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