UC DAVIS GRADUATE SCHOOL OF MANAGEMENT

MGV 252V: Managing for Operational Excellence

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 nonprofit 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. Thus, we can view operations management as the design and management of effective business processes. Therefore, this course will focus on a number of concepts and techniques for analyzing and improving business process performance. Through critical analysis of business processes, you will gain a good understanding of the major issues that are critical to the successful 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

1. Managing for Operational Excellence Course Syllabus. You are responsible for the information contained in this syllabus.
2. Cachon, G., & Terweisch, C. (2023). *Matching supply with demand: An introduction to operations management* (5th ed.). McGraw-Hill/Irwin. ISBN-13: 9781264244454, ISBN-10: 1264244452
3. Harvard Business Publishing (HBSP) course pack (link in Toolbox), which includes four cases:
    - Shouldice Hospital Limited (HBS, 9-683-068)
    - Kristen's Cookie Co. (A) (Abridged) (HBS, 9-608-037)
    - Toyota Motor Manufacturing, U.S.A., Inc. (HBS, 9-693-019)
    - Apple Inc.: Managing a Global Supply Chain (HBS, W14161)

Course Format and Administration

This is a **hybrid course**, which means that it will include both asynchronous components, which you do on your own, and synchronous components, where you will meet with an instructor and classmates in a live session.

Learning occurs both through preparing readings and cases and through in-class experience. Therefore, **it is critical that you complete the weekly 100-minute asynchronous class and come prepared to discuss the material during the weekly 100-minute synchronous (live) class session.**

Asynchronous Components

This online content includes lectures on the primary concepts and ideas for the week, as well as illustrative examples, and exercises that you will do on your own. It is necessary to keep up with the material in order to succeed in this class. The asynchronous class is designed to take 100 minutes of time for most students; however, you may find that you need more or less time to go through the material, or that you may wish to repeat some content in order to feel comfortable with it. Make sure to leave extra time, in case you need it. You will have an opportunity to raise areas that require additional clarification during the live session.

Synchronous Components

The live session component of the course will consist of clarifying concepts from the asynchronous class, addressing questions, and discussing the case assigned for the class. The instructor may also include in-class exercises to reinforce understanding of a concept. Four quizzes will also take place during the live session.

Course Assessments

Assignment/Assessment	Points	Weight on Final Grade
Individual Homework (3)	30 (10 points each)	15% (5% each)
Quizzes (3)	9 (3 points each)	9% (3% each)
Group Project Proposal	C/NC	0%
Group Cases (2)	16 (8 points each)	16% (8% each)
Group Project Report	10	15%
Final Exam	100	40%
Class Participation	5	5%

Students will form groups before the end of the first week. Each group may have up to four members. 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.

Grading Scale

The course will be graded on a distribution (curve), such that your final grade will depend on the performance of others in the course.

Assignment and Assessment Information

Grading rubrics will be available in the course Toolbox in the Digital Campus.

Individual Homework (15% of Grade)

There are three individual homework assignments. You will submit your homework assignments to the Assessment unit of the Digital Campus. Your instructor will specify the exact due time for each assignment on the Course Wall of the Digital Campus.

Quizzes (9% of Grade)

There are four quizzes in total, and the one with the lowest score will be dropped when calculating the final grade. Quiz 1 is on Little's Law and queuing. Quiz 2 is on inventory models. Quiz 3 is on quality management (the Toyota case). Quiz 4 is on Apple's supply chain. Quizzes are open-book, open-note, and are taken in the Digital Campus. Each quiz takes 10 minutes during the live session.

Group Cases (16% of Grade)

There are two group cases (Shouldice Hospital and Kristen's Cookie Co.). Each group submits one copy of the report to the Assessment unit of the Digital Campus, and the report should answer the questions assigned with the case. Group case questions can be found at the end of this syllabus. The report should be **no more than three double-spaced pages**, excluding any additional pages for exhibits at the end of the report.

Group Project Report (15% of Grade)

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.

Group Project Report 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 from, and 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 does the firm have 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 achieving 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 to the Digital Campus in **Week 6**. A written report is due in **Week 10** and should also be submitted to the Digital Campus**.** Your instructor will specify the exact due time on the Course Wall. 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 six double-spaced pages**, excluding any additional pages for exhibits at the end of the report. Make good use of exhibits, such as tables and figures, to support your analysis wherever appropriate.

Final Exam (40% of Grade)

The three-hour exam will take place in the asynchronous portion of Week 11 and will cover material from the entire course. The exam consists of a mix of true/false, multiple choice, and question sets. This will be an open-book exam, but it will be timed and you will need to complete it in one sitting, so good performance will require knowing the material well.

Class Participation (5% of Grade)

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 to the class during live sessions. Good questions, relevant experiences, points that build on previous points, and insights into the business issue under discussion are the best forms of participation.

Course Schedule

Session	Topic	Read Before Asynchronous Session (Ch. from Cachon and Terwiesch)	Due Before Live Session
1	Introduction to Operations Management, Strategy and Operations, Little's Law, Inventory Turns	Ch. 1, 2.2–2.4	Form a group
2	Strategy and Process Choice, Process and Capacity Analysis, Bottleneck	Ch. 2.6, 3.1–3.4	Individual Homework Assignment 1
3	Process Variability: Waiting Line Problems, Case: Shouldice Hospital	Ch. 9.1–9.9	Group Case 1: Shouldice Hospital
4	Process Variability: Waiting Line Problems (Continued), Case: Kristen's Cookie Co., Introduction to Inventory Management	Ch. 9.10, 2.5	Group Case 2: Kristen's Cookie Co.
5	Quiz 1 Inventory Management (EOQ)	Ch. 2.5, 5.1–5.7	Individual Homework Assignment 2
6	Inventory Management (Newsvendor)	Ch. 14.1–14.3	Group Project Proposal
7	Quiz 2 Managing Process Quality	Ch. 7	Individual Homework Assignment 3
8	Quiz 3 Lean Operations, Just-in-Time Manufacturing	Ch. 8 Case: Toyota Motor Manufacturing, U.S.A.	
9	The Beer Game Supply Chain Management	Ch. 19 HBR Article: What Is the Right Supply Chain…?	
10	Quiz 4 Case: Apple's Global Supply Chain, Contract Manufacturing, Future of Operations	Case: Apple's Global Supply Chain	Group Project Report
11	Final Exam		

Honor Code and Academic Integrity

You are expected to take UC Davis's code of academic conduct as seriously as we do. It is an academic conduct violation to present others' ideas or writing as your own (plagiarism), or to discuss cases with students who have already analyzed the case in class. You were informed about this code of conduct during orientation and signed a statement affirming that you understand it. Academic conduct violations will not be tolerated, and your instructor will not hesitate to turn cheaters over to Student Judicial Affairs. If you are uncertain about what constitutes an academic conduct violation, please contact your instructor, or refer to http://sja.ucdavis.edu/files/cac.pdf.

Students Are Expected to Adhere to the UC Davis Principles of Community

The University of California, Davis, is first and foremost an institution of learning and teaching, committed to serving the needs of society. Our campus community reflects and is a part of a society comprising all races, creeds, and social circumstances. The successful conduct of the university's affairs requires that every member of the university community acknowledge and practice the following basic principles:

We affirm the inherent dignity in all of us, and we strive to maintain a climate of justice marked by respect for each other. We acknowledge that our society carries within it historical and deep-rooted misunderstandings and biases, and therefore we will endeavor to foster mutual understanding among the many parts of our whole.

We affirm the right of freedom of expression within our community and affirm our commitment to the highest standards of civility and decency towards all. We recognize the right of every individual to think and speak as dictated by personal belief, to express any idea, and to disagree with or counter another's point of view, limited only by university regulations governing time, place, and manner. We promote open expression of our individuality and our diversity within the bounds of courtesy, sensitivity, and respect.

We confront and reject all manifestations of discrimination, including those based on race, ethnicity, gender, age, disability, sexual orientation, religious or political beliefs, status within or outside the university, or any of the other differences among people which have been excuses for misunderstanding, dissension, or hatred. We recognize and cherish the richness contributed to our lives by our diversity. We take pride in our various achievements, and we celebrate our differences.

We recognize that each of us has an obligation to the community of which we have chosen to be a part. We will strive to build a true community of spirit and purpose based on mutual respect and caring.

Group Case Questions

Group Case 1: Shouldice Hospital Limited (HBS, 9-683-068)

In your group case report, please answer the following questions:

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 the changes you propose?

Group Case 2: 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. In your case report, answer the following questions:

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. Please fill out the table below, which describes how various resources (you, your roommate, the oven, the baking trays, and the mixing bowl) are occupied over the flow time of a rush order.

Resources	You	Roommate	Oven	Baking trays	Mixing bowl
Minutes occupied					

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. Suppose that you have only one oven. 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. Suppose that you have only one oven. 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.

Individual Case Preparation Questions

Two (2) individual cases will be discussed during the live session. For each individual case, please read carefully and be ready to take the quiz based on it during the live session. Quiz 3 is based on the Toyota Motor Manufacturing case and Quiz 4 is based on the Apple’s Supply Chain case.

Cases can be long and dense, and not all of the information given is equally relevant to analysis. Case preparation questions guide your reading of the case and help you to focus on the most important things.

Individual Case 1: 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 meetings. 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. Has Toyota’s Georgetown Plant successfully implemented JIT for car seat assembly?
3. Has Toyota’s Georgetown Plant successfully implemented the principle of Jidoka for the seat defect problem? Why or why not?
4. On the assembly line of Toyota’s Georgetown Plant, if a team member detected any problem, he or she pulled the andon cord. What happens next? Will pulling the andon cord result in an actual line stoppage where the entire line segment stops working? Do you agree or disagree with their practice?
5. Job rotation is a potential cause of the car defect problem. Should Toyota stop job rotation?
6. Toyota is currently using back-up seats. What are the benefits and downsides of using back-up seats on the assembly line? Should Toyota stop using back-up seats? Why?
7. Should we “straight out” KFS? Should we switch to a different supplier?
8. Based on the information given in the case, do we know the origins of the defects of car seats?
9. What is the real problem (i.e., the deeper underlying problem) facing Doug Friesen?

Individual Case 2: Apple Inc.: Managing a Global Supply Chain (W14161)
In class, we will discuss the characteristics of the supply chain for Apple Inc. and contrast it with Wal-mart's supply chain. When preparing for case discussion, please focus on the questions below:

1. What are Apple's key advantages in managing its supply chain operations?
2. Review Apple's supply chain for its iPhone product. What differences set it apart from competitors such as Nokia, Blackberry and Samsung?
3. How does Apple control its intellectual property intensive parts?
4. How does Apply control its labor-intensive, low-margin activities (e.g., assembly)?
5. Does Apple have a small or large number of configurations for its iPhone product?
6. In the case, how many days of inventory does Apple carry on average?
7. How does Apple secure key supplier's production capacity at low cost?
8. How does Apple achieve visibility of suppliers' cost?
9. In Apple's supply chain, who bears the cost to carry parts inventory?
10. Is flexibility important for Apple's supply chain? Why or why not? How does Apple build flexibility in its supply chain?
11. What are the challenges that Apple faces in the future, and what are the implications for its supply chain?
12. As Jessica Grant, what recommendations would you make to the company's vice president, Phillip Duchene, and why?
13. (optional) How does Apple's supply chain compare with Walmart supply chain? How are they different and how are they similar?