

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

**OIDD 615: Operations Strategy**

**Fall 2019 Q2 Course Syllabus**

<b>Professor</b>	Hummy Song 560 Jon M. Huntsman Hall <a href="mailto:hummy@wharton.upenn.edu">hummy@wharton.upenn.edu</a> Office Hours: Tuesdays 3:00pm-4:00pm, JMHH 560 (or by appointment)
<b>Canvas</b>	<a href="https://canvas.upenn.edu/courses/1477880">https://canvas.upenn.edu/courses/1477880</a>
<b>Lectures</b>	Sec 008, Tuesdays & Thursdays, 9:00am-10:30am, JMHH 340 Sec 010, Tuesdays & Thursdays, 10:30am-12:00pm, JMHH 340 Sec 012, Tuesdays & Thursdays, 1:30pm-3:00pm, JMHH G65
<b>Final Exam</b>	Tuesday, December 17, 6:00pm-8:00pm
<b>TAs</b>	Tan Lekwijit, PhD Candidate ( <a href="mailto:slek@wharton.upenn.edu">slek@wharton.upenn.edu</a> ) Office Hours: Wednesdays 4:30pm-6:30pm, JMHH 606  Karthik Ramachandran, MBA Student ( <a href="mailto:karjanr@wharton.upenn.edu">karjanr@wharton.upenn.edu</a> ) Office Hours: Thursdays 3:00pm-5:00pm, JMHH 608

**What you should know before registering for this course:**

- Attendance for the first session is required. Any student who does not attend the first session will be dropped from the roster to make room for students on the waitlist.
- You should not register for the class if you know in advance that you will be unable to take the final exam during the scheduled date and time. The administration (and your instructor) is very strict about ensuring that all students take the exam on the assigned date.

## Course Description

Operations strategy is about organizing people and resources to gain a competitive advantage in the delivery of products (both goods and services) to customers. This course approaches this challenge primarily from two perspectives: (1) how should a firm design their products so that they can be profitably offered; (2) how can a firm best organize and acquire resources to deliver its portfolio of products to customers. To be able to make intelligent decisions regarding these high-level choices, this course also provides a foundation of analytical methods. These methods give students a conceptual framework for understanding the linkage between how a firm manages its supply and how well that supply matches the firm's resulting demand.

This course is a mixture of both theory and class discussions. Both factors are important for a complete learning experience.

Pre-requisites: An interest in operations and a quantitative understanding of business decisions. Some exposure to statistics (what is covered in the first year Q1 is sufficient).

## Classroom Expectations

For transparency and clarity, listed here is a set of classroom expectations that hopefully will facilitate our collective learning and encourage an enjoyable class experience for everyone:

- Please sit in your assigned seat according to the course seating chart (which will be posted on Canvas).
- Please use your name tent in each class.
- Please be ready to participate at the start of each class session.
- Please do not use electronic devices.
  - To facilitate note taking, hard copies of all slides are distributed and electronic copies are posted on Canvas.
  - Please bring hard copies of cases to class for your reference during the discussion.
- Please direct your questions and comments to the entire class (i.e., avoid parallel discussions).
- Please remain in the classroom during the *entire* session.

## Electronic Device Policy

This course follows the MBA program's policy regarding electronic devices. Specifically, the use of phones, laptops, and tablets during a class session is not allowed. Phones should be turned off and put away.

If you must keep a phone on by reason of a personal emergency, you must inform me before class begins.

## Course Grading

Your final numerical score for the course is based on the following items and weights:

### Class participation (30%)

- You receive 1 point for each session that you “show up” to, i.e., you are ready to participate at the start of class (literally in your assigned seat at the start) and you remain engaged throughout the entire session (i.e., you do not use electronic devices, etc.).
  - For fairness to all students, I will only excuse absences for which I receive an email from the MBA Program Office.
- You receive 1 point for each case session for submitting your case preparation responses via the ForClass tool on Canvas before 5am on the day of the session.
- You receive 1-2 points for each session for substantive contributions to classroom discussion.
  - To improve participation opportunities, I will call on students. Therefore, class preparation is necessary to do well in this class.

### Three equally weighted homework assignments (30%)

- Assignments are due by 11:59pm ET on the due date. Late assignments are not accepted; i.e., late assignments will receive zero credit.
- Assignments are submitted electronically through Canvas.
  - Be aware that Canvas is a bit creepy – it tracks every log in and click from any device.
- 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 615 this quarter. Use collaboration *judiciously*, and only for learning purposes.
- No partial credit is given on quantitative questions.

### Final exam (40%)

- The final exam is based on the complete contents of the course: analytical tools, lectures, in-class case discussions, etc.
- The final exam is an open book - open notes exam with some quantitative and qualitative questions.
- The administration (and your instructor) is very strict about ensuring that all students take the exam on the assigned date. Please mark your calendars!

Your final letter grade is based on your ranking across sections of the class, subject to MBA grading requirements. This is expected to be roughly according to the following distribution: 12% A and A+, 21% A-, 33% B+, 21% B, 10% B-, 3% C+ or lower. This distribution may vary. A failing grade is received when performance on a component is particularly poor (e.g., 35% or less correct answers on the final exam).

## Course Materials

### Handouts

- Handouts will be distributed in class and also posted on Canvas.

### Cases

- Cases are available via Study.net.
- Cases should be read *before* class as preparation.
- As electronics are not allowed during class sessions, be sure to bring a hard copy of the case to class.

### Text chapters

- Text chapters are recommended and can be read before or after the class session.
- Selected chapters from Cachon, G. P. & Terwiesch, C. *Matching supply with demand: An introduction to operations management*. Third Edition. 2012. Boston, MA: McGraw Hill. These chapters are also available as a Custom Coursebook at the Penn Bookstore.
- Note, the text readings listed in the syllabus follow the third edition. If you are using the first or the second editions of the textbook, please note that there are many differences, including the chapter numbers.

## 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 615: Class Sessions and Schedule

#	Date	Topic	Reading and Assignments Due
1	Tue 10/22	<b>What is Operations Strategy? Thinking about Uncertainty</b>	Text: Appendix A, Chapter 12 (sections 0-3) <b>Due : Mini course prep by 5am</b>
2	Thu 10/24	<b>Betting on the Unknown: Newsvendor Model</b>	Text: Chapter 12 (sections 4-8)
3	Tue 10/29	<b>Newsvendor Applications: Managing Biases in Operational Decisions</b>	Case: Forecasting and Procurement at Le Club Français du Vin <b>Due : Case prep by 5am</b>
4	Thu 10/31	<b>Second Chances: Speculative and Reactive Strategies</b>	Case: Sport Obermeyer, Ltd. Text: Chapter 13 (sections 0-4) <b>Due: Case prep by 5am</b> <b>Due: Assignment # 1 by 11:59pm</b>
5	Tue 11/05	<b>More of Less or Less of More: Make to Stock v. Make to Order Strategies</b>	Text: Chapter 14
6	Thu 11/07	<b>Sourcing Strategies: Off-shoring and In-sourcing</b>	Case: Where in the World Is Timbuk2? <b>Due: Case prep by 5am</b>
7	Tue 11/12	<b>Operational Risk Management Strategies</b>	Text: Chapter 15
8	Thu 11/14	<b>Technology: Product Design and Clockspeed</b>	Case: Hewlett-Packard Company DeskJet Printer Supply Chain <b>Due: Case prep by 5am</b> <b>Due: Assignment # 2 by 11:59pm</b>
9	Tue 11/19	<b>Operations on the Internet</b>	Case: Amazon.com – Trickle to Torrent <b>Due: Case prep by 5am</b>
10	Thu 11/21	<b>Revenue Management: Pricing Strategies</b>	Case Article: Uber Text: Chapter 16 <b>Due: Case prep by 5am</b>
11	Tue 12/03	<b>Coordination and Information Sharing Strategies</b>	Case: Supply Chain Management at W'Up Bottlery (A) and (B) Text: Chapter 17 <b>Due: Case prep by 5am</b>
12	Thu 12/05	<b>Course Review</b>	Text: Chapter 19 <b>Due: Assignment # 3 by 11:59pm</b>
	<b>Tue 12/17 6-8pm</b>	<b>Final Exam (Location TBA)</b> Exam date and time <u>NOT</u> subject to change. <b>Please Mark Your Calendars!</b>	

## OIDD 615: Session Descriptions

### **Session 615.1. What is Operations Strategy? Thinking about Uncertainty**

This session motivates the course and introduces students to some of the perspectives we will take on operations strategy. We then cover course expectations and the syllabus. We conclude with a framework for quantifying uncertainty for new and innovative products.

*Text:* Appendix A, Chapter 12 (sections 0-3)

### **Session 615.2. Betting on the Unknown: Newsvendor Model**

This session introduces a framework to quantify operational risk. Specifically, we discuss the newsvendor model, which we use in situations in which there is one ordering opportunity while facing uncertain demand. We discuss how it can be used to calibrate operational performance.

*Text:* Chapter 12 (sections 4-8)

### **Session 615.3. Newsvendor Applications: Managing Biases in Operational Decisions**

This session explores applications of the newsvendor framework. We first explore the challenges of procurement for a wine catalog retailer. We then explore decision-making biases and discuss how managers can use optimal decisions to correct for biases.

*Case:* Forecasting and Procurement at Le Club Français du Vin

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

### **Session 615.4. Second Chances: Speculative and Reactive Strategies**

This session studies how early sales information can be used to increase supply flexibility.

*Case:* Sport Obermeyer, Ltd.

- Contrast Sport Obermeyer's forecasting process with Le Club's forecasting process. Does their approach make sense for their market? Why or why not?
- What is the value of having two opportunities to make a production decision?
- 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 should they produce the first production run (Hong Kong or China), and why?

*Text:* Chapter 13 (sections 0-4)

**Assignment # 1 Due on Canvas by October 31, 11:59pm ET**

### **Session 615.5. More of Less or Less of More: Make to Stock v. Make to Order Strategies**

In this session we discuss two operational approaches: make to stock and make to order. We introduce a framework to understand which operational approach to choose based on how operational parameters align with market demand.

*Text:* Chapter 14

### **Session 615.6. Sourcing Strategies: Off-shoring and In-sourcing**

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

*Case:* Where in the World is Timbuk2?

- What channels does Timbuk2 sell through and which one is the most profitable?
- How should Timbuk2 go about deciding 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 offer changing the dimension of panels as a choice to customers? Explain your choice of why or why not.
- What are the costs and benefits of moving production to China? Would you move production to China? Why or why not? Also, think about the need for the San Francisco factory and its utilization, based on outsourcing decisions and inventory needs.

### **Session 615.7. Operational Risk Management Strategies**

This session explores several operations strategies for reducing and hedging uncertainty.

*Text:* Chapter 15

### **Session 615.8. Technology: Product Design and Clockspeed**

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

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

- 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.

<b>Assignment # 2 Due on Canvas by November 14, 11:59pm ET</b>
--

### Session 615.9. Operations on the Internet

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

*Case:* Amazon.com – Trickle to Torrent

- For historical reasons, Exhibit 3 compares Barnes & 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 each:
  - What are the advantages and challenges for Amazon in 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 and global space?

### Session 615.10. Revenue Management: Pricing Strategies

We discuss operational strategies in markets with expensive fixed capacities and volatile demand. We cover revenue management concepts and implementation challenges, and consider operational strategies using (dynamic) pricing. In particular, we focus on how to integrate consumer behavior into operational decisions, so that pricing products and planning capacities can be done optimally.

*Text:* Chapter 16

*Case Article:* Uber (<https://www.nytimes.com/interactive/2017/04/02/technology/uber-drivers-psychological-tricks.html>)

- When ordering a ride on Uber's platform, what is the *typical* amount of time you are willing to wait (as opposed to going with another alternative, e.g., Lyft, taxi, public transportation)?
- If you have used Uber or Lyft, what is the highest surge price you have paid (measured in multiples of the regular fare)?
- For whom do you think surge pricing is beneficial?
- Do you know whether all consumers in a "market" are paying the same surge price multiple? If it were true that consumers are paying different surge prices (for the same class of car), would it affect your willingness to pay for a surge fare?
- What are the operational benefits or challenges to ride-share companies due to the development of automated cars?



### **Session 615.11. Coordination and Information Sharing Strategies**

In this session, we discuss operational coordination issues in developing economies focusing on a bottling plant in India. To conclude, will discuss the bullwhip problem and solutions to coordination issues.

*Text:* Chapter 17

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

- 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 615.12. Course Review**

We will review the course material in preparation for the final exam.

*Text:* Chapter 19

**Assignment #3 Due on Canvas by December 5, 11:59pm ET**

**Final Exam on December 17, 6-8pm ET (Location TBA)**