MGT 452: Managing for Operational Excellence

Instructor: Rachel Chen, **rachen@ucdavis.edu**, 530-752-7619
Class Schedule: Tuesday 9:00-12:50pm, GH-1213
Office Hours: TBA

Course Description
Operations management is concerned with the production and delivery of goods and services to meet customers' demands. It is one of the central functions of every business, government agency, and non-for-profit organization. Operational excellence can provide an important competitive advantage for firms in today's marketplace. It has long been realized that the operations must integrate into the overall corporate strategy and planning to achieve such an advantage. Therefore, a solid understanding of operations management is important for all managers, and a working knowledge about the operations function of a firm is an integral part of your MBA education.

The objective of this course is to study the core concepts in operations management. Successful companies must be able to develop and manage efficient business processes that are capable of delivering high-quality products and services to meet their ever-changing customer demands in a timely and cost-effective manner. We thus can view operations management as the design and management of effective business processes. This course focuses on a number of concepts and techniques for analyzing and improving process performance. Through critical analysis of business processes, you will gain a good understanding of the major issues that are critical to the management of both manufacturing and service operations.

This course provides a blend of qualitative and quantitative treatment for understanding process performance and operations issues. A combination of lectures, cases, videos and in-class exercises will be used to convey the basic concepts.

Course Materials
Packet of cases and readings (*Harvard Business Publishing Coursepack*):

1. Shouldice Hospital Limited (HBS, 9-683-068)
2. Kristen's Cookie Co. (A) (Abridged) (HBS, 9-608-037)
3. Toyota Motor Manufacturing, U.S.A., Inc. (HBS, 9-693-019)
4. Apple Inc.: Managing a Global Supply Chain (HBS, W14161)
5. What Is the Right Supply Chain for Your Products? (HBS, 97205 HBR article) **[Needs VPN]**
   This item will need to be searched for directly. The link takes you to the main HBR page of the library. Click on *Search within this publication* and then search for "AN 9705150574" in the second field.

Optional Textbook: *Matching Supply with Demand: An Introduction to Operations Management* by Cachon and Terwiesch, McGraw-Hill/Irwin, 3rd edition 2012. ISBN-10: 0073525200 ISBN-13: 978-0073525204.
You might rent the textbook from Amazon or other vendors. It is ok to use previous editions.

Grading

Individual Homework (3 @ 5%)	15%
Quiz (3 @ 3%)	9%
Group Case (2 @ 8%)	16%
Group Project	15%
Class Participation	5%
Final Exam	40%

All assignments are submitted online. Students will form a group, up to 4 members, before the end of the first week. The members of each group are jointly responsible for the group assignments. At the end of the quarter, you will be asked to evaluate the contributions of your teammates; these evaluations will influence students' grades.

Quiz (open-book, open-notes)
There are in total four short quizzes, one on Little's Law and queuing, one on inventory models, one on quality management (the Toyota case) and one on supply chain management (the Apple case). Quizzes are open-book, open-notes. **Your lowest**

quiz will be dropped (i.e., only the three highest quizzes will enter the calculation of your overall course grade). Quizzes will be conducted on Canvas at the beginning of the class (**please bring laptop**).

Group Case

The group case report should answer the questions assigned with the case. Each group submits one copy, 3 pages maximum.

Group Project

Each group is required to observe, analyze and critique an operation/process of your choice. The operation of interest can either be a manufacturing or service process.

Guidelines:

1. The operation must be local, so that all of the team members can observe the operations in action.
2. Pick an operation of reasonable size: A one-person operation is too small to learn, or the logistics operation of Wal-Mart is too large and complicated to analyze.
3. Narrow the scope to one or two key operations issues: Why the firm has so much inventory or how can the firm deliver its order in such a small timeframe?
4. Learn from either the good or the bad: The operation can be in chaos where the team studies the associated challenges, or the operation can be a best practice, where the team studies the tricks to achieve operational excellence (or most likely, somewhere in between).
5. Identify some quantifiable measures to evaluate the operational performance. Understand what aspects of the operation drive the underlying performance.
6. Suggest ways to improve the underlying operation and discuss any implementation challenges.

Each group is required to submit a one-page project proposal in **Week 6**. A written report is due in class in **Week 10.** Your report will be graded on its professionalism, in addition to its content. It must be clear, concise, and well-organized. The report should be **no more than 6 double-spaced pages**, plus exhibits. Make good use of exhibits such as tables and figures to support your analysis wherever appropriate.

Class Participation

In-class participation requires you to be active and participate in class. The class participation grade is based on the quality of each student's contribution. Good questions, relevant experiences, points that build on previous points and insights into the business issue under discussion are the best forms of participation.

Case Preparation Questions

Shouldice Hospital Limited (HBS, 9-683-068)

1. How successful is the Shouldice Hospital?
2. How has Shouldice designed its service process to **support the value proposition** it offers to customers? In particular, what **process design choices** contribute to high efficiency and productivity?
3. How would you describe the culture of the organization?
4. What is the resource (or resources) that is limiting the rate at which Shouldice can serve customers? (Hint: For each resource, calculate its capacity in terms of how many patients could be processed per week, if all that were required to process a patient was that resource. Then use this analysis to come to an answer to the question above.)
5. What are the advantages and disadvantages of each of the options proposed for increasing capacity? As Dr. Shouldice, what action, if any, would you take to expand the hospital's capacity? Who is likely to resist your proposed change? How would you implement changes you propose?

Kristen's Cookie Co. (A) (Abridged) (HBS, 9-608-037)

Assume the role of Kristen as you answer the following questions. For simplicity, assume for now that all orders are for one dozen cookies (with custom ingredients) and that baking trays, cooling space, and demand are plentiful. Assume that you are occupied for the entire six minutes when you mix the ingredients using the electric mixer.

1. A "rush order" is a custom--ingredient cookie order for which you are willing to push aside everything currently in the production system, in order to process the rush order immediately. How quickly can you fill an isolated rush

order? In other words, what is the "flow time of a rush order": the time (in minutes) it takes to "produce" a batch of a dozen cookies from start to finish?

2. Identify how the various resources (you, your roommate, the oven, the baking trays, and the mixing bowl) are occupied over this flow time.
3. Assuming there are multiple trays because trays are cheap, calculate the capacity (measured in dozens/hour) of your cookie-making process, in "steady state" (*i.e., around 9 PM, so that you can ignore the inefficiencies in starting up and shutting* down the process). Identify the *bottleneck resource that limits your overall cookie production* capacity.
4. Calculate the utilization (in percent) for the three main resources (you, your roommate, and the oven), assuming that your cookie production is operating at full capacity and you're operating in "steady state," around 9 PM.
5. What changes could you make in the cookie production process to increase its capacity? Would it help to hire a third person? To rent a second oven?
6. What changes could you make in the cookie production process to reduce the flow time (of a rush order)? Would you be interested in reducing it? Why or why not?
7. What would happen if your roommate moved out, and you had to do this by yourself? In particular, how (if at all) do your "flow time of a rush order" and production capacity change?
8. Under what conditions (if any) does it make sense to give a quantity discount to customers who order two or three dozen cookies? Does your answer depend on whether the cookies are identical or of differing types?

** "flow time of a rush order" differs from flow time of an order in general, because there could be waiting and delay for non-rush orders, due to random demand arrivals and the scheduling of processing multiple orders.

Toyota Motor Manufacturing, U.S.A., Inc. (HBS, 9-693-019)

In class, we will discuss where, if at all, the current routine for handling defective seats deviate from the principles of the Toyota Production System. When preparing for case discussion, please focus on the questions below:

1. You are Doug Friesen. What concrete actions are you going to take on Monday morning (May 4) to address the seat problem? (The case describes a series of meetings held on Friday May 1, and the exhibits summarize the information obtained through those meeting. So, please do not offer an answer such as: "I would talk to so-and-so" or "I would hold a meeting with so-and-so". Your boss wants *action*.) As a more general matter, where would you focus your attention and solution efforts?
2. What is the cause of the seat problem?
3. What is the real problem (i.e., the deeper underlying problem) facing Doug Friesen?

Apple Inc.: Managing a Global Supply Chain (W14161)

1. Review Apple's supply chain for its iPhone product. What differences set it apart from competitors?
2. What are Apple's key advantages in how it manages its supply chain operations? Support your analysis with data from the case.
3. What are the challenges that Apple faces in the future, and what are the implications for its supply chain?
4. As Jessica Grant, what recommendations would you make to the company's vice-president, Phillip Duchene, and why?
5. (optional) How does Apple's supply chain compare with Wal-mart's supply chain? How are they different and how are they similar?

MGT 252 Course Schedule (subject to change)

Session	Date	Topic	Assignment Due
1	4/4	Introduction, Syllabus Strategy and Operations, Inventory Turns, Little's Law (Optional) Textbook: Ch. 1, 2.2-2.4, 2.6	Form a group
2	4/11	Strategy and Process Choice Process and Capacity Analysis, Bottleneck (Optional) Textbook: Ch. 3.1-3.4	HW #1 (Little's Law)
3	4/18	Case: Shouldice Hospital Process Variability: Waiting Time Problems Variability on Process Performance (Optional) Textbook: Ch. 8	Group Case: Shouldice Hospital
4	4/25	Process Variability: Waiting Time Problems (Cont'd) Case: Kristen's Cookie Inventory Management (EOQ) (Optional) Textbook: Ch. 2.5, 7	Group Case: Kristen's Cookie
5	5/2	Quiz#1 (Little's Law, Inventory Turns, Queueing) Inventory Management (EOQ) (Cont'd)	HW #2 (Capacity Analysis, Waiting Time)
6	5/9	Newsvendor Model and Forecasting (Optional) Textbook: Ch. 12.1-12.5, 12.7	Group Project Proposal
7	5/16	Quiz#2 (inventory models) Managing Process Quality (Optional) Textbook: Ch. 10	HW #3 (EOQ, Newsvendor)
8	5/23	Quiz#3 (Toyota) Case: Toyota Motor Manufacturing, U.S.A. Lean operations, JIT and MRP/ERP (Optional) Textbook: Ch. 11	
9	5/30	The Beer Game (bring your laptop) Supply Chain Management HBR Article: What Is the Right Supply Chain…? (Optional) Textbook: Ch. 17.1-17.2	
10	6/6	Quiz#4 (Apple) Case: Apple's Global Supply Chain Contract Manufacturing, Future of Operations	Group Project Report
11	6/13	Final Exam	

1) Statement on Accommodation

UC Davis is committed to educational equity in the academic setting, and in serving a diverse student body. All students who are interested in learning about how disabilities are accommodated can visit the Student Disability Center (SDC). If you are a student who requires academic accommodations, please contact the SDC directly at sdc@ucdavis.edu or 530-752-3184. If you receive an SDC Letter of Accommodation, submit it to your instructor for each course as soon as possible, at least within the first two weeks of a course.

2) Rights and Responsibilities

All participants in the course, instructor and students, are expected to follow the UC Davis Principles of Community, which includes affirmation of the right of freedom of expression, and rejection of discrimination. The right to express points-of-view without fear of retaliation or censorship is a cornerstone of academic freedom. A diversity of opinions with respectful disagreement and informed debate enriches learning. However, in this course, any expression or disagreement should adhere to the obligations we have toward each other to build and maintain a climate of mutual respect and caring.
You are expected to take UC Davis's Code of Academic Conduct as seriously as we do. You were given this code of conduct with explicit explanations of violations (e.g. plagiarism, cheating, unauthorized collaboration, etc.) and your responsibilities in regard to them during orientation, and you signed a statement affirming that you understand it. Academic conduct violations will not be tolerated, and your instructor will not hesitate to turn violators over to Student Judicial Affairs. If you are uncertain about what constitutes an academic conduct violation, please refer to the code linked above, contact your instructor, or refer to the Office of Student Judicial Affairs.
All material in the course that is not otherwise subject to copyright is the copyright of the course instructor and should be considered the instructor's intellectual property.

3) Safety and Emergency Preparedness

UC Davis has many resources to help in case of emergency or crisis. While reviewing campus Emergency Information, you may want to register for UC Davis Warn Me and Aggie Alert, which will give you timely information and instructions about emergencies and situations on campus that affect your safety.
If there is an emergency in the classroom or in non-Davis locations, follow the instructions of your instructor.

4) Student Wellness

You deserve respect, and are encouraged to practice self-care so that you can remain focused and engaged; that might mean getting a drink of water, leaving to use the restroom, taking a moment to stretch, or doing something else you need to do to take care of yourself. Please be respectful of others by minimizing distractions when practicing self-care – especially in lab, field or studio settings where safety is imperative.

College life can be overwhelming at times but know that you are not alone if you're feeling stressed. For many of us, systems of oppression such as racism, sexism, heterosexism or cissexism may cause additional stress. Please remember to practice self-care and reach out for support if and when you need it.

You can visit Virtual UC Davis to find resources related to health and well-being, academics, basic needs (food and housing) and more.

5) Disclaimer

Unexpected events might require elements of this syllabus to change. Your instructor will keep you informed of any changes.