

(January 8, 2012)

OM 335: OPERATIONS MANAGEMENT

SPRING 2012

TTH 11:00 AM - 12:30 PM in UTC 1.146

Unique # 03875

Instructor: Rayan Bagchi

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Course Web Page: via Blackboard

COURSE DESCRIPTION

Operations Management (OM) involves the systematic planning, design, operation, control, and improvement of businesses processes. Managing operations is vital to every organization, for it is only through the effective and efficient utilization of resources that an organization can be successful in the long run. This is especially true today, when we see that significant competitive advantages accrue to those firms that manage their operations effectively (as exemplified by Dell, Wal-Mart, Toyota etc.)

The course is conceptually structured in three interweaving modules. In one, we introduce the basic vocabulary of OM. We carefully consider process analysis and process design in the context of both manufacturing and service operations. In another, we look at several critical OM issues: project management, supply chain management, and management of waiting lines. Finally, in another, we seek ways to improve the overall competitiveness of a firm by exploring some strategic aspects of OM like lean operations, focused operations, and time based competition.

COURSE PREREQUISITE

Credit or registration for Business Administration 324 or 324H and credit or registration for Statistics 309 or 309H.

COURSE LEARNING OBJECTIVES

At the end of this course, you should have:

gained an improved 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
- the competitive potential of sound operations management

and acquired the skills to

- analyze any manufacturing or service process to uncover improvement opportunities
- recommend process improvement along the dimensions of efficiency, quality, and speed

TEACHING/LEARNING METHODOLOGY

This course is a mixture of lectures, case discussions and hands-on problem solving. In class, 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 two required books (described below), all available from the University Coop:**

Matching Supply with Demand (Second Edition, ISBN: 978-0-07-352516-7, McGraw-Hill, 2009) by Cachon and Terwiesch. (This is as close to a textbook as we have in this course. We shall use this book as a text, as a reference and as a supplementary resource. Please read the assigned sections of this text, denoted by C&T in the detailed course outline starting on page 5, somewhat lightly at first. Go back for a re-read as you deem useful after we discuss the topic in class.)

The Goal: A Process of Ongoing Improvement (20th Anniversary Edition, ISBN: 1-88427-178-1, GOAL/QPC, 2004) by Goldratt and Cox. (This international best seller is a novel that captures many of the critical concepts and issues in operations. According to *Financial Times*, “The only book that [managers] have actually read right through over the years is THE GOAL.” The book is funny yet deep, requiring careful reading. We shall discuss the book in class on *February 14*. Please read it by that time if not sooner.)

A packet of overheads is available from the UT Copy Center (GSB 3.136). You must bring this packet to class starting with Session 2.

In preparing for class, you are strongly encouraged to work with others in the class. Suggested questions to help you prepare for case discussions are provided in the syllabus.

We shall work together to create the best learning environment that we can. Please let me know throughout the semester if there is anything I can do to make this class better for you.

PERFORMANCE EVALUATION

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

Exam 1 (<i>Thursday, February 23, 7:00-9:30 PM</i>)	20%
Exam 2 (<i>Thursday, April 12, 7:00-9:30 PM</i>)	20%
Final Exam (<i>Monday, May 14, 9:00-12:00 noon</i>)	30%
Individual Homework (available on Blackboard)	10%
Group Homework (available on Blackboard)	10%
Class Contribution	10%
Total	100%

Exams All three exams are closed-book, closed-notes, closed-laptop, etc. However, you may bring a self-prepared 3”x5” two-sided notes card to the exams. You may put anything you like on your notes card, but at least include whatever you may consider to be formulas. Exam 1 will be based on material covered in Sessions 1-8 and 11; Exam 2 will be based on material covered in Sessions 9, 10, 12-18 and 22. Please note that the final exam is comprehensive; it is based on material covered in Sessions 1-26.

Individual Homework (Available on Blackboard) For individual homework assignments, you are encouraged to work with other students in the class. But, the solution that you turn in must be your own. Please, no Xerox copy of another student's solution. Each individual homework will be graded on a scale of 0-2. A solution showing evidence of effort at completeness will earn full points. Please turn in your homework, properly stapled if two or more pages, at the beginning of the class session. Solutions to the individual homework assignments will be posted on Blackboard. Please study each solution carefully even if you received full credit on the assignment. Please remember that credit on individual homework is proportional to effort not correctness. Please note that late submission of individual homework is not acceptable. Of the eight individual homework assignment grades, only the top five will count toward your course grade.

Group Homework (Available on Blackboard) Please form your own group (5-6 members) immediately. Each group homework will be graded on a scale of 0-2.5. Please turn in your group homework – one submission per group - properly stapled if two or more pages, at the beginning of the class session listed on the schedule. The work that you turn in must be your group’s own work. Please do not get help from others. Solutions to the group homework assignments will be posted on Blackboard. Please study each solution carefully. Credit on group homework is proportional to both effort and correctness. Please note that late submission of group homework is not acceptable. Of the six group homework assignment grades, only the top four will count toward your course grade.

Class Contribution This is essentially a measure of how actively you are engaged in class proceedings, and what you contribute to the learning of others. Class attendance is an essential component of class contribution.

Practice Problems These problems and their solutions, both available on Blackboard, are additional opportunities to test your mastery of the course material. Use them well.

McCombs Classroom Professionalism Policy

- **Students arrive on time.** On time arrival ensures that classes are able to start and finish at the scheduled 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 in-class contributions.
- **Students minimize unscheduled personal breaks.** The learning environment improves when disruptions are limited.
- **Students are prepared for each class.** Much of the learning takes place during classroom discussions. When students are not prepared they 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 Policy Statement on Scholastic Dishonesty for the McCombs School of Business:

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.

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

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259, <http://www.utexas.edu/diversity/ddce/ssd/>.

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.

OM 335: DETAILED COURSE OUTLINE

No class or office hour on Tuesday, Jan. 17

SESSION 1 (TH, Jan. 19) INTRODUCTION TO OPERATIONS MANAGEMENT

Readings:

1. Chapter 1 of C&T (pages 1-9)
2. Chapter 2 of C&T (pages 10-19, through section 2.3)

SESSION 2 (T, Jan. 24) INTRODUCTORY PROCESS ANALYSIS

Readings:

1. Kristen's Cookie Company (A) (in RP)
2. Chapter 2 of C&T (pages 19-29)
3. Chapter 3 of C&T (pages 32-40, through section 3.3)

Case: KRISTEN'S COOKIE COMPANY (A)

Case Preparation Questions:

1. We shall start with the 'Key Questions to Answer before You Launch the Business' in class. You do not need to answer them before coming to class. But give them some thought.

SESSION 3 (TH, Jan. 26) INTRODUCTORY PROCESS ANALYSIS

- Readings:
1. Kristen's Cookie Company (A) (in RP)
 2. Chapter 2 of C&T (pages 19-29)
 3. Chapter 3 of C&T (pages 32-40, through section 3.3)

Case: KRISTEN'S COOKIE COMPANY (A)

Case Preparation Questions:

2. What happens if you are trying to do this by yourself without a roommate?

SESSION 4 (T, Jan. 31) INTRODUCTORY PROCESS ANALYSIS

- Readings:
1. Kristen's Cookie Company (A) (in RP)
 2. Chapter 2 of C&T (pages 19-29)
 3. Chapter 3 of C&T (pages 32-40, through section 3.3)

Case: KRISTEN'S COOKIE COMPANY (A)

SESSION 5 (TH, Feb. 2) PROCESS DESIGN ISSUES: LAYOUT & UTILIZATION

Homework Due: IH-1

- Readings :
1. "Texas Automobile License Renewal" (in RP)
 2. Chapter 3 of C&T (pages 41-50)

Preparation: Please read the License Renewal exercise carefully and bring it to class.

SESSION 6 (T, Feb. 7) INVENTORY BUILDUP

Homework Due: IH-2

- Readings:
1. "Capacity" (in RP) – Fishing fleet and cannery exercise
 2. Chapter 2 of C&T (section 2.5)

Preparation: In class, we shall work on the Fishing fleet and cannery exercise. Please read the exercise carefully and consider the questions. Don't forget to bring it to class.

SESSION 7 (TH, Feb. 9) SERVICE PROCESS ANALYSIS AND DESIGN

Homework Due: IH-3, GH-1

- Readings:
1. Benihana of Tokyo (in RP)

Case : BENIHANA OF TOKYO

Case Preparation Questions:

1. Compare the operating figures of a typical restaurant with those of Benihana based on the following factors: food and beverage costs, payroll, and rent. Why are costs lower at Benihana?
2. What design choices facilitate dining in less than an hour?
3. Assuming 120 seats in the dining area, 48 seats in the bar, and a target process time of 60 minutes in the dining area, what target process time is implied for a customer in the bar?
4. What is the Benihana concept?

SESSION 8 (T, Feb. 14) THE GOAL

- Reading:
1. *The Goal*

Preparation Questions:

1. What is the marginal value of time at bottlenecks? At non-bottlenecks?
2. Where should Herbie be?
3. How can one increase bottleneck capacity?
4. What happens if statistical fluctuations are ignored?

SESSION 9 (TH, Feb. 16) PROCESS CONTROL & CAPABILITY

Homework Due: IH-4

Readings: 1. Quality Wireless (A) (in RP)
 2. Chapter 9 of C&T (pages 178-190, sections 9.1-9.5)

Case: QUALITY WIRELESS (A)

Case Preparation Questions:

1. What fraction of days in 2003-2004 did the call center fail to meet the targeted hold time of 110 seconds? If 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 would you expect the call center to fail to meet the target?
2. What fraction of days in April 2005 did the call center fail to meet the target? If 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 would you expect the call center to fail to meet the target?
3. Based on the performance in April 2005, do you think that the call center has improved?

SESSION 10 (T, Feb. 21) PROCESS CONTROL AND CAPABILITY

Homework Due: IH-5, GH-2

Readings: 1. Quality Wireless (B) (in RP)
 2. Chapter 9 of C&T (pages 178-190, sections 9.1-9.5)

Cases: QUALITY WIRELESS (A) & (B)

Case Preparation Questions:

1. What do you think of Jackson's management approach?
2. 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?
3. What should you do if you were in Jackson's position?

SESSION 11 (TH, Feb. 23) REVIEW FOR EXAM 1

<i>Exam 1 Thursday, Feb. 23, 7:00-9:30 PM</i>
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No class or office hour on Tuesday, Feb. 28

SESSION 12 (TH, March 1) PROJECT MANAGEMENT

Readings: 1. "Project Management, Chapter 3, Chapter pp. 65-77" (in RP)

SESSION 13 (T, Mar. 6) PROJECT MANAGEMENT

Homework Due: IH-6, GH-3

Readings: 1. "Project Management, Chapter 3, Chapter pp. 80-83" (in RP)

SESSION 14 (TH, Mar. 8) PROJECT MANAGEMENT

Homework Due: IH-7

Readings: 1. "Project Management, Chapter 3, Chapter pp. 65-86" (in RP)

SESSION 15 (T, Mar. 20) MANAGEMENT OF WAITING LINES

- Readings: 1. Manzana Insurance – Fruitvale Branch (in RP)
 2. Chapter 7 of C&T (pages 124-137, through section 7.4)

Case: MANZANA INSURANCE – FRUITVALE BRANCH

Case Preparation Questions:

1. What is the major competitive threat faced by Fruitvale?
2. It is commonly believed at Fruitvale that RUNs are the most profitable jobs? Is this belief justified?
3. 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.
4. 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?

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

Service Time Means (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
Total Arrivals (Exhibit 7):	350	1798	451	2081	4680

Arrivals Percentage: (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 16 (TH, Mar. 22) MANAGEMENT OF WAITING LINES

- Readings: 1. Manzana Insurance – Fruitvale Branch (in RP)
 2. Chapter 7 of C&T (pages 124-137, through section 7.4)

Case: MANZANA INSURANCE – FRUITVALE BRANCH

Case Preparation Questions:

4. 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?

SESSION 17 (T, Mar. 27) MANAGEMENT OF WAITING LINES

Homework Due: GH-4

Readings: 1. Manzana Insurance – Fruitvale Branch (in RP)
2. Chapter 7 of C&T (pages 124-137, through section 7.4)

Case: MANZANA INSURANCE – FRUITVALE BRANCH

Case Preparation Questions:

5. Make a few recommendations to improve Fruitvale’s performance.

SESSION 18 (TH, Mar. 29) MANAGEMENT OF WAITING LINES

Readings: 1. Manzana Insurance – Fruitvale Branch (in RP)
2. Chapter 7 of C&T (pages 124-137, through section 7.4)

Case: MANZANA INSURANCE – FRUITVALE BRANCH

Case Preparation Questions:

5. Make a few recommendations to improve Fruitvale’s performance.

SESSION 19 (T, April 3) GLOBAL SUPPLY CHAIN

Homework Due: GH-5

Readings: 1. Sport Obermeyer, Ltd. (in RP)
2. Chapter 16 of C&T (pages 377- 392, sections 16.1-16.2)
3. Chapter 11 of C&T (pages220-235, sections 11.1-11.4)

Case: SPORT OBERMEYER, LTD.

Case Preparation Questions:

1. 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?

2. Wally Obermeyer has hired you as a consultant to advise him on production planning decisions for the Obermeyer product line. 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. Wally wants your help with the sample problem (page 8 and Exhibit 10). Consider the Isis and Entice styles. Which one of these two styles is less risky for early production using non-reactive capacity, and why?

SESSION 20 (TH, Apr. 5) GLOBAL SUPPLY CHAIN

Homework Due: IH-8

Readings: 1. Sport Obermeyer, Ltd. (in RP)
2. Chapter 12 of C&T
3. Chapter 11 of C&T (pages220-235, sections 11.1-11.4)
4. Chapter 16 of C&T (pages 377- 392, sections 16.1-16.2)

Case: SPORT OBERMEYER, LTD.

Case Preparation Questions:

3. A number of factors constrain Obermeyer’s ability to produce so as to match supply 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. How should Obermeyer 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 21 (T, Apr. 10) GLOBAL SUPPLY CHAIN

- Readings: 1. Sport Obermeyer, Ltd. (in RP)
 2. Chapter 12 of C&T
 3. Chapter 11 of C&T (pages220-235, sections 11.1-11.4)
 4. Chapter 16 of C&T (pages 377- 392, sections 16.1-16.2)
- Case: SPORT OBERMEYER, LTD.

SESSION 22 (TH, Apr. 12) REVIEW FOR EXAM 2

Exam 2 Thursday, Apr. 12, 7:00-9:30 PM

No class or office hour on Tuesday, Apr. 17

SESSION 23 (TH, Apr. 19) TOYOTA PRODUCTION SYSTEM

- Readings: 1. Toyota Motor Manufacturing, USA, Inc. (in RP)
 2. Chapter 10 of C&T
- Case : TOYOTA MOTOR MANUFACTURING, USA, INC.

Case Preparation Questions:

1. Assembly comprises 769 team members, which means 385 per shift covering 353 stations. What does this say about the scale of ‘non-essential’ work? For example, the scale of rework operations?
2. 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)?
3. 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%? How many fewer cars are produced per shift if the run ratio is 85%?
4. 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?
5. “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?

SESSION 24 (T, Apr. 24) TOYOTA PRODUCTION SYSTEM

Homework Due: GH-6

Readings: 1. Toyota Motor Manufacturing, USA, Inc. (in RP)
2. Chapter 10 of C&T

Case: TOYOTA MOTOR MANUFACTURING, USA, INC. (cont....)

Case Preparation Questions:

5. “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?
6. What are the key operational principles of the Toyota Production System (TPS)? Be sure to understand not only the terms, but their fundamental purpose as well.
7. Doug has to balance the costs of following TPS against the costs of deviating from TPS. Understand this tradeoff.
8. What can Doug do to address the seat quality problem?

SESSION 25 (TH, Apr. 26) TOYOTA PRODUCTION SYSTEM

Readings: 1. Toyota Motor Manufacturing, USA, Inc. (in RP)
2. Chapter 10 of C&T

Case : TOYOTA MOTOR MANUFACTURING, USA, INC.

Case Preparation Questions:

8. What can Doug do to address the seat quality problem?
9. Who is minding quality at Toyota and who is minding productivity?
10. How do “Push” and “Pull” coexist at Toyota?

SESSION 26 (T, May 1) COURSE REVIEW

<i>No class on Thursday, May 3</i>

OM 335: OPERATIONS MANAGEMENT (#03875) Spring 2012 Bagchi Course Outline

Session	Day	Date	Topic	Case/Exercise	Assignment Due
	T	1/17	<i>NO CLASS (No Office Hours)</i>		
01	TH	1/19	Introduction to Operations Management		
02	T	1/24	Introductory Process Analysis	Kristen's Cookie	
03	TH	1/26	Introductory Process Analysis	Kristen's Cookie	
04	T	1/31	Introductory Process Analysis	Kristen's Cookie	
05	TH	2/02	Process Design Issues	License Renewal	IH-1
06	T	2/07	Inventory Buildup	Fishing Fleet	IH-2
07	TH	2/09	Service Process Analysis and Design	Benihana	IH-3, GH-1
08	T	2/14	The Goal		
09	TH	2/16	Process Control & Capability		IH-4
10	T	2/21	Process Control & Capability		IH-5, GH-2
11	TH	2/23	Review for EXAM 1		
EXAM 1	<u>Thursday, February 23, 7:00-9:30 p.m.</u> (EXAM 1 covers Sessions 1-8, 11)				
	T	2/28	<i>NO CLASS (No Office Hours)</i>		
12	TH	3/01	Project management		
13	T	3/06	Project Management		IH-6, GH-3
14	TH	3/08	Project Management		IH-7
15	T	3/20	Management of Waiting Lines	Manzana	
16	TH	3/22	Management of Waiting Lines	Manzana	
17	T	3/27	Management of Waiting Lines	Manzana	GH-4
18	TH	3/29	Management of Waiting Lines	Manzana	
19	T	4/03	Global Supply Chain	Sport Obermeyer	GH-5
20	TH	4/05	Global Supply Chain	Sport Obermeyer	IH-8
21	T	4/10	Global Supply Chain	Sport Obermeyer	
22	TH	4/12	Review for EXAM 2		
EXAM 2	<u>Thursday, April 12, 7:00-9:30 p.m.</u> (EXAM 2 covers Sessions 9, 10, 12-18, 21)				
	T	4/17	<i>NO CLASS (No Office Hours)</i>		
23	TH	4/19	Toyota Production System	Toyota	
24	T	4/24	Toyota Production System	Toyota	GH-6
25	TH	4/26	Toyota Production System	Toyota	
26	T	5/01	Course Review		
	TH	5/03	<i>NO CLASS</i>		
FINAL EXAM (Comprehensive - covering Sessions 1-26) – Monday, May 14, 9:00-12:00 noon					

****PLEASE Note: No class on January 17, February 28, April 17, and May 3.****

****PLEASE Note: Evening exams on February 23 and April 12.****