fotsch | 11:00 AM December 23, 2013

Comments (3)



People often think of corporate culture as “soft” because it involves squishy things like values and expectations. That’s true as far as it goes—but winning cultures have a hard, metrics-driven element as well. A culture that feels upbeat and positive but doesn’t contribute to profitable growth or beating the competition is destined for the dustbin.

In sports, everyone gets that and knows what winning looks like. It’s reflected in your score, plain and simple. Sure, you track other numbers—what you might think of as key performance indicators—such as on-base percentage. The Boston Red Sox, the 2013 world champs in baseball, are known for their **sabermetrics**. But nobody in the organization thinks those stats are more important than outscoring opponents.

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Statistics gives us the tools to distinguish reality from wishful thinking

