Stat 1450
Introduction to the Practice of Statistics
3 semester hours

Prerequisites: Qtrs: Math 130 or higher, or Math Placement levels L or M; Sem: Math 1130 or higher, or Math Placement levels L or M; OR equivalent OR permission of instructor

Exclusions: STAT 2450 or STAT 245 or STAT 145

Class Distribution: Two 55-minute lectures and one 55-minute recitation per week.

Course Goals: This course satisfies the learning goals of the GEC Data Analysis requirement. In particular, in Statistics 145 students are expected to understand statistics and probability, comprehend mathematical methods needed to analyze statistical arguments, and recognize the importance of statistical ideas. Students will ideally also become critical consumers of published statistical results by heightening their awareness of ways in which statistics can be improperly used to mislead, confuse, or distort the truth.

Course Objectives:

• To introduce you to methods of collecting data
  o By providing examples of methods of random sampling
  o By explaining correct procedures for designing experiments and observational studies
  o By explaining uses and misuses of sample surveys
• To enable you to use statistical tools for presentation of data and to understand presentations of data
  o By discussing when different types of graphical displays are appropriate and explaining proper methods of constructing graphical displays
  o By using appropriate summary statistics to describe the distribution of data
  o By introducing statistical terminology used to describe data and distributions
• To enable you to analyze data
  o By using simple linear regression for bivariate data
  o By constructing and interpreting confidence intervals
  o By conducting and interpreting hypothesis tests
• To enable you to understand basic probability and statistical concepts
  o By presenting and using rules of probability
  o By discussing sampling distributions and the use of the Central Limit Theorem as the foundation of inference
• To enable you to evaluate statistical procedures and summaries
  o By discussing assumptions and conditions for analysis procedures
  o By identifying sources of bias in sampling, experiment, and survey methods
  o By discussing appropriate nature and scope of conclusions for analysis procedures

Conversion note:
Straight conversion from a 5 credit-hour quarter course Stat 145.

updated 5th Jan 2011
Content topics list
• Displaying and Describing Categorical Data
• Displaying and Summarizing Quantitative Data
• The Normal Distribution
• Correlation and Linear Regression
• Sample Surveys, Experiments, and Observational Studies
• Probability
• Sampling Distributions
• Confidence Intervals Based on a Single Sample (Proportions and Means)
• Hypothesis Tests Based on a Single Sample (Proportions and Means)
• Time allowing, one of:
  o Chi-Square Tests of Independence
  o Confidence Intervals and Hypothesis Tests for the Difference between Two Proportions
  o Confidence Intervals and Hypothesis Tests for the Difference between Two Means