University of California, Berkeley
Walter A. Haas School of Business

EWMBA 204: Operations

Fall 2023 Course Syllabus

(Last updated: 8/1/2023)

Lectures:	Mondays (Blue) / Tuesdays (Gold) 6-9:30pm @ Chou N470
Course Zoom:	[redacted]
Discussions:	Sundays 4-5PM (optional; via the above Zoom)
Instructor:	Professor Park Sinchaisri
Email/Phone:	parksinchaisri@berkeley.edu / [redacted]
Office:	F598 Haas
Office Hours:	By appointment
GSI:	Patrick Drown, FTMBA'24
Email/Phone:	patrick_drown@berkeley.edu / [redacted]
Office Hours:	Sundays 5-6PM (via the above Zoom)

Note: If you have class questions, please contact the GSI who will serve as the main contact point and address issues directly or redirect them to another member of the teaching team.

Course Description and Overview

Operations is the design and management of the processes that transform inputs into finished goods or services. Operations is one of the primary functions of a firm. While marketing induces the demand for products and finance provides the capital, operations *produces and delivers* the product (goods and services). It is responsible for matching supply with demand. This course introduces the concepts and analytic methods that are useful in understanding the management of a firm's operations.

We will cover topics in Operations that are relevant both for products and services. Our aim is to (1) familiarize you with the problems and issues confronting operations managers, and (2) provide you with language, concepts, insights, and tools to deal with these issues in order to gain competitive advantage through operations. We will cover a wide range of topics: process analysis, queueing theory, inventory and supply chain management, quality control, operations strategy, and emerging topics including sustainability, experimentation, and the future of work. Examples will be drawn from a diverse set of services and products, from food to fashion, from hotels to healthcare, from e-commerce to ride-hailing.

Class sessions will have a mix of a lecture and discussion that will provide the foundational material on a topic, and a case discussion. The GSI-led discussion sessions will be online and optional, and take several different formats, including reviews of materials, problem-solving sessions, and informal sessions to help you in preparing the cases. A recording of the session will be posted to bCourses. Throughout the course, you will also gain hands-on exposure to the concepts from experiential simulation and in-class exercises.

Assignments and Grading

Your course grade will be determined by your performance on:

Class preparation and contribution	12%
Online concept checks (x 3)	12% (4% each)
Group case reports (x2)	12% (6% each)
Littlefield simulation (Week 7)	12% (8% performance, 4% strategy slides)
Online Midterm Exam (Week 5)	18%
Online Final Exam (Week 10)	34%

Class contribution grades will be determined based on the extent to which you demonstrate that you are prepared, the relevance and depth of your comments (their quality, not quantity), and the degree to which you listen carefully and respond to your peers. Although participating in lecture sessions is also of value, a primary means by which students will distinguish themselves in their "class contribution" is by thoroughly preparing cases and participating in case discussions in a way that brings insight to the rest of the class. Failure to attend class will have adversely affect the "class contribution" portion of your final grade. Use of an electronic device (e.g., phone, tablet, computer) for anything unrelated to the course during class time will materially and adversely affect your final course grade. You should expect to be "cold called[1]." In particular, you are expected to be well prepared for case discussions. In addition, students are encouraged to share with the class relevant connections between the material we cover and their own work experience. For example, if you want to volunteer to make a short presentation that relates your current/past work experience in Operations to some content of the course, please email Professor Sinchaisri and your Head GSI a short description of the topic you'd like to present.

There will be **3 online concept checks** designed to ensure that you understand basic analysis tools and are keeping up with the fundamental concepts. To keep your workload manageable and to allow you to focus on building the basic intuition, these checks are intended not to be overly difficult but may challenge you to adapt the concepts in complex settings. You are allowed to collaborate with other students registered this semester in the

[1] This practice is not meant to be adversarial. Instead, its purpose is to encourage you (1) to develop the business-relevant skill of being able to think on your feet and be articulate and (2) to prepare in advance for class and be engaged in the class discussion. If exceptional circumstances leave you unprepared for a case discussion, let the instructor know before class begins.

course. However, each student must submit their own assignment on bCourses. You have unlimited attempts until the deadline; the latest score (not the highest) will be kept.

Deadlines for online concept checks

#	Topics covered	Due date (at 6:00PM)
CC1	1A-2B Process + Queue I	Week 3: Mon 8/7 (Blue) Tue 8/8 (Gold) 11:59PM
CC2	3A-4B Queue II + Inventory	Week 5: Mon 8/21 (Blue) Tue 8/22 (Gold)
CC3	5A-6B Quality + SCM	Week 9: Mon 9/18 (Blue) Tue 9/19 (Gold)

There will be **2 group case reports**. Prior to the case discussion, you may work with a team of up to SIX people to prepare a short case report on your analysis and recommendations. These cases will prepare you for new materials to be discussed during class. The instructions are provided in the detailed course plan in this syllabus as well as on bCourses. You do not have to stick with the same team for all reports. You can also work individually. Grading is for completion and reasonable justification; there are more than one way to analyze each case. Since the cases will be discussed in class, the reports are due at 6PM one day before the respective class.

Deadlines for group case reports

Case	Due date (at 6:00PM)
National Cranberry Cooperative	Week 2: Sun 7/30 (Blue) Mon 7/31 (Gold)
Ritz-Carlton	Week 5: Sun 8/20 (Blue) Mon 8/21 (Gold)

The final group assignment is **Littlefield Simulation**, which is an internet-accessed simulation that runs continuously for **2 days and 2 hours (50 hours total)** during Week 7, from **Wednesday, September 6 at 12PM to Friday, September 8 at 2PM**. In this simulation, you will work as a team of SIX to manage (virtually) the operations of an organization. Each group will submit PowerPoint slides on their strategy and discuss them in class (instructions available on bCourses). The Littlefield simulation is time intensive, so you should plan to devote additional time to the course during the simulation. In addition, it is essential to do quality pre-work before the simulation begins; groups should plan to allocate time for this pre-work analysis accordingly. We will introduce Littlefield Simulation and provide access to the simulation in Week 6. Session 7B is dedicated for you to strategize.

Key dates for Littlefield Simulation

Register your team of 6 on bCourses	Tue 8/22 at 11:59PM
Access to simulation available	Sun 8/26 at 12:00PM
Simulation starts	Wed 9/6 at 12:00PM
Simulation ends	Fri 9/8 at 2:00PM
Submit 4-slide Strategy Deck	Sat 9/9 at 11:59PM
In-class debrief	Class 8A: M 9/11 (Blue) T 9/12 (Gold)

Midterm Exam will be a take-home exam, available online at the end of the 5B session: **Monday, August 21 (Blue) or Tuesday, August 22 (Gold), 2023**. The deadline to submit your work is: **Thursday, August 24 (Blue) or Friday, August 25 (Gold), 2023 at 5PM**.

- The exam is designed to be completed within two to three hours, but you can take as much time as you would like until the deadline. In other words, there is no time limit during the exam-taking window (e.g., you have full 67.5 hours).
- We will provide the printed answer sheets at Week 5 class (will also be available as a PDF file on bCourses). You can choose to either (i) work on the exam on the printed sheets and then scan them as a single PDF file, or (ii) annotate the PDF on your tablet and export it as a single PDF file. Submit your work on bCourses by the deadline.
- The exam covers materials discussed through 4B (Week 4).
- The exam will be both quantitative and qualitative. The qualitative portion will draw on the cases, lectures, readings, and in-class discussions. You will be responsible for details in the cases that point to and illustrate the course concepts (the purpose here is to have the exams reflect the class discussion, and to reward those who prepared for and participated in those discussions).
- The exam is done individually and is an opportunity for you to assess your understanding of the material at the mid-point of the course. You must show your work to receive full credit for each question.

Final Exam will consist of two parts:

- Part A: Operations for My Job (14%) is a take-home assignment **due Monday, September 25 (Blue) or Tuesday, September 26 (Gold), 2023 at 11:59PM**
    - Reflect on how what you learned in Operations can be applied to your job. Describe the context and challenge(s) your company/you are facing and apply tools/concepts from at least three different sessions to address them. Please use the current/upcoming challenges rather than challenges that have already been solved. Think of this assignment as a short case report on your company (also a way to help your job). Bonus points for creative but realistic use of the concepts/tools.
    - You can also choose an organization you are passionate about and can describe their context/challenges well. You do not have to also be in an operations role to use tools from operations.

- Part B: Integrative Exam (20%) will be online-based on the day of class in Week 10: **Monday, September 25 (Blue) or Tuesday, September 26 (Gold), 2023.** The online exam-taking window will start at 6PM and close at 11:59PM.
    - The exam is designed for two to three hours.
    - The exam integrates all concepts we have covered in the class with emphasis on materials since Week 5 (Quality). The format is similar to the Midterm, consisting of quantitative, qualitative, and multiple-choice questions. The qualitative portion will draw on the cases, lectures, readings, and in-class discussions. You will be responsible for details in the cases that point to and

illustrate the course concepts (the purpose here is to have the exams reflect the class discussion, and to reward those who prepared for and participated in those discussions).

- The exam is done individually. You must show your work to receive full credit for each question. Submit your work as a single PDF on bCourses.

All assignments are due by 11:59PM PT of the assigned due date, unless specified otherwise (e.g., case reports are due at 6PM). Late assignments are not accepted, even for partial credit. You must submit your assignments electronically via bCourses. Submitting group work requires that the students contributed roughly equally to the assignment. In preparing for class (e.g., cases) or exams or in completing written assignments, you may not benefit from notes, discussions with course participants, or any other material from any previous offering of this, or a similar, course.

Haas EWMBA Academic Integrity

The Haas School of Business has a zero tolerance policy for academic dishonesty. In preparing for class or exams or in completing assignments, you may not benefit from notes, discussions with course participants, or any other material from any previous offering of this, or a similar, course. The Code of Conduct for the EWMBA program can be accessed at https://haas.berkeley.edu/ewmba/academics/code-of-conduct/

It will be a violation of academic integrity if you base your assignments on solutions you have found on the Internet or which you have obtained from classmates in prior years. I reserve the right to fail you for the course if I become aware of such a violation.

UC Berkeley Academic Accommodations Policy

UC Berkeley is committed to creating a learning environment that meets the needs of its diverse student body including students with disabilities. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with me.

If you have a disability, or think you may have a disability, you can work with the Disabled Students' Program (DSP) to request an official accommodation. The Disabled Students' Program (DSP) is the campus office responsible for authorizing disability-related academic accommodations, in cooperation with the students themselves and their instructors. You can find more information about DSP, including contact information and the application process here: dsp.berkeley.edu. If you have already been approved for accommodations through DSP, please meet with me so we can develop an implementation plan together." More information at https://evcp.berkeley.edu/programs-resources/academic-accommodations-hub#accommodations. Students who need academic accommodations or have questions about their accommodations should contact DSP, located at 260 César Chávez Student Center. Students may call 642-0518 (voice), 642-6376 (TTY), or e-mail dsp@berkelely.edu

Course Materials

bCourses will be the source for all class materials and assignments. Lecture slides, Course Reader (Study.Net), as well as discussion materials and additional materials, will be posted on bCourses. The cases for our in-class discussion are available in an electronic form on the Course Reader. All other readings will be handed out in class and/or posted to bCourses.

There is no required textbook. If you would like supplementary reading addressing the tools and concepts in the course, one optional book is recommended:

- Matching Supply with Demand **("MSD")** by Gerard Cachon and Christian Terwiesch. McGraw-Hill, 4th Edition, 2018
    - There are 3 copies of ebook versions of this textbook available for 7 day checkout here: https://libproxy.berkeley.edu/login?qurl=https%3A%2F%2Febookcentral.proquest.com%2Flib%2Fberkeley-ebooks%2Fdetail.action%3FdocID%3D583413

Modes of Communication

Email is generally an efficient means of communication to inform the teaching team of material you think may be of interest to the class (e.g., your work experience, or a link to a video or recent article), or to ask an administrative question that is personal and not addressed in the syllabus (most administrative issues are addressed in the syllabus, so please check first). **Make sure you put [EWMBA204] in your email subject.**

We find that, as a mode of communication, email tends to be an inefficient way to resolve subtle questions about concepts or problems. The teaching team is happy (and, in fact, eager) to address any questions you may have of this type, but encourages you to ask in person (see our office hours) or via Slack, as this is much more efficient than the route of typing out lengthy emails and going back and forth. **We set up a Discord server for our class as our *preferred* communication channel** to foster collaboration and centralize all questions and answers regarding the materials, logistics, and assignments. The link to join our Discord server will be posted on bCourses.

Class Attendance

Please attend class with the cohort for which you are registered. Following guidance from the program office, switching cohorts is not allowed. If you must miss a class due to an emergency or unavoidable conflict:

- Make sure to submit any deliverables by the due date for your cohort regardless.
- A video recording of the class will be made available in bCourses by the end of the week.
- Please notify the GSI in advance that you are missing class.

Classroom Norms

Business school classes take place in an environment that supports learning and encourages the exchange of ideas. Behavior that distracts students and the instructor negatively affects the learning environment. Arriving to class late, leaving class early, or walking in and out of class during a class session is distracting to students and the instructor. Avoiding these behaviors shows respect to your fellow students and the learning environment.

We will follow the following classroom norms established by Haas:

- Tech-free: Keep phones in bags and on silent. **Refrain from using laptops**, unless for approved purposes. Tablets or other electronic note-taking devices are allowed, but should lie flat, be kept in airplane mode, and only used for note-taking in a manner that is not distracting or disruptive. If you violate this policy, you face, at a very minimum, a substantial penalization in the class participation portion of your grade; more substantial measures and grade penalizations can be applied at the discretion of the instructor. In some lectures, we will have "work with your neighbor" exercises. The use of electronics is allowed for the purpose of calculations during these exercises.

- Prompt: Arrive on time at the beginning of class and after breaks. If arriving late without prior approval, enter during a break in order to minimize disruption.

- Present: Do not leave class unless a personal emergency arises. For online sessions, please try to keep your camera on, raise hand when you would like to speak, mute when not speaking, and be respectful and constructive in the chat.

- Inclusive: Step up / step back in class discussions to ensure that a wide variety of voices, perspectives, and experiences are heard. Encourage your classmates to do the same.

Other Administrative Information

It will be difficult to receive a good grade in the course without regular attendance. It is also expected that you be prepared for every class. To help the instructor and GSI learn your names as quickly as possible, we ask that you use your name cards regularly. Your seat on the first day of class will determine your seat for the semester.

All courses in Chou Hall tiered classrooms are automatically recorded and posted to your course's Media Library. Students do not need to submit recording requests. For more details, visit the program's video recording policy.

Group work is encouraged for purposes of general class preparation and for the written assignments. You should not, however, benefit from anyone who has already participated in a faculty-led discussion of the case at Haas or any other school, or from other materials, even if they are publicly available. Much of the value of preparing cases is in the process itself, even if your group ultimately selects a less-preferred alternative or approach. Plagiarism and other forms of cheating will not be tolerated.

EWMBA 204: Operations
Course Outline (subject to change)

#	Date	Topic/Case *(Optional Textbook Readings)*	Assignment
1A	Mon 7/24 (Blue) Tue 7/25 (Gold)	**Process I:** Introduction + Process Analysis Mini Case: *Pick-up Pizza* *MSD 2.2, 2.6, 3.1-3.5*	Submit pre-course survey (before class) Read *Mortgage Processing, Pick-up Pizza*
1B		**Process II:** Process Choice Case: *Beleza Natural* *MSD 2.6*	Prepare *Beleza Natural*
D1	Sun 7/30	Review Process Analysis and Choice	Submit *NCC* group report 6PM one day before class
2A	Mon 7/31 (Blue) Tue 8/1 (Gold)	**Process III:** Flows + Little's Law Case: *National Cranberry Cooperative (NCC)* *MSD 2.3, 3.6, 4.2-4.3*	Prepare *NCC*
2B		**Queue I:** Variability + Waiting Time Mini Case: *Rent the Runway* *MSD 2.3, 9.1-9.6*	Prepare *Rent the Runway*
D2	Sun 8/6	Review Process Flows, Little's Law, Queue	
3A	Mon 8/7 (Blue) Tue 8/8 (Gold)	**Queue II:** Throughput Loss + Psychology *MSD 10.2-10.4*	Submit CC1 (11:59PM)
3B		**Guest Speaker:** Mitch Williams (Tesla) **Experiential Supply Chain Exercise** Spieker Forum, Chou Hall 6th Floor Assigned seats, bring a laptop to class	Read *Preparing for the Experiential SC Exercise*
D3	Sun 8/13	Review Throughput Loss, Statistics	
4A	Mon 8/14 (Blue) Tue 8/15 (Gold)	Experiential Supply Chain Exercise Debrief **Inventory I:** Economic Order Quantity *MSD 2.5, 5.6-5.7, 19.1-19.2*	Read *Statistics Review*
4B		**Inventory II:** Newsvendor *MSD 14.1-14.7*	
D4	Sun 8/20	Review EOQ, Newsvendor	Submit RC case report 6PM one day before class
5A	Mon 8/21 (Blue)	**Quality I:** Statistical Process Control Case: *Ritz-Carlton*	Prepare *Ritz-Carlton* Submit CC2 (11:59PM)

	Tue 8/22 (Gold)	*MSD 7.1-7.7*	
5B		**Quality II:** Lean + Transparency Case: *Toyota + Tessei* MSD 8.1-8.5, 8.7-8.8	Read *Toyota* (optional) Read *Tessei* (optional) Register Littlefield Team
Online-Based Take-Home Midterm Exam Mon 8/21 9:30PM – Thu 8/24 6PM (**Blue**) / Tue 8/22 9:30PM – Fri 8/25 6PM (**Gold**)			
D5	Sun 8/27	Review Quality concepts	
6A	Mon 8/28 (Blue) Tue 8/29 (Gold)	**SCM I:** Risk-Pooling Case: *Zara* MSD 15.1-15.4, 17.1, 17.3	Read *Zara*
6B		**SCM II:** E-Commerce Case: *Amazon* *MSD 17.1-17.3*	Read *Amazon* (optional)
D6	Sun 9/3	Review Midterm solutions, SCM concepts	
7A	Tue 9/5 (Blue & Gold Combined Class)	**SCM III:** Sustainable & Resilient SCM **Guest Speakers:** Alison Gilbert (Gap), Yatin Kathpalia (Amazon) *MSD 15.3-15.4*	Submit CC3 (11:59PM)
7B		Littlefield Simulation Breakout	
Littlefield Simulation: Wednesday 9/6 12PM – Friday 9/8 2PM			
D7	Sun 9/10	Review SCM concepts	Submit Littlefield Slides (Sat 9/9 11:59PM)
8A	Mon 9/11 (Blue) Tue 9/12 (Gold)	Revenue Management + Littlefield Debrief *MSD 18.1-18.4*	
8B		**Platform I:** Platform Operations Case: *Upwork*	Prepare *Upwork*
D8	Sun 9/17	Review Revenue Management + Platform	
9A	Mon 9/18 (Blue) Tue 9/19 (Gold)	**Platform II:** Experimentation Case: *Uber*	Prepare *Uber*
9B		Course Wrap-Up + Final Exam Review	
D9	Sun 9/24	Review for Final Exam (2 hours)	
Online-Based Final Exam Monday 9/25 (**Blue**) / Tuesday 9/26 (**Gold**) 6-11:59PM PT			

Daily Plans and Preparation Guidelines

1A Process I: Introduction + Analysis

- Before Monday, July 24 at 12:00 p.m., complete the **Pre-Course Survey.** If you have difficulties with the survey, please email your GSI. (The purpose of the survey is to identify students' work experience that is relevant to the course. Park will ask individual students about these experiences in subsequent class sessions, so the entire class can learn from them.)
- Read Syllabus pages 1-10
- **Read Mortgage Processing at Haas Bank** (Files/Lecture Materials/Week 1)
- **Prepare Pick-up Pizza (Mini Case)** (Files/Case Readings); try to solve the discussion questions in the case for class discussion. As noted above, for case discussions, you should be prepared to be "cold called".
- After Class
    - Read the Summary of Definitions at the end of the lecture slides.
    - If the concepts introduced in this session (e.g., cycle time, flow time, flow rate, capacity, utilization) are not crystal clear to you, you should work through the first question in Practice Problems, which is on bCourses. It is important to develop a strong understanding of these concepts quickly (i.e., by the end of this week), because they are building blocks for the rest of the course.

1B Process II: Process Choice

- **Prepare Beleza Natural** (available on bCourses/Study.Net) case for discussion.
    - What are the key elements of Beleza Natural's business strategy? More concretely, how is Beleza Natural's strategy different from that of a classic salon?
    - How does the firm structure its operational processes to support this strategy? More concretely, how is the way that Beleza Natural organizes the way it delivers its service different from that of a classic salon? What other companies adopt similar approaches?
    - Consider the Madureira salon. Should Beleza Natural hire additional staff? If so, how many people in what positions? What other actions would you take to improve performance of the Madureira salon?

2A Process III: Flows + Little's Law

- **Prepare National Cranberry Cooperative (NCC)** case for class discussion.
- **Submit NCC Group Case Report** at 6:00PM one day before your class.
- In answering the questions below, ignore the light meter in your analysis. You should be prepared to write on the board at the start of class your answers to the first three

questions, and you should give some thought to the last two questions. The production process described in the case is an example of a continuous flow process. If you want a mental picture of the various processing resources (e.g., the dechaffing unit), think of each resource as a unit built over a conveyor belt, with cranberries being transformed as they steadily move along the conveyor belt (in class, I will show pictures of a cranberry processing facility that depict this).

1. Draw a process flow diagram showing the major process steps, inventories and flows. Indicate the capacity at each of the process steps. You should assume:
    1. 16,000 barrels per day is the average of deliveries over the 20 days from 9/20-10/9
    2. Each truck carries 75 barrels on average
    3. Trucks arrive uniformly over a 12-hour period
    4. Trucks carry 70% wet berries and 30% dry berries
    5. The plant follows "last year's schedule," which is described as, "Trucks arrived starting at 7:00 a.m., and we only staffed the dumpers and the bins, and then started the rest of the operation at 11:00 a.m."
2. Which resource (or resources) is the bottleneck? That is, what is the resource (or resources) that is limiting the rate at which the plant can process berries, given the current product mix of dry and wet berries?
3. How late does the plant need to be open (i.e., when does the plant shut down) during this peak season?
4. What are the basic options for improving the operation? Which options would you recommend and why?

HINT: We will assume that the process for wet berries operates at the pace given by the bottleneck in all process steps (think of each resource as a unit built over a conveyor belt)

- After Class: Read *Little's Law* on bCourses

2B Queue I: Variability + Waiting Time

- **Prepare Rent The Runway (Mini Case)** and work through the discussion questions.
- After Class
    - Read *Queueing I* on bCourses
    - To keep up with the course material (and so stay on track to be prepared for the final exam), you should work through the first part of Practice Problems, which is on bCourses.

3A Queue II: Throughput Loss + Psychology

- **Submit Concept Check #1** via bCourses by 11:59PM
- After class: Read *Queueing II* on bCourses

3B Experiential Supply Chain Exercise

- **Read *Preparing for the Experiential Supply Chain Exercise***
- **Bring a laptop to class**
- After class
    - Form a group of SIX for the Littlefield Simulation which is later in the course. You will need to formally register your team on bCourses by Week 5.

4A Inventory I: Economic Order Quantity

- Reflect on your experience in the Experiential Supply Chain Exercise
- **Read Statistics Review**
- After class: Read *Economic Order Quantity*

4B Inventory II: Newsvendor

- In this session we will develop a tool that will serve as the key logic for essentially the rest of the course. The material in this session is challenging. Frankly, if you do not do the preparation for this session, you will likely be confused in this session and may be confused in some ways for the rest of the course. However, if you take this preparation seriously, you will be in a much better position to understand the material.

- **Work out solutions to the following two problems before class.** Be prepared to offer your answer when you are cold called (the questions below are fair game) or presented with a Pop Quiz.
    1. Suppose D is a normally distributed random variable with mean 10,000 and standard deviation 5,000. Find Q such that Probability(D<=Q)=0.64
    2. Suppose D1, D2, D3,.., D10 are each independently distributed normal random variables with mean 10,000 and standard deviation 5,000. What are the mean and standard deviation of the random variable D1+D2 +D3+...+D10 ?

- The Economic Order Quantity Model is appropriate for products with predictable demand and long life cycles. In this class we will introduce a model, the Newsvendor Model, which is appropriate for products with unpredictable demand and short life cycles. Later in the course, we will discuss how to bring the ideas from these two models together to make inventory decisions for products with unpredictable demand and long life cycles, which is the setting of the upcoming Littlefield Simulation.
- The slides for this session will be posted to bCourses in advance. If you find quantitative material challenging, you are encouraged to work through the slides before the session.

- After class
    - Read and work through *Appendix for After Class Study*, which is attached to the slides distributed in class.

- Read *The Critical-Fractile Method for Inventory Planning.* This reading provides a somewhat different take on the material than what we covered in class. Both approaches are valid. If you liked and understood the approach we used in class, you can stick to that. Nonetheless, the reading is helpful in that it discusses some extensions to the newsvendor model that we did not discuss in class, but are mentioned in the Appendix of the slides distributed in class.

5A Quality I: Statistical Process Control

- **Submit Concept Check #2** on bCourses by 6:00PM
- **Prepare Ritz-Carlton and submit a group case report** on bCourses by 6:00PM one day before class, answering the following discussion questions:
  1. What is Ritz-Carlton's business strategy, e.g., who are their primary customers?
  2. Among consumers, what accounts for Ritz-Carlton's reputation as a high-quality hotel? How is quality defined by customers?
  3. How is quality defined within Ritz-Carlton? Does the DQPR data in the spreadsheet indicate any significant quality problems?
  4. If you were to select a category of defect to address from the DQPR data, which category would you address first? Why?
  5. Using the results of your analysis, as well as your common-sense knowledge of hotel operations, generate hypotheses about the possible root causes of the defect category that you selected?

5B Quality II: Lean + Transparency

- Watch the 5-minute Toyota Production System video (https://www.youtube.com/watch?v=F5vtCRFRAK0)
- **Prepare the following questions:**
  1. Make the case for one of the following: allowing workers to stop the production line is a terrible idea; allowing workers to stop the production line is a great idea.
  2. Suppose that you are able to reduce the changeover time in a production process. What benefits would result? Based on the Economic Order Quantity logic, would you increase or decrease the production batch size (i.e., how large of a production run you would make)?

- Read Toyota 2010 (optional) - This reading provides explanations on various components of the Toyota Production System
- Read Trouble at Tessei (optional)

- You should plan to set aside a two-hour continuous time block this week during which to complete the **Take-home Midterm Exam**. (The exam and answer sheets will be available at the end of this class session; if you miss class and need to get a copy,

please pick one up in my mailbox ("Sinchaisri") in the Faculty Lounge in the Faculty Building.) The exam covers the material from Sessions 1A to 4B.

6A SCM I: Risk Pooling + Omnichannel Pt 1

- **Prepare Zara** case for class discussion.
  1. How does the operational model of Zara differ from other, more traditional, clothing retailers? (Think of distinct features in design, manufacturing/sourcing, distribution, retail execution)
     1. What is the key pre-commitment that constrains Zara's ability to respond to fashion trends during the selling season? How does Zara attempt to mitigate this risk?
     2. Zara's production and distribution costs are higher than most of its retail apparel competitors. What are the main contributors to these operational costs being high?
  2. What are the main characteristics of the integration with the online channel at Zara?
     1. Should Zara (a) keep its online channel and associated operations separate from its physical store channel or (b) integrate the two channels and their operations? What are the key advantages and disadvantages of each option?

6B SCM II: E-Commerce + Omnichannel Pt 2

- **Prepare Amazon** case for class discussion.
  1. Is Amazon e-commerce (i.e., excluding Amazon Web Services) primarily an online retailer or a supply chain logistics company? Be prepared to make the strongest argument for each. What are Amazon's most distinctive supply chain logistics capabilities?
  2. What are the key advantages and disadvantages of Amazon's operational model vs. a traditional brick-and-mortar retailer's operational model?
  3. Should Amazon sell third-party sellers' goods alongside its own?
  4. Should Amazon be moving into brick-and-mortar stores (e.g., Whole Foods, Amazon Go, Amazon Books)?
  5. We will observe in class that, at its beginning, Amazon's product offering (a wide assortment of books) necessitated a centralized inventory model, which entailed slow delivery to customers. How have Amazon's growth and its change in product assortment support its ability to do fast (same-day, one-day, two-day) delivery economically?

- After class
  - **Read *Littlefield Technologies* on bCourses**

- **Watch the 7-minute *Introduction to the Littlefield Simulation*** on bCourses
- Meet with your Littlefield team to prepare for the simulation.
- The Littlefield Simulation, which begins next week, is time intensive. You should plan in advance to devote additional time to the course during the simulation.

7A SCM III: Sustainable and Resilient SCM

- Our guest speakers will address sustainability issues in operations as well as resilient supply chain management. Prepare questions to ask them.

7B Littlefield Simulation Breakout

- Meet with your Littlefield to strategize.

8A Revenue Management + Pricing

- **Submit Littlefield Strategy Slides (Saturday before class).** The instructions are available on bCourses and on the handout *Littlefield Technologies*.
- Be prepared to discuss the decisions you made in the Littlefield Simulation, your performance, and how you would make decisions differently (if at all) if you played again. Each of your team members should be prepared to present the PowerPoint slides which your team submitted electronically on Saturday.

  In this class, we will switch back and forth between various teams' PowerPoint slides. As such, no handouts will be provided regarding the Littlefield Simulation beyond a one-page summary slide.
- Please sit with your Littlefield Team.

8B Platform I: Economics + Operations

- **Prepare Upwork** case for class discussion
  1. What factors facilitated or constrained Upwork's growth?
  2. If you are positive about the growth of contract work in large enterprises, how will firms need to change to accommodate these new arrangements? If you are negative, what will prevent that change?
  3. More generally, what are the strengths and weaknesses of the sharing economy platform operational model?

9A Platform II: Experimentation

- **Submit Concept Check #3** on bCourses by 6:00PM
- **Prepare Uber POOL Express**, answering the following questions:
  1. How does Uber innovate?
  2. Why does Uber have so many different ways to run experiments? Pros/cons?
  3. Considering the supplementary dataset, what is the effect of extending wait times from 2 to 5 minutes on the total number of shared rides completed (that is, rides taken via both existing shared rides product - Uber POOL - and the new shared rides product, Express), the proportion of shared rides that were matched, and driver payout per trip?
  4. Based on the data available to you, other insights from the dataset, and additional qualitative considerations, what would you recommend Uber do? Should they increase wait times from 2 to 5 minutes in the 6 treatment cities? If so, when should they do so?

9B Wrap-Up

- Please bring a laptop or tablet (or other internet-connected device which allows you to type comfortably) to class so that you can fill out a course feedback survey.