

USC Marshall

Full-Time MBA Program

GSBA-504a: OPERATIONS MANAGEMENT¹ Term Two 2015-2016

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COURSE MATERIALS

Course Reader containing cases and articles

Optional Reading: "The Goal" by Goldratt and Cox, 3rd edition, North River Press

COURSE OBJECTIVES

The goal of this course is to present what every MBA should know about the operations function of a firm. *Operations* comprise all activities involved in the actual production of goods and delivery of services. It is one of the central functions of every business, profit and non-profit organizations alike.

The field of operations management is concerned with the design, operation, and improvement of the productive system that creates the firm's products and services. In essence we are concerned with *how work gets done*. This entails management of people, equipment, materials and *processes*. The design and operation of the productive system determines how the business strategy is implemented and value is created.

Sound and creative *operations* management is a major competitive advantage. It is not hard to find industries where some firms are growing and prospering while others are entering bankruptcy. Many differences can separate winners from losers, but usually the way *operations* are managed is one of them. Indeed it is rare to find a successful firm that is not managing its *operations* to provide a high quality product or service at a reasonable cost.

Operations managers, ranging from first-level supervisors to chief operating officers, are directly concerned with meeting demands for goods and services. They are responsible, in whole or in part, for the design, performance, and improvement of the systems that meet those demands. Furthermore, venture capitalists, consultants, and investment bankers are concerned with the productive systems of the organizations that they finance, advise, and/or buy.

The field of operations management was originally concerned with efficiency and effectiveness in manufacturing, and this course will draw heavily on manufacturing examples. However, many of the considerations involved in operating manufacturing facilities are equally applicable to service-oriented operations. Many of the same analytical techniques apply, and many of the same tradeoffs are present in services such as health care, bank and insurance operations, hotels, recreation, consulting, and airline management.

This course focuses heavily on processes. The course aims to provide you with a conceptual framework and a set of analytical tools. It is our hope that these will enable you to understand better why productive systems behave as they do, so that, as a manager, you can act wisely to modify and manage these systems and make them perform as you wish! The course is designed to introduce you to "what every general manager should know" about the field. An important goal of the course is that you understand the opportunities and challenges in the area so that, as a manager, you can interact wisely and to best advantage with those who do manage operations, even if you are not directly responsible for operations.

¹ September 25, 2015. Updated version may be available in BB.

Learning Objectives

The main focus of this course is on the Marshall MBA Programs' Learning Goals of "Integration of Business Disciplines" and "Critical Thinking Skills", while also supporting the goals of "Global Perspective" and "Communication". In this course students will:

- Understand the spectrum of operations management activities in a business and to types of decisions made by operations managers
- Understand and get insights into the basic trade-offs associated with operations management decisions
- Learn and gain proficiency in a variety of tools and techniques in the following areas enabling the business to compete effectively in the marketplace
 - Process Analysis and Capacity Management.
 - Waiting Line Management.
 - Inventory and Supply Chain Management.
- Understand how operations management interfaces with other functional areas such as strategy, accounting, finance, human resources and marketing
- Develop critical thinking skills to assess tradeoffs in process design, capacity allocation, inventory levels and customer service
- Apply critical thinking and problem-solving skills in the context of managing a factory (an experiential learning simulation), and make real-time decisions on capacity, quoted lead times, work-in-process levels, contracts and inventory.
- Understand the global nature of supply chains, the interplay between levels of the supply chain and their locations, and implications for pricing, competition and customer service
- Apply operations management tools/techniques to analyze a call center of a financial institution characterized by ambiguity and/or uncertainty, and create and defend well-reasoned conclusions and solutions
- Create and deliver presentations based on team analysis of cases

Expectations

This course is demanding and rigorous. Class assignments require a high level of daily preparation. Most students need to devote a substantial amount of time in order to gain a full understanding of the materials presented and discussed. In this course we will work with numbers and analyze cases.

Grading

The course grade, which will be curved, is based on the following assignments.
There will be no other assignments.

Class Participation	5%
Kristin's Cookie Company Case	5%
West Coast Hospital Case (Team)	20%
Zara Case	5%
Mid Term Exam	15%
Final Exam	50%

Class Participation: Read the assigned material and analyze the case. You are encouraged to work in groups. You will be "cold-called." Make sure you are familiar with the main issues of the readings 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. To be more specific, *prior to every session, you*

should 1) read all of the assigned materials, 2) attempt to address and answer some of the discussion questions found assigned to each case, and 3) give some thought to the broader managerial implications of the materials and your discussions.

Cases: Please turn in answers to assigned questions and other analyses. They are due at the beginning of class.

Exams: All exams are closed books. You are allowed to use one double-sided formula sheet (8.5x11) on each exam.

Problem Sets: Problem sets will be posted during the term. Although your answers will not be graded, you are strongly encouraged to work on these problems.

Turnitin Technologies

USC is committed to the general principles of academic honesty that include and incorporate the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. By taking this course, students are expected to understand and abide by these principles. All submitted work for this course may be subject to an originality review as performed by Turnitin technologies (<http://www.turnitin.com>) to find textual similarities with other Internet content or previously submitted student work. Students of this course retain the copyright of their own original work, and Turnitin is not permitted to use student-submitted work for any other purpose than (a) performing an originality review of the work, and (b) including that work in the database against which it checks other student-submitted work.

ACADEMIC INTEGRITY

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. SCampus, the Student Guidebook, (www.usc.edu/scampus or <http://scampus.usc.edu>) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>. Failure to adhere to the academic conduct standards set forth by these guidelines and our programs will not be tolerated by the USC Marshall community and can lead to dismissal.

No audio or video recording is permitted.

STATEMENT OF ACADEMIC CONDUCT AND SUPPORT SYSTEMS

Academic Conduct

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 Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. 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/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

COURSE OUTLINE AND ASSIGNMENTS

Session 1

Tuesday August 25: Introduction to Operations Management

- What is the role of Operations Management in a firm?
- How can Operations be used to create a sustainable competitive advantage?
- Relationship between Operations and Competitive Strategy.
- Overview of the Course - Course Objectives and Expectations, etc.

Required Reading:

- A. [SKIM]Chapter 1. “Introduction” *Matching Supply with Demand*, 3rd Edition, Cachon and Terwiesch
- B. Chapter 3.1 “Understanding the supply process” *Matching Supply with Demand*, 3rd Edition, Cachon and Terwiesch
- C. “Taco Bell and the Golden Age of Drive-Thru” Businessweek, May 5, 2011 [ARES]²
- D. “Latest Starbucks Buzzword: ‘Lean’ Japanese Techniques” Wall Street Journal, August 1, 2009 [ARES]
- E. “1-888-WOW-1DAY!” Inc, May 2012 [ARES]
- F. “Power Banking: Morgan Stanley Trades Energy Old-fashioned Way” Wall Street Journal, March 2, 2005 [ARES]

Session 2

Thursday August 27: Process Measures: Capacity, Time, and More

- The firm as a collection of process.
- Value of developing process flow maps
- Key process measures and their relationship to overall goals of the firm
- Operational Measures
- Capacity Calculations & Bottle-neck analysis

Required Reading:

- A. Chapter 3. “Understanding the supply process” *Matching Supply with Demand*, 3rd Edition, Cachon and Terwiesch

Session 3

Tuesday September 1: Process Measures: Little’s Law and Inventory

- Throughput time, Flow Rate, WIP
- Little’s Law
- Types of inventories:

Required Reading:

- A. Chapter 2 “Process view of the organization” *Matching Supply with Demand*, 3rd Edition, Cachon and Terwiesch

Session 4

Thursday September 3: Capacity Calculations

- Multiple products
- Capacity calculations
- Capacity expansion

² [ARES] indicates the article is available electronically <https://reserves.usc.edu>

Case: Kristen's Cookie Company

Kristen and her roommate are launching a cookie company. The idea is to bake fresh cookies to order. You need to evaluate the preliminary design for the company's production process in order to make key policy decisions. (**Answer Questions 1, 2, 3, 4, and 5**)

1. How long will it take you to fill a rush order?
2. How many orders can you fill in a night, assuming you are open four hours each night?
3. How much of your own and your roommate's valuable time will it take to fill each order?
4. Because your baking trays can hold exactly one dozen cookies, you will produce and sell cookies by the dozen. Should you give any discount for people who order two dozen cookies, three dozen cookies, or more? If so, how much? Will it take you any longer to fill a two-dozen cookie order than a one-dozen cookie order?
5. How many electric mixers and baking trays will you need?

DUE: Case Questions

Session 5

Tuesday September 8: Uncertainty and Variability: Waiting Time Management

- Waiting times and uncertainty

Required Reading:

- A. Chapter 8.1 to 8.4 "Variability and its impact on process performance: Waiting time problems"
Matching Supply with Demand, 3rd Edition, Cachon and Terwiesch
- B. "The Psychology of Waiting-lines" David H. Maister [ARES]

Session 6

Thursday September 10: Uncertainty and Variability: Waiting Time Theory

- Waiting times and uncertainty

Required Reading:

- A. Chapter 8.5 to 8.9 Variability and its impact on process performance: Waiting time problems"
Matching Supply with Demand, 3rd Edition, Cachon and Terwiesch
- B. "A Long Line for a Shorter Wait at the Supermarket" New York Times, June 23, 2007 [ARES]

Session 7

Tuesday September 15: Process Redesign & Change

Case: West Coast University Student Health Services

The West Coast University Student Health Services serves the medical needs of the university's 34,700 students. Recent survey results indicate that there is room for improvement. Your team is asked to evaluate the current situation and come up with effective recommendations. (**Answer questions 1, 2, 3, and 4**)

1. In Joan Carwin's mind what are main problems that the Health services are facing? Do you agree with Joan? Explain your answer in detail.
2. What are the potential solutions to the problems? First explain Joan Carwin's solutions, and the advantages and disadvantages of the proposed solution. Then explain your suggested solution in case you have one.
3. How would you measure the success of a solution? What are the measures you would use? Explain your answer.
4. Assuming the solution suggested by Dr. Carwin, how would you construct the teams? How many Physicians and How many NP should be in each team? In your analysis you may assume that all physician and NP are preferred, more or less, by the same number of students. Also, in your analysis, you may make any reasonable assumptions. You must state these assumptions very clearly.

If you have a solution that is different from Dr. Carwin's solution, then explain the advantages of your solution. Support your analysis by facts and analysis.

Spread-sheet: *queue_modelsl.xls* can be used to evaluate some of the alternatives being proposed.

DUE: Case Questions

Required Reading:

- A. Deep Change: How operational innovations can change your company. By M. Hammer. .HBR 2004.

Session 8

Thursday September 17: Mid Term Exam

Session 9

Tuesday September 22: Matching Supply and Demand: Uncertainty & Inventories

- Inventories: why we need them
- Relationship between uncertainty and inventory levels

Required Reading:

- A. Chapter 12 "Betting on Uncertain Demand: The Newsvendor Model" *Matching Supply with Demand*, 3rd Edition, Cachon and Terwiesch

Session 10

Thursday September 24: Supply Chains

- Dynamics of Supply Chains
- Root Beer Game

BRING YOUR LAPTOPS TO CLASS.

Required Reading:

- A Chapter 1. “Understanding the Supply Chain” *Supply Chain Management* 3rd Ed. S.Chopra and P. Meindl, Prentice Hall.
- B “Clarity is Missing Link in Supply Chain” Wall Street Journal, May 18, 2009 [ARES]

Session 11

Tuesday September 29: Incentives, Coordination, and Supply Chains

- Overview of supply chain management

Required Reading:

- A “The bull whip effect in supply chains” by H. Lee, V. Padmanabhan, and S. Whang, Sloan Management Review, Spring 1997, vol 38, Issue 3, pp 93 – 102. [ARES]

Session 12

Thursday October 1: Supply Chains, Vertical Integration and Global Operations

- Off-shoring
- Global supply networks

Case: Zara: Fast Fashion

This case focuses on Inditex, an apparel retailer from Spain, which has set up an extremely quick response system for its ZARA chain. Instead of predicting months before a season starts what women will want to wear, ZARA observes what's selling and what's not and continuously adjusts what it produces and merchandises on that basis. Powered by ZARA's success, Inditex has expanded into 39 countries, making it one of the most global retailers in the world. But in 2002, it faces important questions concerning its future growth. How should Zara grow? Answer the following questions.

1. What makes Zara different from other (typical) apparel companies?
2. How well does Zara's strategy travel globally? Based on their success in Europe, can they just repeat the same things in other international markets? What are the challenges?
3. Why/How might Zara fail?

DUE: Case Questions

Required Reading:

- A. “Building Competitive Advantage through a Global Network of Capabilities” California Management Review, Winter 1993
- B. “SeaMicro's Silicon Valley Computers” Businessweek, February 24, 2011 [ARES]
- C. “Made in USA Gives Small Business an Edge” Businessweek, March 24, 2011 [ARES]

Session 13

Tuesday October 6: The Concept of Risk-Pooling

In a hyper-competitive environment, firms have to meet customer demands as closely as possible. This often requires firms to offer a wide variety of products/services and to rapidly introduce new products/services. How can firms offer high variety and control costs? The concept of risk pooling offers some insights into how firms are able to develop creative business models that offer higher variety at lower costs.

- Postponement
- MTS vs. MTO
- Lead times

Required Reading:

- A. Risk-Pooling Strategies to Reduce and Hedge Uncertainty: Chapter 15 from *Matching Supply with Demand*, 3rd Ed., Gerard Cachon and Christian Terwiesch, McGraw-Hill/Irwin

Session 14

Thursday October 8: Course Wrap Up

Tuesday October 13: Final Exam