Statistics for Business and Economics II

Stat II 20311

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Outline

- Course overview
- Administrative stuff
- Introduction to stat II
Course Overview
Who Am I?

- Ph.D. in Management Science
- MBA
- BS in Control Science & Engineering, MS in Operations Management

Courses taught
- OM, MS, BRM, BDSS, Stat, MOIT
- Calculus for Manager
My Contact Information

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The Goals for This Course Are

- Introduce a wide variety of Statistics issues and techniques

- Prepare a foundation for
  - More in-depth study
  - Working as a statistician

- Maintain a practical focus
  - Application oriented
  - Results providing insights to decisions and solution to problems

- Practice using select tools & techniques
Your Learning in This Course Will Occur in Two Ways

- Class discussions
- Working problems (quizzes and assigned homework)
Administrative Stuff
Course Pre-requisites

- Statistics – descriptive statistics, probability
- PC software – MS Excel
The Requirements for This Course Are Simple

- Read *before* you come to class
- Participate *during* class
- Take quizzes
- Complete homework assignments *on time*
- Take the exams
The Grading for the Course Will Be

- Quizzes: 15%
- Homework (6): 5%
- Midterm I: 25%
- Midterm II: 25%
- Final exam: 30%
Exams Schedule Will Be

- Currently scheduled for:
  - Exam I
  - Exam II
  - Final exam

- Not cumulative
- I’ll allow some notes
Course Materials You’ll Want to Have

- Textbook:
Course Web Page

- [Link](http://www.newpaltz.edu/~liush/stat2.htm)
- Handouts as they become available
- Homework solutions
- Announcements
- So check frequently
Why Are You Taking This Course?

- I have a burning desire to be an statistician
- I’m strangely attracted to statistics and related subjects
- They made me do it
Descriptive Statistics

- Descriptive statistics are the tabular, graphical, and numerical methods used to summarize data.
The most common numerical descriptive statistic is the **average** (or **mean**).

Hudson’s average cost of parts, based on the 50 tune-ups studied, is $79 (found by summing the 50 cost values and then dividing by 50).
Statistical Inference

- **Population** - the set of all elements of interest in a particular study
- **Sample** - a subset of the population
- **Statistical inference** - the process of using data obtained from a sample to make estimates and test hypotheses about the characteristics of a population
- **Census** - collecting data for a population
- **Sample survey** - collecting data for a sample
1. Population consists of all tune-ups. Average cost of parts is unknown.

2. A sample of 50 engine tune-ups is examined.

3. The sample data provide a sample average parts cost of $79 per tune-up.

4. The sample average is used to estimate the population average.
Computers and Statistical Analysis

- Statistical analysis often involves working with large amounts of data.
- Computer software is typically used to conduct the analysis.
- Statistical software packages such as Microsoft Excel and Minitab are capable of data management, analysis, and presentation.
- Instructions for using Excel and Minitab are provided in chapter appendices.
What Will be Covered?

- **Hypothesis Testing**
  - One population
  - Two population
- **Analysis of Variance and Experimental Design**
- **Linear Regression**
Projected Schedule