DSO 586. Global Healthcare Operations Management

Units: 3 units. Monday from 6.30 to 9.30 PM

Office Hours: Monday 2.30 to 4.00 PM, Office: Bridge Hall 401U

Instructor: Sriram Dasu

Contact information: dasu@marshall.usc.edu

COURSE OBJECTIVE: Across the world, some of the biggest challenges facing healthcare include increasing access and quality of care to large segments of the population. In this course, you will learn how to apply Operations Management frame-works and techniques to design, and improve the performance of healthcare delivery systems. Healthcare delivery system is the network composed of facilities such as community centers, clinics, emergency rooms, and hospitals that individually and collectively provide care to the community. You will develop skills to analyze these systems and redesign them so as to better meet the needs of the community. Improvements can be achieved through changes in processes and work design, and better use of data.

A significant component of the course is a field project. These projects are based in Los Angeles, Brasilia, Brazil; Buenos Aires, Argentina; and Limon, Costa Rica. If you are working on a project that is based in Brazil, Argentina, or Costa Rica then you will have to travel during Spring break. You will work in a team consisting of 3 to 6 students.

EXPECTATIONS

Class Participation: (10 Points) Read the assigned material and analyze the cases. You are encouraged to work in groups. You will be “cold -called” and so make sure you are familiar with the main issues and have a well thought out view. It is very important that you prepare yourself for each and every session. It is not necessary that you know the material “cold” before each class, but it is important that you expend sufficient effort to gain some grasp of the ideas we will be discussing.

With regard to quality, the dimensions that matter include:

Relevance -- does the comment bear on the subject at hand? Comments that do not link up with what the discussion is focusing on can actually detract from the learning experience.

Causal Linkage -- are the logical antecedents or consequences of a particular argument traced out? Comments that push the implications of a fact or idea as far as possible are generally superior.

Responsiveness -- does the comment react in an important way to what someone else has said?

Analysis -- is the reasoning employed consistent and logical?

Evidence -- have data from the case, from personal experience, from general knowledge been employed to support the assertions made?

Importance -- does the contribution further our understanding of the issues at hand? Is a connection made with other cases we have analyzed?
Clarity -- is the comment succinct and understandable? Does it stick to the subject or does it wander?

Students will be called on, at random, to participate in various aspects of class discussions. While “cold-calling” is not popular with everyone, it is reflective of actual business situations. When you attend a meeting, the expectation is that you are prepared and ready to contribute. These cold calls are an important part of your participation grade.

Factual misstatements, comments that demonstrate a lack of adequate preparation, or comments that come late in a discussion that distract the class and indicate that the student has not been actively listening will be noted as “negative” course participation.

Attendance: You are expected to attend all sessions. If you cannot attend for a specific reason then please inform the professor through e-mail that you are unable to attend, or your absence will affect your participation grade. Treat it like a professional meeting at work: if you cannot attend, you are expected to inform the person running the meeting as a professional courtesy.

Home Work and Case Assignments (45 Points): Two case write ups and 2 homework assignments are individual assignments. Submit all assignments on BlackBoard

Case write ups: (any 2 cases) Due prior to class (7.5 points each)
Homework set # 1 -- Due on March 10th (15 points)
Homework set # 2 -- Due on April 14th (15 points)

Case Write-ups:

This course has 4 cases. You have to submit write-ups for any two. The syllabus has a set of questions for each case. You need to answer these questions. Your write-up should be no more than 4 pages – double space. Be precise – bullet points are fine. You need to submit your write-up on BlackBoard prior to the start of the class on the day we are scheduled to discuss the case. If you submit more than 2, the 2 highest scores will be considered. Your submission files should be named as follows:

Last Name _First Name.docx (pdf).

Field Project Analysis and Report (45 points – Final report 35 points, Presentations 10 points):

Project teams will be based on your preferences and project requirements. I will try to create balanced multi-skill teams. I therefore cannot guarantee that you will get your first or second preference. Each team will be responsible for organizing itself and gathering further information pertaining to the project. There will be one team project report.

Teams are required to meet regularly and provide the instructor updates every two week

You have to make a final presentation and the final report is due one week after the final presentation. The report is expected to be about 25-30 double-spaced pages (in addition, appendices can be attached).
Apart from being reviewed and evaluated by the instructor, it will also be sent to the sponsoring organizations.

At the end of the semester, each team member will be asked to assess the relative contributions/efforts of all the other member of their team in order to reward excellence and avoid free riders.

**Travel:** If you are assigned to a team that is working on projects based in Argentina, Brazil, or Costa Rica then you will have to visit these countries during the spring break. You will be responsible for making your own travel arrangements and will work with Marshall School’s Global Programs and Partnerships Office to ensure that you comply with University Policies and guidelines regarding international field trips. While you are there your local transportation costs and cost of translators will be covered by Marshall.

Course Package:  [https://hbsp.harvard.edu/import/693812](https://hbsp.harvard.edu/import/693812)

Please use this link to access the reading materials and cases needed for the class. A set of readings are also posted on blackboard

**Reference Books:**

**COURSE OUTLINE**

**January 13th**

*Course introduction and overview of healthcare system*
- Overview of healthcare systems
- Challenges and opportunities for improving healthcare systems
- Descriptions of the projects
- Operations Management Basics Review

**Reading:**
1. David Squires and Chloe Anderson (2015), U.S. Health Care from a Global Perspective: Spending, Use of Services, Prices, and Health in 13 Countries, Common Wealth Fund (*posted on blackboard*)
3. Note on Process Analysis (*on Blackboard*)

**Optional Reading:**
5. Chapters 1 and 2, Healthcare Operations Management.
January 20th: MLK DAY  NO CLASS

MODULE 1: OPERATIONS MANAGEMENT & HEALTHCARE

January 27th

Operational Decisions –Capacity Planning and Scheduling

The performance of a system depends on capacity planning, staffing, and scheduling systems. We will use the Body scans and bottlenecks case to introduce detailed operational decisions and tools such as Gantt charts. This session will introduce you to basics of hospital operations and operations planning systems.

Readings:
1. Chapters 6 & 7: Healthcare Operations Management. (Optional)
2. Case: Body Scans and Bottlenecks: Optimizing Hospital CT Process Flows, KEL592-PDF-ENG. (Case in HBS online course pack)

Case questions:
1. Draw the process flow maps for the original CT scan process.
2. If the original process flows remained in place after the new CT scanners were installed, what level of scanning throughput could the hospital achieve?
3. What hourly margins would result from using the new scanners under the old process flows?
4. What specific improvements might be made to improve the performance of the CT scanners? What will be the impact on the margins?
5. How many hours a day would the new scanners have to work to process 310 scans in a day.
6. Are the new scanners a good investment for the hospital?

February 3rd

System Types: Variety, Volume, & Uncertainty: Role of Focus

Characteristics of demand determine the trade-offs among costs, access, and quality, and ultimately the optimal structure of the systems. We will examine the relationships among volume or scale, uncertainty, process flows, human resource requirements, and capacity. We will discuss how best to match system design to the characteristics of demand and technical uncertainty. The Shouldice case illustrates a prototypical high volume – low uncertainty operation.

Cases: Shouldice Hospital HBSP Case 805002-PDF-ENG (HBS online course pack)

Reading:
1. Linking manufacturing process and product life cycles, HBR reprint # 79107 (HBS online course package)

Case Questions (Shouldice):
1. Calculate the capacity of the hospital and identify the bottleneck. A set of assumptions you can use are given below.
2. What will be the capacity of the hospital if a new floor is added?
3. What will be the capacity of the hospital if they perform surgeries on Saturday?
4. How successful is the Shouldice Hospital? Compare the Hospital to its competitors from the perspective of the customers, employees, and owners. What are the relevant measures?
5. What are the risks and challenges of franchising?
6. What are the risks and challenges of opening a new unit?
7. Which option, if any, would you recommend? Why?

Additional Assumptions: Do not worry about the impact of assistant surgeons and nurses on the capacity of the hospital. Spreadsheet: Shouldice.xls

February 10th

Learning Organizations and the Role of Data

In this session we will discuss different approaches to process improvement and how to create a learning organization. Intermountain Health is widely regarded as leading healthcare system that has invested in creating a learning organization. This case also illustrates the opportunities that data presents and some of the challenges organizations have to address to properly utilize data.

- Lean
- Six Sigma
- Learning Organizations
- Using Data for Improvement and Decision Making

Readings:
1. Six Sigma: What it is and how to use it. HBSP Reprint Number U9906C (HBS online course package)
2. Lean Knowledge Work: Staats and Upton, HBR October 2011, R1110G(HBS online course package)
4. Is yours a learning organization? Garvin, Edmondson, and Gino, HBSP Reprint R0803H-PDF-ENG. (HBS online course package)
5. Chapter 4: Healthcare Operations Management (Optional)

Case: Intermountain Health Care. HBSP Case 9-603-066 (HBS online course package)

Case Questions:
1. How well is the Intermountain Health care performing?
2. What is Intermountain’s approach to the management of health delivery? What are the pros and cons?
   a. What does disease focus mean? Why is it important?
   b. How are they identifying focus areas?
   c. How are they developing protocols?
   d. How are they facilitating implementation of protocols?
   e. How are they monitoring adherence?
   f. What changes have they made to their incentive schemes? Why?
   g. What changes have they made to their management structure? Why?
3. Can this approach be adapted by Emergency departments? Primary care clinics? Where would it apply and where would it not?

February 17th: PRESIDENTS DAY: NO CLASS
MODULE 2: LEVERAGING DATA

February 24th: Demand & Processing Time Modeling

Bring your laptop to class. In the next few sessions will explore how EHR data can be used to estimate demand, and resource utilization. We will use Excel to do much of the data analysis. We will begin by discussing basics of time series models. These models are very useful for short-term forecasts in healthcare. We also delve into concepts of probability. A basic understanding of probability is useful for understanding how to model uncertainties associated with arrival patterns, length of stay, etc.

Required Reading:
1. Note on probability and uncertainty (on Blackboard)

PROJECT MEETINGS

March 2nd: Data analysis (Cont’d)

Bring your laptop to class

Required Reading:
1. Time series forecasting (HBS online course package)

Project Reviews and Meetings: Present Prelim Findings

March 9th: Data analysis - Trade-off Modelling

System modelling and resource optimization. In this section we will learn about approaches for modelling trade-offs in system design and optimization models

Project Reviews and Meetings: Present Prelim Findings

March 16th: SPRING BREAK

March 23rd: Data Analytics - Simulation and Probability Modeling.

March 30th: PROJECT WORK: PROJECT MEETINGS

MODULE 3: PATIENT EXPERIENCE & BEHAVIOR

April 6th: Role of the Patients

In this class, we will explore patient behaviors and perceptions and their impact on healthcare system design.

The new healthcare law bases reimbursements to hospitals on patient satisfaction scores (HCAHPS). We will begin by discussing techniques providers can employ to improve patient experiences.
A larger concern for a healthcare system is the cost of keeping population healthy. We will get a quick introduction to population health management systems. Issues of interest are challenges, trade-offs, and approaches to managing population health

- Habits and chronic diseases
- Patient Experience
- Advice and Decision Making

Readings:
1. Development, implementation, and public reporting of the HCAHPS surveys. (On Blackboard)
2. Designing the soft side of customer service, Sloan Management Review, Fall 2010 Vol 52, No 1., Reprint # 52104 (HBS online course package)
3. Social cognition models and changing health behaviours (On Blackboard)
4. Can Accountable Care Organizations improve the value of health care by solving the cost and quality quandaries? By Devers and Berenson (on Blackboard)

Case: Population health programme at Singapore’s Alexandra Health System. HBSP Case (HBS online course package)
1. What are the main objectives of their population health program?
2. What are the key challenges they face in achieving their goals? Who are the stakeholders? What are their goals?
3. What are good measures for evaluating this program?
4. How can data be leveraged in this program? What are the challenges associated with data?
5. How would you scale this program?

April 13th
- PROJECT WORK, PROJECT MEETINGS

April 20th
- COURSE WRAP UP & PROJECT PRESENTATIONS

April 27th
- PROJECT PRESENTATIONS

May 11th
- FINAL PROJECT REPORT DUE
Each member of the team is expected to make a contribution. This peer evaluation form will be used to assess individual member's contributions to the project.

You should evaluate yourself and each of your teammates on a scale of 1-5, with 5 being the best efforts and highest contributions. You may want to consider the following factors in your assessment:

- Quality of deliverables to team,
- Assistance to team members,
- Quality of listening and participation in discussion,
- Research contribution,
- Time management.

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<th>Name</th>
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<th>Comments</th>
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STATEMENT ON ACADEMIC CONDUCT AND SUPPORT SYSTEMS

Academic Conduct:

Students are expected to make themselves aware of and abide by the University community’s standards of behavior as articulated in the Student Conduct Code. Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” https://policy.usc.edu/scampus-part-b/. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
 studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.
National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
 suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.
Relationship and Sexual Violence Prevention and Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call
 studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.
Campus Support & Intervention (CSI) - (213) 740-0411
 https://campussupport.usc.edu/

A team of professionals here to assist students, faculty, and staff in navigating complex issues. Whether you are here seeking support for yourself or someone else, we are available to help you problem solve, understand options, and connect with resources. Please note that we are not an emergency resource and are not available 24/7.
Office of Equity and Diversity (OED)- (213) 740-5086 | Title IX – (213) 821-8298
 equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital
status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations. The university also prohibits sexual assault, non-consensual sexual contact, sexual misconduct, intimate partner violence, stalking, malicious dissuasion, retaliation, and violation of interim measures.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710
uscsa.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101
diversity.usc.edu

Information on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu

Non-emergency assistance or information.
Students with Disabilities

USC is committed to making reasonable accommodations to assist individuals with disabilities in reaching their academic potential. If you have a disability which may impact your performance, attendance, or grades in this course and require accommodations, you must first register with the Office of Disability Services and Programs (www.usc.edu/disability). DSP provides certification for students with disabilities and helps arrange the relevant accommodations. Any student requesting academic accommodations based on a disability is 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 your TA) as early in the semester as possible. DSP is located in GFS (Grace Ford Salvatori Hall) 120 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776. Email: ability@usc.edu.

Emergency Preparedness/Course Continuity

In case of a declared emergency if travel to campus is not feasible, the USC Emergency Information web site (http://emergency.usc.edu/) will provide safety and other information, including electronic means by which instructors will conduct class using a combination of USC’s Blackboard learning management system (blackboard.usc.edu), teleconferencing, and other technologies.