

(01/12/14)

OM 386: OPERATIONS MANAGEMENT

Spring 2014

#04430 MW 3:30 - 4:45 PM in GSB 3.130

Instructor: Rayan Bagchi

Office: CBA 3.434A; Office Hours: M 5-6 PM, W 2:00-3:00 PM and by appointment

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Course Web Page: via Blackboard

COURSE DESCRIPTION

Operations Management (OM) involves the systematic design, operation, control, and improvement of businesses processes. This course builds on the core Operations course, and the two courses together constitute a comprehensive introduction to the theory and practice of Operations Management. One objective of this course is to reinforce and extend the key ideas and concepts of the core Operations course by locating them in real organizations across a wide variety of industries. Another objective is to explore how operations can contribute to competitive success of the enterprise.

The content of the course is broad. We shall address various operational issues and initiatives including: operations strategy, product design and development, sourcing, lean production, six sigma, distribution and logistics, quality, supply chain, process improvement, projects, risk analysis, organizational learning, sustainability, health and safety, and operational innovation.

COURSE PREREQUISITE

Credit for BA 280N or equivalent.

COURSE LEARNING OBJECTIVES

At the end of this course, you should have gained a solid understanding of:

- how every organization uses processes to transform inputs into goods and services;
- the importance of careful design, operation, and improvement of business processes;

and acquired the skills and confidence to

- analyze any manufacturing or service process to uncover improvement opportunities; and
- recommend ways in which operations can support the business.

TEACHING/LEARNING METHODOLOGY

The primary learning methodology of the course is case analysis. And the perspective adopted ranges from that of the operational consultant to that of the general manager – usually in the course of analyzing the same case. In class, please have a calculator ready to help with arithmetic.

The primary readings for the class consist of **a readings packet** (which has all the cases and assigned articles), **denoted by RP** in the detailed course outline starting on page 4, and **one required book (Memory Jogger 2)**, all available from the University Coop. We shall also use the following text (**denoted by C&T** in the detailed course outline) as a reference:

Matching Supply with Demand (Third Edition, ISBN: 978-0-07-352520-4, McGraw-Hill, 2013) by Cachon and Terwiesch.

CLASS PREPARATION In preparing for each class session, you must complete the mandatory readings before class. Suggested questions to help you prepare for case discussions are provided in the

syllabus and/or the associated assignment. And you must bring the case listed for that session (see page 12 for a quick overview) to class for ready consultation. **Doing these two things constitutes your credentials as a class participant.**

PERFORMANCE EVALUATION

The final grade in this class will be based on your demonstrated performance as follows:

Exam (<i>Wednesday, April 30, 3:30-7:30 PM</i>)	20%
Group Reports (10)	15%
Group Homework (8)	35%
Group Presentation (April 23 & April 28)	10%
Class Contribution	20%
Total	100%

Exam The exam is closed-book, closed-notes, closed-laptop, etc. However, you may bring a self-prepared 3"x5" two-sided notes card to the exam.

Group Report (GR - available on Blackboard) The purpose is to ensure class preparedness. You are free to collaborate with anyone in this class. Please turn in a hard copy of your group report (one per group), properly stapled if two or more pages, with names of your group members on the cover page, at the start of the session in which the report is due. Please form your own group (4-5 members).

Group Homework (GH - available on Blackboard) The purpose is to reinforce learning and gain feedback. The work that you turn in must be the work of your group. Please do not get help from others. Please turn in a hard copy of your group report (one per group), properly stapled if two or more pages, with names of your group members on the cover page, at the start of the session in which the homework is due. Please form your own group (4-5 members).

Group Presentation: Your group will make an oral presentation to the class, of about 15 minutes duration, on a topic to be assigned to you. Your peers will determine your grade in this category. Please form your own group (4-5 members).

Class Contribution This is a measure of how actively you are engaged in class, and what you contribute to the learning of others. Your peers will determine half of your grade in this category.

McCombs Classroom Professionalism Policy

- **Students arrive on time.** On time arrival shows respect for both fellow students and faculty and it enhances learning by reducing avoidable distractions.
- **Students display their name cards.** This permits fellow students and faculty to learn names, enhancing opportunities for community building and evaluation of class contribution.
- **Students minimize unscheduled personal breaks.** The learning environment improves when disruptions are limited.
- **Students are prepared for each class.** Unprepared students cannot contribute to the overall learning process. This affects not only the individual, but their peers who count on them, as well.
- **Students do not speak unless they are speaking to the entire class.** Do not engage in private conversations, however short or innocuous, while the class is in progress. They are disruptive and discourteous to the speaker. Raise your hand if you have a question or comment.
- **Laptops are closed and put away and phones and wireless devices are turned off.**

Academic Dishonesty

The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the *BBA Program's Statement on Scholastic Dishonesty* at <http://www.mcombs.utexas.edu/BBA/Code-of-Ethics.aspx>. *By teaching this course, I have agreed to observe all of the faculty responsibilities described in that document. By enrolling in this class, you have agreed to observe all of the student responsibilities described in that document. If the application of that Policy Statement to this class and its assignments is unclear in any way, it is your responsibility to ask me for clarification. Policy on Scholastic Dishonesty: Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Judicial Services website at <http://deanofstudents.utexas.edu/sjs/> or the General Information Catalog to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.*

As a fundamental principle for any educational institution, academic integrity is highly valued and seriously regarded at The University of Texas at Austin. More specifically, you and other students are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University. This is a very basic expectation that is further reinforced by the University's [Honor Code](#). At a minimum, you should complete any assignments, exams, and other scholastic endeavors with the utmost honesty, which requires you to:

- acknowledge the contributions of other sources to your scholastic efforts;
- complete your assignments independently unless expressly authorized to seek or obtain assistance in preparing them;
- follow instructions for assignments and exams, and observe the standards of your academic discipline; and
- avoid engaging in any form of academic dishonesty on behalf of yourself or another student.

For the official policies on academic integrity and scholastic dishonesty, please refer to [Chapter 11](#) of the *Institutional Rules on Student Services and Activities*.

Honor Code

The core values of the University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

(Link to University Honor Code: <http://registrar.utexas.edu/catalogs/gi09-10/ch01/index.html>).

Class Web Sites and student Privacy

Password-protected class sites will be available for all accredited courses taught at The University. Syllabi, handouts, assignments and other resources are types of information that may be available within these sites. Site activities could include exchanging e-mail, engaging in class discussions and chats, and exchanging files. In addition, class e-mail rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar, Main Building, Room 1. For information on FERPA related issues see <http://registrar.utexas.edu/students/records/ferpa/>.

Students with Disabilities

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

Religious Holidays

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Campus Safety

"Please note the following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, <http://www.utexas.edu/safety/> :

.. Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.

.. Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.

.. Students requiring assistance in evacuation should inform their instructor in writing during the first week of class.

.. In the event of an evacuation, follow the instruction of faculty or class instructors.

.. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.

.. Behavior Concerns Advice Line (BCAL): 512-232-5050

.. Further information regarding emergency evacuation routes and emergency procedures can be found at:

www.utexas.edu/emergency."

OM 386: DETAILED COURSE OUTLINE

SESSION 1 (M, Jan. 13)

COURSE INTRODUCTION

SESSION 2 (W, Jan. 15)

INNOVATION FACTORY; PROCESS ORIENTATION

Mandatory Readings:

1. Chapter 19 of C&T

2. Leveraging Processes for Strategic Advantage

Case:

IDEO Product Development

Case Preparation Questions:

1. How do you characterize IDEO's process?

SESSION 3 (W, Jan. 22)

BOTTLENECK, INVENTORY, WAITING

Homework Due:

GH-1

Case:

National Cranberry Cooperative, 1996

No class on Monday, Jan. 27 (No Office Hours)

No class on Wednesday, Jan. 29 (No Office Hours)

SESSION 4 (M, Feb. 3) PROCESS ANALYSIS

Homework Due: GH-2
Case: Donner Company

SESSION 5 (W, Feb. 5) PROCESS ANALYSIS

Case: Donner Company

Case Preparation Questions:

Q1. How is Donner doing? What problems do you see?

Q2. Why do these problems exist?

Q3. Trace an order as it moves from the originating customer to completion.

Q4. What specific actions do you recommend Plummer take to address these problems?

SESSION 6 (M, Feb. 10) PROCESS IMPROVEMENT

Report Due: GR-1

Mandatory Readings: 1. *Memory Jogger*- Brainstorming, Cause & Effect/Fishbone Diagram, Check Sheet, Flowchart, Force Field Analysis, Histogram, Pareto Chart, Radar Chart, Run Chart, Scatter Diagram

Cases: Florida Power Light (A) & (B)

Case Preparation Questions:

Q1. Why use a storyboard?

Q2. Name one adjective that best characterizes FPL's problem-solving method known as the quality-improvement story (QI Story) shown in Exhibit 2 of the (A) case.

SESSION 7 (W, Feb. 12) PROCESS IMPROVEMENT

Mandatory Readings: 1. *Memory Jogger* – Brainstorming, Nominal Group Technique (NGT), Problem-Solving/Process-Improvement Model

Cases: Florida Power Light (A) & (B)

Case Preparation Questions:

Q3. What is the process (= process steps) of process improvement?

Q4. What are the characteristics of FPL as an organization? In other words, how is FPL different (say, from Google/Ford/Disney/GE)?

SESSION 8 (M, Feb. 17) TOYOTA PRODUCTION SYSTEM (TPS)

Report Due: GR-2

Mandatory Readings: 1. Chapter 11 of C&T

Case : Toyota Motor Manufacturing, USA

Case Preparation Questions:

Q1. The length of a station is 5.7 meters (Exhibit 6). Given that the cycle time is 57 seconds, what is the speed of the assembly line (in miles per hour)?

Q2. What is the capacity of the assembly line (cars per day; cars per week; and cars per year) assuming 100% line utilization? How many fewer cars are produced per shift if the run ratio is 95%? Or 85%?

Q3. This question is designed to estimate how much time KFS has to assemble a seat.

Of the 353 stations, at least 314 (353 minus 39 in Groups 2 and 3 in Exhibit 6) are between the end of the paint line and the first seat installation station. What is the corresponding throughput time? After subtracting the time a seat spends: traveling on TMM's overhead seat conveyor line (about 250 meters), waiting on TMM's staging line, traveling in the truck, and waiting on KFS's staging line, you get the time KFS has to assemble a seat. What is the time?

Q4. "Of all TPS components perhaps the one receiving most notoriety has been workers' "ability" to stop the line." What is the cost of stopping the line for one cycle? For five minutes? For half-an-hour?

Q5. What can Doug do to address the seat quality problem?

Q6. What is the real problem?

SESSION 9 (W, Feb. 19) SUPPLIER QUALITY; TPS IN HEALTHCARE

Mandatory Readings: 1. The Lean Service Machine (**in RP**)

Case: Virginia Mason Medical Center

Case Preparation Questions:

Q1. What is Gary Kaplan trying to achieve at Virginia Mason?

Q2. How does the Toyota Production System fit into his strategy?

Q3. What is your view of the "people are not cars" debate?

Q4. Is Kaplan's approach transferable to other US hospitals?

SESSION 10 (M, Feb. 24) GLOBAL SUPPLY CHAIN

Homework Due: GH-3

Mandatory Readings: 1. Chapters 12, 13 & 17 (C&T)

Case: Sport Obermeyer

Case Preparation Questions:

Q1. Retailers, designers, sewing factories, fabric dyers/printers, and manufacturers of zippers, buttons and labels are a few of the many players comprising Obermeyer's globally dispersed supply chain for skiwear. How would you characterize the role played by Sport Obermeyer in this supply chain? The role played by Obersport? What are the critical capabilities of Sport Obermeyer? Of Obersport?

Q2. As you know, one of the major challenges Wally faces each year is deciding which items to order in November, and which ones to defer till the Las Vegas show. Understand that an item could be ordered in November and again after the Las Vegas show. However, capacity constraints limit Wally's options. Consider the Isis and Entice styles (Exhibit 10). Which one of these two styles is less risky for early production using non-reactive capacity, and why?

Obermeyer's ability to fine-tune supply of each style is constrained by minimum order quantities. How does the attractiveness/riskiness of a style for early production depend on the minimum order size? Consider the Isis style (Exhibit 10) and the following minimum order size scenarios: (i) 500 units; (ii) 1200 units; and (iii) 800 units. Does the fact that the minimum order size is 500 units (rather than 1200 or 800 units) help you at all in deciding whether to order Isis in November?

Q3. A number of factors constrain Obermeyer's ability to produce so as to match supply and demand. These include: (1) minimum production lot-size constraints; (2) limited reactive capacity in the sewing plants; (3) raw material lead times; and (4) the time at which retailer demand is made available to Obermeyer. Based on your understanding of the course cases and other class material throughout the semester, discuss how Obermeyer should address these factors so as to improve its ability to produce what the market wants? Specifically, how can Obermeyer increase its reactive capacity without necessarily hiring more people, working longer hours or buying new equipment?

SESSION 11 (W, Feb. 26) JUST-IN-TIME DISTRIBUTION

Report Due: GR-3
Case: Barilla SpA (A)

Case Preparation Questions:

Q1. Diagnose the underlying causes of the difficulties that the JITD program was created to solve. What are the benefits and drawbacks of this program?

Q2. What conflicts or barriers internal to Barilla does the JITD program create? What causes these conflicts? As Giorgio Maggiali, how would you deal with these?

Q3. As one of Barilla's customers, what would your response to JITD be? Why?

Q4. In the environment in which Barilla operated in 1990, do you believe JITD (or a similar kind of program) would be feasible? Effective? If so, which customers would you target next? How would you convince them that the JITD program was worth trying? If not, what alternatives would you suggest to combat some of the difficulties that Barilla's operating system faces?

No class on Monday, Mar. 3

No class on Monday, Mar. 5

SESSION 12 (M, Mar. 17) PROCESS CONTROL & CAPABILITY

Report Due: GR-4
Mandatory Readings: 1. Chapter 10 of C&T (through section 10.6)
Cases: Quality Wireless (A) & (B)

Q1. What fraction of the days in 2003-2004 failed to meet the targeted hold time of 110 seconds? Given that the daily average hold time was normally distributed with a mean of 99.67 and a standard deviation of 24.24, what fraction of days where the call center failed to meet the targeted hold time of 110 seconds would you expect?

Q2. What fraction of the days in April 2005 failed to meet the targeted hold time of 110 seconds? Given that the daily average hold time after process improvements was normally distributed with a mean of 79.50 and a standard deviation of 16.86, what fraction of days where the call center failed to meet the targeted hold time of 110 seconds would you expect?

Q3. Based on the performance in April 2005, do you think that the performance of the call center has improved?

Q4. What do you think of Jackson's management approach?

Q5. If we assume that call center performance during the month of September is continuing at the improved level with a mean of 79.50 and a standard deviation of 16.86, what is the probability of observing ten days that average 86.6 or more? What is the probability of observing ten days that average 74.4 or less?

Q6. What would you do if you were in Jackson's position?

SESSION 13 (W, Mar. 19) PROCESS CONTROL IMPLEMENTATION

Report Due:

GR-5

Case:

Deutsche Allgemeinversicherung

Case Preparation Questions:

Q1. What are the primary challenges in applying SPC to a service business compared with manufacturing?

Q2. How large should each sample be for the experiment Scloss and Kluck describe on page 7?

Q3. What are the 3-sigma control limits for the process captured in Exhibit 4?

Q4. Develop specific implementation plans for solving the problems facing Annette Kluck (described on page 9).

Q5. How would you now begin improving the performance of the operation?

SESSION 14 (M, Mar. 24) R&D PROJECT MANAGEMENT

Mandatory Readings:

1. Creating Project Plans to Focus Product Development (**in RP**)

Homework Due:

GH-4

Case:

Medtronic

Case Preparation Questions:

Q1. Review the history of how Medtronic nearly lost its position as market leader in the 1970s and 1980s. Try to chart on a piece of paper what the root causes of those outcomes were.

Q2. Which of the improvements in the new product development process strike you as having been particularly critical to turning the company around?

Q3. What do the concepts of *product line architecture* and *train schedule* mean in the pacemaker business? What are the costs and benefits of implementing these concepts? What elements of Medtronic's approach could be applied in very different business settings?

Q4. Evaluate the nature of senior management involvement in Medtronic's implementation of its product development system. Which elements of the system does senior management need to be intimately involved in, and which can it delegate or pay less attention to?

SESSION 15 (W, Mar. 26) SUSTAINABLE OPERATIONS

Mandatory Readings: 1. Chapter 18 of C&T

Case: Herman Miller

Case Preparation Questions:

Q1. Should Herman Miller use PVC or TPU in the Mirra Chair arm pad?

Q2. What is your assessment of how Herman Miller implemented the C2C protocol?

Q3. Why did Herman Miller undertake this strategic environmental initiative?

SESSION 16 (M, Mar. 31) MANAGEMENT OF WAITING LINES

Report Due: GR-6

Homework Due: GH-5

Mandatory Readings: 1. Want to Perfect Your Company's Service? (in RP)
2. Chapter 8 of C&T

Case: University Health Service: Walk-In Clinic

Case Preparation Questions:

Q1. Evaluate the performance of the Walk-In Clinic.

Q2. Is the problem one of inadequate capacity? One of inefficient scheduling? Both?

Q3. Is the triage system an improvement? In fact? In perception?

Q4. Why are "walk-in appointments" a problem? What should Ms. Angell do about them?

Q5. Are waiting times 'reasonable'? How should the Walk-In Clinic address this issue?

Q6. What other actions would you recommend to Ms. Angell?

SESSION 17 (W, Apr. 2) MANAGEMENT OF WAITING LINES

Homework Due: GH-6

Mandatory Readings: 1. Chapter 9 of C&T

Case: Manzana Insurance: Fruitvale Branch

Case Preparation Questions:

Q1. What is the major competitive threat faced by Fruitvale?

Q2. It is commonly believed at Fruitvale that RUNs are the most profitable jobs? Is this belief justified?

Q3. What bottlenecks are revealed by the utilization analysis shown in the Table below? You have to understand where the numbers in the Table come from.

Q4. Consider how TAT (turnaround time) is calculated (page 6 and Exhibit 3). Does this TAT reflect Fruitvale's actual throughput time performance? Why or why not?

Q5. What is your recommendation for improving Fruitvale's RUN performance?

Q6. What is your recommendation for improving Fruitvale's RERUN performance?

Q7. Make any additional recommendations for improving Fruitvale's performance.

MANZANA INSURANCE - Utilization Analysis (1991, 120 days, 450 minutes per day)

Service Time Means: (From Exhibit 4)	RUNs	RAPs	RAINs	RERUNs	Average Policy
DC	68.5 mins.	50.0	43.5	28.0	40.97
UT	43.6	38.0	22.6	18.7	28.4 ¹
RT	75.5	64.7	65.5	75.5	70.39
PW	71.0	#N/A	54.0	50.1	54.78
Arrivals (Total): (From Exhibit 7)	350	1798	451	2081	4680

Arrivals Percentage: (From Exhibit 7)

Territory 1	46.3	42.3	43.5	30.6	
Territory 2	28.6	28.5	27.7	40.3	
Territory 3	25.1	29.2	28.8	29.1	
(Total)	100	100	100	100	
Utilizations (%):	RUNs	RAPs	RAINs	RERUNs	Total
DC (4)	11.1 ²	41.6	9.1	27.0	88.8
UT1	13.1	53.5	8.2	22.1	96.9
UT2	08.1	36.1	5.2	29.0	78.4
UT3	07.1	36.9	5.4	21.0	70.4
RT (8)	06.1	26.9	6.8	36.4	76.2
PW (5)	09.2	07.1 ³	9.0	38.6	63.9

¹ $[(43.6)(350)+(38.0)(1798)+(22.6)(451)+(18.7)(2081)]/4680 = 28.4;$

² $[\{(68.5)(350)\}/\{(4)(120)(450)\}] = 0.111$

³ 15% RAPs turned into RUNs; assumes mean service time of 71.0 mins.

SESSION 18 (M, Apr. 7) OPERATIONAL EXCELLENCE

Report Due: GR-7

Mandatory Readings: 1. Chapter 6 in C&T

Case: Southwest Airline in Baltimore

Case Preparation Questions:

Q1. What is Southwest (SWA) to you?

Q2. Who are SWA's competitors?

Q3. What are SWA's advantages relative to other airlines? What are its disadvantages?

Q4. SWA's operations strategy has been likened to that of a flexible manufacturer. Explain.

Q5. How does a fast turnaround impact SWA's bottom line?

SESSION 19 (W, Apr. 9) OPERATIONAL EXCELLENCE

Homework Due: GH-7

Case: Southwest Airline in Baltimore

Q5. Evaluate the plane turnaround process at Baltimore (resource utilization, capacity, bottlenecks, information flows, etc.). How is the process working?

Q6. Why is the operational performance at Baltimore eroding?

Q7. Assess SWA's strategic fit.

SESSION 20 (M, Apr. 14) ORGANIZATIONAL LEARNING

Report Due: GR-8

Homework Due: GH-8

Mandatory Readings: 1. Building a Learning Organization (**in RP**)

Case: Analog Devices: The Half-Life System

Q1. How is the half-life effect different from the well-known experience/learning curve effect?

Q2. What is the role (= primary use) of the half-life method at Analog?

SESSION 21 (W, Apr. 16) WORKPLACE SAFETY

Report Due: GR-9

Cases: Workplace Safety at Alcoa (A) & (B)

Case Preparation Questions:

Q1. What has been and needs to be the half-life of Mission Valley's safety improvement?

Q2. As Paul O'Neil, how do you describe what has and has not worked at Mission Valley?

Q3. What is your evaluation of Linda Merton's plan for 1992?

Q4. How should Stepancik be dealt with?

SESSION 22 (M, Apr. 21) OPERATIONAL FOCUS

Report Due: GR-10

Case: Shouldice Hospital

Case Preparation Questions:

Q1. How good is the Shouldice Hospital (profitability, cost, speed, and quality)?

Q2. What is Shouldice's service concept? Target market (both external & internal)?

Q3. What is Shouldice's operating strategy?

Q4. Assess Shouldice's strategic fit.

SESSION 23 (W, Apr. 23) GROUP PRESENTATIONS

SESSION 24 (M, Apr. 28) GROUP PRESENTATIONS

SESSION 25 (W, Apr. 30) EXAM (3:30-7:30 p.m.)

OM 386 ADVANCED OPERATIONS MANAGEMENT Spring 2014 Bagchi Course Outline

Session	Day	Date	Topic	Case/Exercise	Assignment
01	M	1/13	Course Introduction		
02	W	1/15	Innovation Factory; Process Orientation	IDEO	
03	W	1/22	Bottleneck, Inventory, Waiting	National Cranberry	GH-1
	M	1/27	<i>NO CLASS (No Office Hours)</i>		
	W	1/29	<i>NO CLASS (No Office Hours)</i>		
04	M	2/03	Process Analysis	Donner Company	GH-2
05	W	2/05	Process Analysis	Donner Company	
06	M	2/10	Process Improvement	Florida Power Light	GR-1
07	W	2/12	Process Improvement	Florida Power Light	
08	M	2/17	Toyota Production System (TPS)	Toyota Motor Mfg	GR-2
09	W	2/19	Supplier Quality; TPS in Healthcare	Toyota Motor Mfg; Virginia Mason Medical	
10	M	2/24	Global Supply Chain	Sport Obermeyer	GH-3
11	W	2/26	Just-In-Time Distribution	Barilla SpA (A)	GR-3
	M	3/03	<i>NO CLASS – Global Trip</i>		
	W	3/05	<i>NO CLASS – Global Trip</i>		
12	M	3/17	Process Control & Capability	Quality Wireless (A) & (B)	GR-4
13	W	3/19	Process Control Implementation	Deutsche Allgemein	GR-5
14	M	3/24	R&D Project management	Medtronic	GH-4
15	W	3/26	Sustainable Operations	Herman Miller	
16	M	3/31	Management of Waiting Lines	University Health Service	GR-6, GH-5
17	W	4/02	Management of Waiting Lines	Manzana	GH-6
18	M	4/07	Operational Excellence	Southwest Airline	GR-7
19	W	4/09	Operational Excellence	Southwest Airline	GH-7
20	M	4/14	Organizational Learning	Analog Devices	GR-8, GH-8
21	W	4/16	Workplace Safety	Alcoa (A) & (B)	GR-9
22	M	4/21	Operational Focus	Shouldice Hospital	GR-10
23	W	4/23	Group Presentations		
24	M	4/28	Group Presentations		
25	W	4/30	EXAM (3:30-7:30 p.m.)		

** PLEASE Note: NO CLASS on Jan. 27, Jan. 29, Mar. 3, and Mar. 5. **