

*The University of Pennsylvania
The Wharton School
Operations, Information and Decisions Department*

OIDD 6150: Operations Strategy

Spring 2024 Q4 Course Syllabus
TENTATIVE – Subject to Change!

Instructor Professor Ken Moon
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Office Hours: Mondays 3:30-5pm

Lectures Section 006, Mondays and Wednesdays, 10:15am-11:44am, JMHH 255
Section 005, Mondays and Wednesdays, 1:45pm-3:15pm, JMHH 250
Section 008, Tuesdays and Thursdays, 10:15am-11:44am, JMHH 240
Section 007, Tuesdays and Thursdays, 1:45pm-3:15pm, SHDH 109

Final Exam Friday, April 26, 2:00pm-4:00pm, Location assignments posted on Canvas

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Course Website
[https://canvas.upenn.edu/courses/\[TBA\]](https://canvas.upenn.edu/courses/[TBA])

If you register for this course, please note that you must take the Final Exam on the assigned date.

Course Description

Operations strategy is about mobilizing people and resources and building systems in order to create a competitive advantage in delivering products (goods and/or services) to customers.

We study three aspects of this challenge:

- (1) How should a firm design products to offer profitably?
- (2) How should it acquire and utilize resources in order to deliver its products?
- (3) How should it position itself to manage complex risks arising from technological change, global supply chains, and more?

OIDD 6150 covers the foundational analytical methods required to inform these strategic choices. The methods prepare students to undertake rigorous analyses that explore how to align firms' people and resources with information flows (regarding customer demand, supply resources and productivity, risks, etc.) in order to match supply to demand.

The course blends quantitative and qualitative material. Both are assessed through homework assignments and the Final Exam.

The course content is delivered through a mixture of lectures and case discussions. Lectures are aimed at grounding students in analytical tools. Case discussions emphasize decision-making in practice, generally with limited data in unstructured settings. Both contribute importantly to the learning experience.

Pre-requisites:

- Interest in operations and quantitative business analytics;
- Basic coverage of statistics (e.g., covered by the first-year MBA Q1).

Expectations

For our collective learning, we have the following expectations and policies:

- *Be on time.* Please be ready to participate at the start of each class session in your assigned seat. The seating charts are posted on Canvas. This counts towards your participation grade.
- *Be prepared.* Each session requires you to prepare some material in advance. Every session module, except the first, includes a session preparation quiz that counts as part of your class participation grade.
- *Sign up for "priority on-call".* Please sign up for priority to be called on for at least 2 cases (out of 8). Sign-ups are open on Canvas, and the number of slots per case are limited. However, everyone should be prepared to be called on in every class.
- *Use your name tent.* If you have forgotten or lost your name tent, there will be materials up front to create another one.
- *Stay for the session.* Entering and exiting the classroom during the session is distracting for everyone, so please refrain from doing so unless necessary (e.g., restroom visits are obviously necessary).
- See below regarding electronic devices.

Electronic Device Policy

OIDD 6150 follows the MBA program's policy regarding electronic devices. Specifically, *the use of phones, laptops, and tablets during class is not allowed. Phones should be turned off or put away.*

If a student must keep a phone on due to a personal emergency, the student must inform the instructor before class begins. A student using electronics during the class will be asked to refrain from further use and may lose class participation points for that session.

Grading

Your final score is based on the following components and weights.

- **3 Equally Weighted Homework Assignments (30%)**
 - Assignments are due at 11:59pm EST on their due dates. You must submit electronically through Canvas.
If you miss the deadline, you can still receive credit for the assignment if you email the instructor and PhD TA your answers before the answers are publicly posted the next morning. You can do this at most once.
 - Each student must complete his or her own assignment. However, to promote learning, students are allowed to discuss questions with other students registered for OIDD 6150 during the same Q4 term. Use collaboration judiciously and only for learning purposes.
 - No partial credit is given on quantitative questions. A reasonable range of answers is accepted to accommodate rounding.
 - The due dates are Friday, March 22th, Friday, April 5th, and Thursday, April 18th.
- **Class Attendance, Case Preparation, and Participation (30%)**
 - You receive 1 point for each session preparation quiz you complete (found at the start of each session's module, via the ForClass tool, on Canvas), due before 8am the morning of your class session.
 - You receive 1 point for being in your assigned seat and ready to participate at the start of class.
 - You receive 1-2 points for contributions to session discussions. Only meaningful contributions to collective learning are awarded points (e.g., thoughtful, on-point, not repetitive of previous remarks).
 - Your class participation points are capped at 30.
- **Final Exam (40%)**
 - All students (without academic accommodations) must take the final exam at the school-assigned scheduled time.
 - The final exam is in-person and "open notes, open book".
 - Calculators are allowed, but electronic devices that can communicate with other devices (e.g., phones, laptops, tablets) are not allowed.
 - 30 possible points, with no partial credit for quantitative questions. A reasonable range of answers is accepted to accommodate rounding.

Your final grade is primarily based on your ranking across sections of the class, subject to MBA grading requirements.

Course Materials

- **Handouts**
 - Hard copies are distributed in class, and soft copies are posted on Canvas.
- **Cases and Articles**
 - Cases are available via the Study.net link on Canvas.

- Read them *before* classes as preparation. Cases are the *minimum* information necessary for class discussion.
- Articles are recommended reading for better learning and participation. Note that in-class discussions can be covered by the final exam.
- **Text**
 - Selected chapters from Cachon, G. P. & Terwiesch, C. *Matching Supply with Demand: An Introduction to Operations Management*. 5th Edition. 2024. Boston, MA: McGraw Hill. These chapters are available as a custom coursebook at the Penn Bookstore or as an e-book option at www.mcgrawhillcreate.com/shop (enter "OIDD 6150" in the 'Looking for New Materials?' field).
 - The text is not strictly required. It is a useful resource for additional details, examples, and study material. Past students have found the text helpful.
 - Older editions of the text are similar but not exactly the same. In particular, chapter numbers can differ in older editions.

Generative AI Policy

You are generally permitted to use generative AI programs, such as ChatGPT, to help you generate ideas and brainstorm. However, please note that:

- The material generated by these programs can be inaccurate, incomplete, and/or problematic. You are ultimately responsible for inaccurate, biased, offensive, or unethical content you submit even if it originates from an AI program.
- If you use an AI program, you are responsible for acknowledging its contribution to the assignment; if not, you may be penalized. Penn policies still govern the handling of any plagiarism or other forms of cheating.
- Be aware that using generative AI may stifle your own independent thinking and creativity. Use good judgment!

Course Ethics / Code of Conduct Summary

	Materials							People				
	Approved calculator	Laptop / other electronics	Summary sheet	Book / class notes/ Canvas materials	Past notes / summaries	Past exams / assignments	Outside materials	Learning team / approved work team	Other student(s) in same section	Student(s) in other sections (same term)	Wharton student not taking the class this term	Person outside of Wharton
OIDD 615: Operations Strategy												
Readings & Cases	A	A	A	A	A	A	A	W	W	W		
Assignments	A	A	A	A	A	A	A	W	W	W		
Final Exam Prep	A	A	A	A	A	A	A	W	W	W		
Final Exam	A		A	A	A	A	A					
In-Class	A		A	A	NA	NA	A					
	A = Allowed material Shaded Cell = Not allowed NA = Not Applicable							W = Allowed to work together D = Discussion of general concepts and procedures is allowed but no sharing of specific answers. Shaded Cell = Not allowed				
The information above covers many common situations but will not cover every circumstance. Remember: The Wharton MBA Code of Ethics that you accepted requires, among other things, that you represent yourself and your work honestly, don't try to gain unfair advantage over other students, follow the instructor's guidelines and respect confidentiality of your work and the work of others. Should you have questions, please contact your ethics liaison or professor.												

OIDD 6150: Class Schedule Summary

Class #	Date	Topic	Readings and Assignments Due
1	Mon,Tue 3/11,12	What Is Operations Strategy? Thinking about Uncertainty	Text: Appendix A, Chapter 14 (sections 0-2, 6)
2	Wed,Thu 3/13,14	Betting on the Unknown: The Newsvendor Model	Text: Chapter 14 (sections 3-5, 7)
3	Mon,Tue 3/18,19	Newsvendor Applications: Managing Risk in Quantity Decisions	Case: Forecasting and Procurement at Le Club Français du Vin Due: Case prep by 8am
4	Wed,Thu 3/20,21	Second Chances: Speculative and Reactive Strategies	Case: Sport Obermeyer, Ltd. Text: Chapter 15 Due: Case prep by 8am
Fri 3/22		Assignment #1 Due by 11:59pm	
5	Mon,Tue 3/25,26	More of Less or Less of More: Make to Stock vs. Make to Order	Text: Chapter 16
6	Wed,Thu 3/27,28	Sourcing Strategies: Off-shoring and In-sourcing	Case: Where in the World Is Timbuk2? Article: Managing new product development and supply chain risks – the Boeing 787 case Due: Case prep by 9am
7	Mon,Tue 4/01,02	Managing Risk in Operations	Text: Chapter 17 Article: Predicting holiday sales poses issues for Lego
8	Wed,Thu 4/03,04	Product Design: Technology and Clockspeed	Case: Hewlett-Packard Company DeskJet Printer Supply Chain Article: Dell goes private Due: Case prep by 8am
Fri 4/05		Assignment #2 Due by 11:59pm	
9	Mon,Tue 4/08,09	Internet Retailing Operations	Case #1: Zappos.com: Developing a Supply Chain to Deliver WOW! Case #2: Amazon.com - Trickle to Torrent Article: Why would Amazon want to be the new Barnes and Noble? Due: Case prep (choose only 1 of 2) by 8am
10	Wed,Thu 4/10,11	Coordination and Information Sharing	Case: Supply Chain Management at W'Up Bottlery (A) and (B) Text: Chapter 19 Due: Case prep by 8am
11	Mon,Tue 4/15,16	Operational Innovation and Consumer Behavior	Case: Zara: Staying Fast and Fresh Text: Chapter 19 Due: Case prep by 8am
12	Wed,Thu 4/17,18	Revenue Management; Course Review Session	Text: Chapter 18
Thu 4/18		Assignment #3 Due by 11:59pm	
	Fri 4/26	Final Exam, 2pm-4pm (Locations assigned on Canvas) Exam Date or Location <u>NOT</u> subject to change. Please Mark Your Calendars!	

OIDD 6150: Session Descriptions

Session 6150.1. Introduction; Thinking about Uncertainty

We motivate the course and its core perspectives on operations strategy. We cover course expectations and the syllabus. We introduce a framework for quantifying uncertainty for new and innovative products.

Text: Appendix A, Chapter 14 (sections 0-2, 6)

Session 6150.2. Betting on the Unknown: The Newsvendor Model

We develop the newsvendor model to quantify operational risk in situations in which there is one ordering opportunity while facing uncertain demand. We demonstrate how the model can be used to calibrate operational performance.

Text: Chapter 14 (sections 3-5, 7)

Session 6150.3. Newsvendor Applications: Managing Risk in Quantity Decisions

We apply the newsvendor framework. We explore the challenges of procurement for a wine catalog retailer. We then discuss decision-making biases and how managers can potentially overcome them.

Case: Forecasting and Procurement at Le Club Français du Vin

Case Preparation:

- What is the overage cost incurred by Le Club for ordering one bottle too many of a €10 wine? What is the underage cost incurred by Le Club for ordering one bottle too few of a €10 wine?
- How should Le Club forecast demand for each wine? Would you use a forecasting process different from Le Club's?
- How would you choose an order quantity for each bottle of wine? Would it differ from the profit-maximizing quantity recommended by the newsvendor model? If so, how would it differ and why?

Session 6150.4. Second Chances: Speculative and Reactive Strategies

We study how early sales information increases supply flexibility.

Case: Sport Obermeyer, Ltd.

Case Preparation:

- Contrast Sport Obermeyer's forecasting process with Le Club's forecasting process. Do their approaches make sense for their markets? Why or why not?
- What is the value of having two opportunities to decide production?
- Look at Exhibit 10. Which styles should be produced in the first production run? (Choose up to 5.) Why did you choose these styles to produce first? In addition, where (Hong Kong or China) should they be produced, and why?

- How would you modify Sport Obermeyer's current system to better match supply to demand?

Text: Chapter 15

Assignment # 1 Due on Canvas by March 22, 11:59pm EST
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Session 6150.5. More of Less or Less of More: Make to Stock vs. Make to Order

We cover two canonical operational approaches: make to stock and make to order. We develop a framework to understand which operational approach to choose based on how operational parameters align with market demand.

Text: Chapter 16

Session 6150.6. Sourcing Strategies: Off-shoring and In-sourcing

We explore the pros and cons of different sourcing strategies as they relate to mass customization. We discuss the challenges involved in outsourcing manufacturing operations to low-cost countries.

Case: Where in the World is Timbuk2?

Case Preparation:

- What channels does Timbuk2 sell through, and which one is the most profitable?
- How should Timbuk2 decide which mass customization options to offer customers? Brennan talks about a very vague process based on management intuition. Let's get specific. For example, would you let customers choose to change the dimensions of panels? Explain why or why not.
- What are the costs and benefits of moving production to China? What are the issues? Think about the need for the San Francisco factory and its utilization, based on outsourcing decisions and inventory needs.

Article: "Managing new product development and supply chain risks – the Boeing 787 case."

Session 6150.7. Managing Risk in Operations

We survey numerous operations strategies for reducing and hedging uncertainty.

Text: Chapter 17

Article: "Predicting holiday sales poses issues for Lego."

Session 6150.8. Technology: Product Design and Clockspeed

We cover how operational strategies interact with product design and industry clockspeed. We focus on the challenges of adopting new strategies as markets evolve, particularly for technology firms, using HP and Dell as examples.

Case: Hewlett-Packard Company DeskJet Printer Supply Chain (A) and (B)

Case Preparation:

- What should HP's operational strategy be? Should HP consider air shipments to Europe instead of ocean shipping? Should HP consider a "localize remotely" strategy as discussed in the (B) case?
- Discuss the operational implementation issues that you see for your suggested strategy. What could change the final decision?
 - *Note:* You can make the following assumptions: HP seeks a 99% in-stock probability, orders weekly, and their lead times are 5 weeks by sea and 1 week by air from Vancouver to Europe. The marginal cost of the product is \$250 and their inventory holding cost is 25% per year. Shipping via sea costs \$5 per printer, whereas air freight costs \$15 per printer.
- Explore reasons for Dell's performance in the recent decade.
- What are Dell's options for operational strategies going forward? Specifically, explore Dell's future in tablet markets and enterprise support.

Article: "Dell goes private."

Assignment # 2 Due on Canvas by April 5, 11:59pm EST

Session 6150.9. Internet Retailing Operations

Internet retailing requires less inventory and retail space than brick-and-mortar retailing. However, internet retailing introduces other unique challenges and substantial costs. We compare these two models from an operations perspective.

Choose just 1 case (of 2). I.e., choose either Zappos OR Amazon.

Case 1: Zappos.com: Developing a Supply Chain to Deliver WOW!

Case Preparation:

- How important is next-day air shipment to the customer experience? Is it worth the cost? How might you change it in the cost-conscious environment facing Zappos in late 2008?
- Where are the supply chain inefficiencies still faced by Zappos? Which must it address, if any, and how, in order to scale profitably?
- How does the Zappos supply chain mitigate product demand risk despite inventory complexity? How could it maintain these advantages as it grows, and what related metrics should it track closely in doing so?

Case 2: Amazon.com – Trickle to Torrent

Case Preparation: Use the case facts as background reading and think about the following questions, focusing on the exhibits and the Excel sheet on Canvas.

- For historical reasons, the Excel sheet starts off comparing Barnes and Noble with Amazon. List some companies that you would compare Amazon to now.
- Discuss the complexity associated with Amazon's fulfillment process. Specifically, how does Amazon tackle product variety?
- What are Amazon's prospects going forward? Specifically, in 50 words or less,
 - Why is Amazon exploring opening physical stores?
 - What are the advantages (and challenges) for Amazon in buying Whole Foods?
 - What are some of Amazon's challenges in the digital space?
- What are the key global growth challenges for Amazon? To compare, explore www.alibaba.com, www.flipkart.com, and www.redmart.com.

Article: "Why would Amazon want to be the new Barnes and Noble?"

Session 6150.10. Coordination and Information Sharing

We study the challenge of operational coordination in developing economies, focusing on a bottling plant in India. We discuss the bullwhip problem and solutions to coordination issues.

Text: Chapter 19

Case: Supply Chain Management at W'Up Bottlery (A) and (B)

Case Preparation:

- Why does Rajat Mehra want to implement a VMI system in the W'Up supply chain?
- What are the biggest obstacles to implementing a VMI system?
- What should Mehra's team do next? What suggestions do you have for an implementation of VMI throughout Coca-Cola's Indian supply chain?

Session 6150.11. Operational Innovation and Consumer Behavior

We discuss how changing tastes and technologies can necessitate drastic shifts in operational strategy even in mature industries. We highlight operational challenges in markets where consumer tastes and technologies evolve rapidly.

Text: Chapter 19

Case: Zara: Staying Fast and Fresh

Case Preparation:

- How are Zara's Operations distinct from other retailers? Why is the business model profitable?
- Is there a connection between how Zara produces and how it sells (i.e., between its operations and its marketing)?
- Can the Zara model be extended successfully beyond Europe?

Session 6150.12. Revenue Management; Course Review

We discuss operational strategies in markets that use expensive, fixed supply capacity to meet volatile demand. We cover the core concepts of revenue management, its implementation, and operational strategies that use (dynamic) pricing.

The session's 2nd half will review course concepts and material for the Final Exam.

Text: Chapter 18

Article: Uber

Assignment # 3 Due on Canvas by April 18, 11:59pm EST

Final Exam on April 26, 2:00pm-4:00pm EST (Locations assigned on Canvas)