

Trinity University
Department of Health Care Administration
Fall Semester 2009

HCAI- 5220: Statistical Analysis in Health Care Organizations

Instructor: Dr. Edward J. Schumacher

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Course Description

This course covers topics in basic statistical analysis designed to assist the future health care leader in understanding and interpreting data and in the role of decision maker. The course covers the collection, aggregation and presentation of data, descriptive statistics, and inferential statistics. Students will get hands on instruction in the application of spreadsheets and statistical software to the solution of various statistical problems.

HCAD Competency Model

Competencies Covered in 5220	Level	How addressed	How assessed
Quantitative Skills Organizing and describing data	1,2	Lecture/discussion, Independent Project	Problem Sets, Preliminary Report
Statistical inference	1,2	Lecture/discussion, Independent Project	Problem Sets, Preliminary Report
Multivariate analysis	1,2	Lecture/discussion, Independent Project	Problem Sets, Preliminary Report

Level: 1 = Knowledge 2 = Application 3 = Integration

Course Objectives

- Develop an understanding of the basic concepts of presenting and describing data
- Develop the tools of statistical inference, such as confidence interval estimation and hypothesis testing, and understand their use in the decision making process of health care managers.
- Develop an appreciation for the potential biases that exist in data analysis, such as response bias, selection bias, and measurement error.
- Understand the strengths and weaknesses of using multiple regression analysis to model the behavior of a variable or process of interest.

Course Requirements

Your course grade will be determined from problems sets and an independent project. The following weights will be used:

Three Problem Sets	25	Percent each
Preliminary Report	15	Percent
Class Participation (on campus)	5	Percent
Class Participation (teleconferences)	5	percent

A ten-point scale will be used to determine your final letter grade.

When submitting problem sets, note the following:

- 1) Problem sets should be done in Microsoft Excel and e-mailed to eschumac@trinity.edu.
- 2) The problem sets must be completed in a timely manner. Unless prior arrangements are made, late problems will be penalized 10 percentage points each day they are late.
- 3) Show all work; answers are not sufficient.

Course Materials

Text:

Levine, David M., David Stephan, Timothy C. Krehbiel, and Mark L. Berenson.
Statistics for Managers Using Microsoft Excel, 5th edition, Prentice Hall,
Upper Saddle River, New Jersey, 2009

Or any basic business statistics textbook.

Tentative Schedule

The class schedule given below indicates the dates and materials to be covered. The reading material should be prepared before the class meets. Minor adjustments to the class schedule may be necessary.

Day	Reading Assignment	Topic
Tuesday 8/18 8:00-10:00am	Posted Notes Levine et al. Ch 1-3	Introduction Descriptive Measures Probability Distributions
Tuesday 8/18 10:15-12:15pm	Posted Notes Levine et al. Ch 5-7	Sampling Distributions Confidence Interval Estimation
Wednesday 8/19 8:00am-10:00am	Posted Notes Levine et al. Ch 8	Hypothesis Testing
Wednesday 8/19 10:15am-12:15pm	Posted Notes Levine et al. Ch 9, 11	Hypothesis Testing – Two Sample Tests Statistical Independence
Wednesday 8/19 3:15am-5:15pm		Open time in computer lab
Saturday 9/12 10:00-11:45am	Posted Notes Levine et al. Ch 12	Regression Analysis
Saturday 10/3 8am-10am	Posted Notes Levine et al. Ch 13-14	Multiple Regression

Due Dates:

Assignment	Due Date
Problem Set 1	Monday September 7 th
Problem Set 2	Monday September 28 th
Preliminary Report	Monday October 12 th
Problem Set 3	Monday October 19 th