

Trinity University
Department of Health Care Administration
Fall Semester 2009

HCAI- 5221: Operations Management in Health Care Organizations

Instructor: Dr. Edward J. Schumacher

Contact Information

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Course Description

This course covers topics in the basic applications of operations research techniques to health care planning, control, and decision making including deterministic and random models, mathematical programming, queuing, simulation, forecasting and quality improvement. Emphasis is placed on model formulation and computer solution of decision models.

HCAD Competency Model

Competencies Covered in 5221	Level	How addressed	How assessed
Quality Improvement / Performance Improvement. Be able to understand and apply principles and techniques for performance monitoring and improvement	1	Lecture/Discussion	Problem Set
Quantitative Skills Business decision making and performance improvement	1	Lecture/discussion, Independent Project	Problem Sets
Multivariate analysis	2	Independent Project	Class presentation and Report

Level: 1 = Knowledge 2 = Application 3 = Integration

Course Objectives

- Understand the role of statistics in quality improvement using statistical process control techniques
- To be able to design and construct a control chart and utilize it in the decision making process
- Understand the basic models of forecasting

Course Requirements

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

Two Problem Sets	25	Percent each
Class Participation	5	Percent
Project Presentation	15	Percent
Independent Project Final Report	30	Percent

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

The independent project will involve the application of regression and other statistical analyses to a project of your choice relating to the health care field. The goal is to predict and estimate the relationship between a dependent variable and at least two independent variables. A separate handout describing the project will be distributed.

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:

McLaughlin, Daniel and Julie M. Hays. *Healthcare Operations Management*. Health Administration Press, Chicago; AUPHA Press, Washington DC. 2008.

Additional Resources

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, 2005

Ozcan, Yasar A. *Quantitative Methods in Health Care Management, Techniques and Applications*. 2nd edition. Jossey-Bass, San Francisco, CA. 2009.

Carey, Raymond G. *Improving Healthcare with Control Charts, Basic and Advanced SPC Methods and Case Studies*. ASQ Quality Press, Milwaukee, Wisconsin. 2003.

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
Saturday 10/24 10:00-11:45am	Posted Notes McLaughlin and Hays Ch 8-9	Statistical Process Control and Six Sigma
Saturday 11/14 8:00-9:45am	Posted Notes McLaughlin and Hays Ch 11-13	Forecasting, Staffing and Productivity
Saturday 12/5 10:00-11:45am		Project Presentations

Due Dates:

Assignment	Due Date
Problem Set 1	Monday November 9 th
Problem Set 2	Monday November 30 th
Final Report	Friday December 11 th