

University of Southern California - Industrial & Systems Engineering
ISE 508: Health Care Operations Improvement
Syllabus
David L. Belson, Ph.D.

Description

Hospital productivity is critical to cost-effective health care. The course covers topics in improving operations, such as patient flow, quality (concepts and mechanics) and process improvement. Students will become familiar with methods and resources for implementing change in a health care setting, such as a hospital or clinic.

Course Objectives

The course provides managers and engineers with skills to assess current hospital operations and to identify the appropriate tools to address various functional areas. Process improvement methods such as lean thinking, six sigma, statistical tools, flowcharting, queuing models and others tools will be covered. Health care settings beyond the hospital, such as outpatient clinics, will be included. Emergency and disaster preparedness will be addressed.

Instruction

The course will include a weekly lecture. We will have guest speakers from the industry. Homework, health care case studies and examinations are included. A course project conducted involving a health care institution will also be part of the required work. This project will be included to assure that the student understands the unique requirements of health care operations.

Homework Assignments

Several problem sets will be assigned. These will focus on problem solving tools such as quantitative methods to determine hospital operations changes. They will draw upon assigned material from the textbook.

The course will also include a project involving hospital operations. The assignment is to involve an actual hospital or clinic. The student can arrange the venue or the instructor will make arrangements with a local hospital or other source supportive of this work. The project will involve an opportunity to improve operations such as patient flow and to apply the methods covered in the course.

Materials:

Course materials will be available electronically to on-campus students and DEN.
A student survey will be taken during the first class meeting.

Course Text: "Quantitative Methods in Healthcare Management" , Yasar A. Ozcan, Ph.D., 2005, Jossey-Bass/Wiley Publisher.

Readings and cases: (Available from the Society for Health Systems (SHS), Healthcare Information Management and Systems Society (HIMSS), The Institute for Healthcare Improvement (IHI), American Society for Quality, AHRQ (Agency for Health Care Research & Quality, a part of the US Govt. Dept. of HHS), Healthcare Informatics online and others.

Spreadsheet software such as MS Excel will be used in the class for demonstration of certain calculations and will be very useful for homework.

Relevant Websites will be helpful:

Epstein Department

www.usc.edu/dept/ise

Wall Street Journal

www.online.wsj.com/public/us

Society For Health Systems

<http://www.shsweb.org/>

Health Care Mgmt. Science <http://www.ingentaconnect.com/content/klu/hcms>
Healthcare Information and Management Systems Society <http://www.himss.org/>
Institute for Health Information <http://www.ihl.org/>
And others identified during the semester.

Office Hours: Office hours will be before class – room not yet set. Other meeting times (on campus or by phone) may be arranged. On-line office hours are also planned. Students may contact the instructor via e-mail using belson@usc.edu or by telephone through the ISE main office 213-740-4893.

Web Site: Various materials will be posted to the Blackboard web site for the class. The web page will be used to post lecture notes, handouts and other important class information. Some required readings might be posted here and discussion forums held.

Grading: Student grades will be based on the following breakdown of semester activities; homework assignments 20% (one of the assignments can be discarded), exams 40%, class project 30% and class participation 10%. Grades are not based on a predefined curve. There is no set numerical score tied to a letter grade.

DEN students will not be measured on class performance but proportionately on the other activities. If DEN students wish to be considered for evaluation based on class participation, they should so notify the instructor.

Assignments are due at the beginning of class. Homework assignments will be announced in class. Off-campus students must submit their assignments in time to be received by DEN on the day they are due. Off campus assignments must be submitted as specified in the DEN guidelines. Assignments should be turned in on time. Homework turned in late will receive a reduced grade. All work is expected to have a professional appearance. All examinations are open note and open book.

Materials such as homework, if submitted digitally, should include a filename with the student's name and identification of the homework. Such as: "ISE599 HW4 r smith". Homework should be clear, legible and show how answers were determined in order to secure a full grade.

Final Exam. The university schedules the final exam date and time. Please do not request an alternate date for exams, as none can be accommodated.

Academic integrity: The University's policies and procedures governing academic integrity as described in SCampus will be followed.

The Viterbi School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus. Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

Disability Services and Programs: Any Student requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Note: This syllabus is subject to change as announced in class.

ISE 508 (SUBJECT TO CHANGE AND UPDATING) Spring 2007

	Date	Content	Assignments (Chapters in Ozcan)	Work due
1	1/10/06	Introduction, terminology, metrics of operations, data sources, benchmarking & balanced scorecards	1	
2	1/17	Process analysis (in general), workflow charting, diagramming of problems, data analysis, forecasting, collecting data	2	
3	1/24	Statistical tools, control charting, process control concepts, decision making. Productivity	3, 9	HW #1
4	1/31	Project Management and Change Management.	13	Project proposal
5	2/08	Queuing analysis to improve patient satisfaction & utilization	14	HW #2
6	2/14	Quality, quality of care measurement, Error Reduction/Patient Safety/Clinical Quality, Taguchi methodology	12	HW #3
7	2/21	Lean thinking and Six Sigma methodologies to identify and implement change. Reengineering	6	Project reviews
8	2/28	Scheduling concepts, staffing tools for nursing and other areas (Guest Speaker)	7, 8	HW #4
9	3/07	Materials management. Inventory systems. Technology assessment, evaluation of automation such as PACS	11	Mid term exam
	3/14	Spring Recess		
10	3/21	Information systems for administration, impact of electronic medical records. Resource allocations	10	Interim report
11	3/28	Decision-making, tools, and application of simulation. Application of Operations Research methods	3, 15	
12	4/04	Emergency Services, security, preparedness for emergency events. (Guest Speaker)		HW #5
13	4/11	Facility layout. Impact of layout on functions such as surgery and ER. (Guest Speaker)	5	
14	4/18	Teams, committees & meetings to implement change, Project presentations, discussion		HW #6
15	4/25	Visual controls, improving customer service Project presentations (Guest Speaker)		
16	5/02	Final Exam		

ISE 508 Questionnaire - Spring 2007
(Please turn in paper copy or e-mail.)

Name _____

Contact information: Phone _____ e mail _____

Residence (just City & State is necessary) _____

Your current job _____ or student _____

Brief summary of work history, if any (job titles, responsibilities, industry, type of work done, experience in health care industry, if any)

Also

- 1) Why are you taking this course?

- 2) What do you hope to learn from this course?

- 3) What is your year and major?

- 4) What is your career objective?