

STA 291

Spring 2010

Lecture 1 *Jan 14*

WELCOME to STA 291!

- Syllabus:

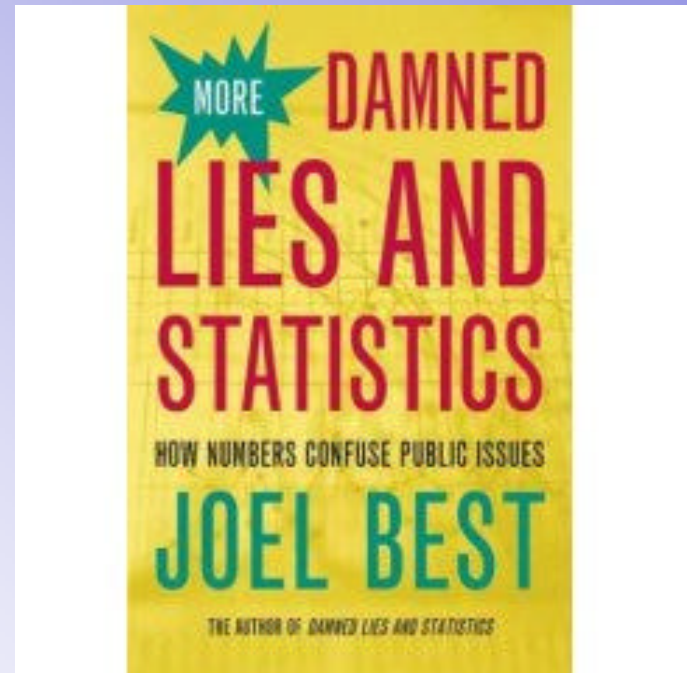
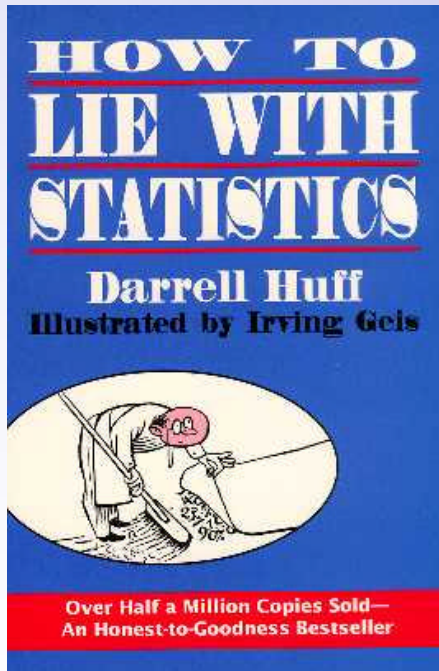
<http://www.ms.uky.edu/~mai/sta291.html>

- Note: Course materials/lecture notes on the web – usually no handouts in class

- Read the syllabus at
<http://www.ms.uky.edu/~mai/sta291.html>
- And return often, information will be updated as they become available (like room for the exams. Many links will become live as we go on....)

Statistics had a bad reputation

- There are three kinds of lies: lies, damn lies and statistics. -- Mark Twain



But statistics can be useful

- Statistics is the only way to tell if a new treatment/drug is effective. (clinical trials, testing)
- Statistics accurately predicts elections. (polls) (estimation with margin of error)
- Analyzing huge data sets [will not cover]

Statistics the name

- Statistics --- the numbers.
- Statistics --- the science of obtaining, analyzing, draw conclusion from data.
(Data sciences)

Outline/Topics to Cover

- Statistical Terminology
- Descriptive methods
- Probability and distribution functions
- Estimation (confidence intervals)
- Hypothesis testing
- Inferential methods for two samples
- Simple linear regression and correlation

Three Important Concepts

- Sampling Distribution
- Confidence Intervals
- P-value of a Statistical Test

Lab Sessions

- Clarify contents of the lecture
- Do a weekly lab practical (often with computer)
- Work out additional problems
- Discuss homework problems
- Get prepared for the exams
- The lab session next week will just deal with computer accounts *MyStatLab*, etc.

Please...



What does it take to understand the material and do well in 291?

- Logical thinking
- Hardworking, Perseverance
- Don't fall behind ...

+ see Syllabus

(attend lectures and labs, obtain materials when absent, do homework yourself, ...)

- Make sure you quickly set up and get familiar with *MyStatLab*

What is Statistics?

Methods for Collecting, Describing, Analyzing, and Drawing Conclusions from Data

These methods are used for...

Design

- Planning research studies
- How best to obtain the required data
- How many subjects?

Description

- Summarizing data
- Exploring patterns in the data
- Extract/condense information
- Graphical pictures of the data

Inference

- Make predictions based on the data
- “Infer” from sample to population
- Generalize

What might be the difference to other sections of Sta 291

- Same textbook
- Different Homework, Different Exams
- Different Instructor may emphasis different topics.

- **Exams still use old technology (calculator, paper, pencil, formula sheet, your brain power)**
- **Lab will uses new technology. (web, computer program, ...)**

Homework 1

- Due Thursday next week (11pm).
- Online homework assignment:
Log on to *MyStatLab* and create an account for this course

For homework problems, you have 3 try to get full credit. From 4th try the credit will be discounted.

Attendance Question

- Usually, at this point, you will be asked a very short question or survey
- Therefore, please bring 4"x6" index cards