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

OIDD 615: Operations Strategy, Fall 2018 Syllabus
[September 7, 2018. Subject to revision]

Course Instructor:
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Office Hours: Mondays 3-5pm, and by appointment.

Course Classroom Time and Location:
Jon M Huntsman Hall 355, Mondays and Wednesdays.

OIDD 615 004 9am-1020am,
OIDD 615 002 1030am-1150am,
OIDD 615 006 130pm-250pm.

Course Teaching Assistants (TAs): TBA

Course Website:
https://canvas.upenn.edu/courses/1418214

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. This course provides a foundation of analytical methods to make these high level choices, focusing on plan and execution. 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/quantitative understanding of business decisions. Some exposure to Statistics (what is covered in the first year Q1 is sufficient).

Classroom Device Policy:

In the past few years, I have implemented the following policy with very positive feedback from the students every year. I have employed the policy before its wide adoption in the MBA program.

- o No electronic devices in class, unless specifically pre-announced and requested by your instructor.

- o While I understand that everyone's personal learning needs/preferences vary, I have found the implementation of this policy is beneficial for (i) maximal collective learning through focus and extended deliberation, (ii) my teaching design, and (iii) setting norms when individual learning styles clearly disagree. Recent academic research also supports this approach. In fact, student feedback has largely been quite supportive.

- o Curious about how such policy influences learning and retention

    - o http://mediashift.org/2014/09/why-clay-shirky-banned-laptops-tablets-and-phones-from-his-classroom/

    - o Here is a recent study that looked at tablets for note-taking. https://www.brookings.edu/research/for-better-learning-in-college-lectures-lay-down-the-laptop-and-pick-up-a-pen/

- o I am actually fairly interested in Technology Operations. Nevertheless, I do not see the classroom device policy and our interests in technology to be in conflict.

- o In fact, we will heavily use some of the latest classroom learning technologies (for example *Qualtrics, ForClass,* etc).

Classroom Expectations:

For transparency and clarity of rules, here are the classroom expectations. The expectations codified in the design are high. In fact, I have been *amazed* at the extraordinary folks who have met and continue to meet these expectations by managing their professional and academic responsibilities. The expectations have been designed with respect towards everyone's pursuit of progressing our learning goal, when we share the class time together.

- o We will use seating charts. Given the brevity of quarter classes, this structure is principally to help me to know you better.
- o Please be ready to participate at the start of the class session.
- o Please do not use electronic devices (phones, laptops, tablets) unless specifically asked by me.
- o Please remain in the classroom during the *entire* session.
- o Please bring up your questions to the entire class (i.e., no parallel discussions).

Course Grading
Each student's final numerical score for the course is based on the following items and weights:
- o Class Attendance, Class Preparation and Participation (30%)
- o Three Individual Assignments (30%)
- o Final exam (40%)

Your grade is based on your ranking across sections of the class, subject to MBA grading requirements. I expect 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 class performance on a class component is particularly poor (for example, 35% or less correct answers on the final exam).

Class Attendance, Class Preparation and Participation Grades: (30%)

Each of the following three components is weighted equally.

Class Attendance:
- o To allow for exploration of classes, scheduled and unanticipated personal events outside of class: missing 1-2 classes do not result in any penalty.
- o My expectation is that you will be at your seat when the class session begins and stay through the class. Hence, late arrivals will be registered as absences. (However, you may earn participation grades).
- o Please use your name tent in each class.

Case Preparation:
- o Class preparation answers are due on Canvas (using the ForClass tool before the class (typically as late as 5am on the day of the class session).
- o The questions are simple multiple-choice or short answers type.
- o I examine your answers for class discussion, so well-reasoned but incorrect answers are not penalized (in fact, they help with classroom learning).
- o By submitting the answers, you affirm that you are prepared to discuss the case in-class.
- o You should do case prep for at least 5 out of 7 discussions. You can miss up to 2 case preps without penalty. (See syllabus outline on Page 5 for due dates).

Class Participation:

- o At the minimum, **classroom expectations** should be met.
- o Class participation is scored based on the consistency in participation, your continued engagement in discussions, and finally to the degree to which your comments/questions contribute to learning in case discussions and lectures.
- o Be a good listener to others' comments: `More Airtime' ≠ High Participation.
- o To improve participation opportunities, I will call on students, and hence, class preparation is necessary to do well in this class.

Individual Homework assignments: (30%)

- o There are three graded homework assignments. All assignments are weighed equally.
- o Assignments are due at 11:59pm EDT on the due date. Late assignments are not accepted; i.e., late assignments will receive zero credit.
- o Submissions must be submitted electronically through the Canvas course website.
- o Each student must complete his or her own assignment. However, to promote learning, students are allowed to discuss questions with other students. Use collaboration _judiciously_, and only for learning purposes.
- o No partial credit will be given.

Final exam: (40%)

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

Readings and Handouts

I will distribute key handouts in class and also post them on Canvas. I have also linked to the supplemental reading material on Canvas.

When should one read the class material?
- o Cases: Read _before_ class as preparation. Cases define the _minimum_ information necessary for class discussion.
- o Articles: Recommended. Read them to maximize your classroom learning experience and improve your class participation. Any relevant class discussion can be on the exam.
- o Text chapters: Read before or after the class session.

Recommended Text: 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.

Notes:
- o The text readings listed in the syllabus follow the third edition.
- o If you are using earlier editions of the textbook, please note that there are many differences, including the chapter numbers.

Syllabus Outline

#	Date	DUE	Topic and Readings
1	Mon, Oct 22	Mini-prep	Intro: What is Operations Strategy? Thinking about Uncertainty.
2	Wed, Oct 24		Betting on the Unknown – Newsvendor Model.
3	Mon, Oct 29	**5 AM Prep #1**	Case: Le Club Français du Vin. Biases in Operational Decisions.
4	Wed, Oct 31	**5 AM Prep #2**	Second Chances: Speculative and Reactive Strategies. Case: Sport Obermeyer.
	Thu, Nov 1	**11:59pm**	**Assignment #1**
*** No Class on Monday November 5 *** *** Instead we meet on Monday November 19 ***		
5	Wed, Nov 7		More of Less or Less of More: Make to Stock vs. Make to Order Strategies.
6	Mon, Nov 12	**5 AM Prep #3**	Sourcing Strategies: Off-Shoring and In-sourcing. Case: Timbuk2. Discussion: Boeing, Supply disruptions.
7	Wed, Nov 14		Operational Risk Management Strategies
8	Mon, Nov 19	**5 AM Prep #4**	Technology: Product Design, Clock speed and Operations Design. Case: HP
9	Mon, Nov 26	**5 AM Prep #5**	Operations on the Internet Case: Amazon
	Tue, Nov 27	**11:59pm**	**Assignment #2**
10	Wed, Nov 28	**5 AM Prep #6**	Revenue management: Pricing Strategies. Article: Uber
11	Mon, Dec 3	**5 AM Prep #7**	Coordination and Information Sharing Case: Supply Chain Management at W'Up Bottlery (A) and (B).
12	Wed, Dec 5		Course Review
	Thu, Dec 6	**11:59pm**	**Assignment #3**
	Thu, Dec 20	**6-8pm**	**Core Class Final Exam (Location TBA)** Exam Date or Location <u>not</u> subject to Change. **Please Mark Your Calendars!**

Course Ethics / Code of Conduct Summary

OPIM 615: Operations Strategy	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
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.

Operations Strategy: Detailed Course Description

Session 615.1 Monday, October 22

What is Operations Strategy? Thinking about Uncertainty.

I will set up the course motivation and discuss perspective we will take on Operations Strategy. We will then cover course expectations, and syllabus. We conclude with a framework of quantifying uncertainty for new and innovative products.

Readings: Text: Appendix A. Chapter 12 (sections 0 to 3).

Session 615.2 Wednesday, October 24

Betting on the Unknown: Newsvendor Model

In this session, I will introduce a framework to quantify Operational Risk. Specifically I will discuss the newsvendor model. We discuss how it can be used to calibrate operational performance.

Readings: Text, Chapter 12: sections 4-8.

Session 615.3 Monday, October 29

Newsvendor Applications; Managing Decision Biases.

In this session, I explore the applications of the Newsvendor framework. The first part of the session explores the challenges of procurement for a wine catalog retailer. In the second part, I will explore decision-making biases and how managers can use optimal decisions to correct for the biases. We conclude with discussion about applying such models to managing talent and resources.

Case: Forecasting and Procurement at Le Club Français du Vin

Case preparation:

- o   What are the costs to Le Club for ordering too many or too few bottles of a €10 wine?
- o   How should Le Club forecast demand for each wine? (Would you forecast differently than they do?)
- o   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 615.4 Wednesday, October 31

Second Chances: Speculative and Reactive Capacities

This session studies how one fashion apparel supplier used early sales information to increase its supply flexibility.

Reading: Text, Chapter 13: sections 0-4.

Case: Sport Obermeyer (HBS, 9-695-022)

Case preparation:

- o Contrast Sport Obermeyer's forecasting process with Le Club's forecasting process. Does their approach make sense for their market? Why or why not?
- o What is the value of having two opportunities to make a production decision?
- o Look at Exhibit 10. Which styles should be produced in the first production run and where should they be produced (Hong Kong or China)? (Give qualitative arguments.)
- o How would you modify their current system to better match supply to demand?

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Thursday, November 1, 2018 11:59pm EST

Assignment #1 is due on Canvas.

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Session 615.5 Wednesday, November 7

Operational Strategy: More of Few or Few of more?

This session we discuss two operational approaches: Make to stock and Make to Order. We will introduce a *framework* to understand which business process to choose based on how operational parameters align with market demand.

Reading: *Skim Text, Chapter 14.*

Session 615.6 Monday, November 12

Sourcing Strategies: Off-Shoring and In-sourcing

This session explores the pros and cons of this strategy and also discusses issues involved in outsourcing of manufacturing operations to low-cost countries.

Case: Where in the World is Timbuk2? Outsourcing, Offshoring, and Mass Customization. Wharton Case.

Case Preparation Questions:

- o What channels does Timbuk2 sell through and which one is the most profitable?
- o How should Timbuk2 go about deciding which mass-customization options to offer customers? Brennan talks about a very vague process based on management intuition. For instance, discuss the analysis for different buckle vs. changing the dimensions of panels?
- o What are the costs and benefits of moving production to China? If so, what are the issues? Also, think about the need for San Francisco factory and its utilization, based on outsourcing decision and inventory needs.

Session 615.7 Wednesday, November 14

Managing Risk in Operations

This session explores several operations strategic tools for reducing and hedging uncertainty.

Reading: *Text, Chapter 15*

Article: *Predicting Holiday Sales Poses Issues for Lego, Wall Street Journal, Dec 13, 2013.*

Session 615.8 Monday, November 19

Technology: Product Design and Clock Speed

We discuss how Operational Strategies interact with Product Design and Industry Clock Speed. We focus on the challenges in adopting new strategies in evolving markets, particularly for Technology firms, focusing on HP and Dell as examples.

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

Article: *The Economist - Dell Goes Private. Feb 2013.*

Case preparation:

- o Discuss what HP's Operational Strategy should 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.
- o Discuss the operational implementation issues. What could change the final decision?
- o Explore reasons for Dell's performance in the recent decade.
- o What are Dell's options for operational strategies going forward? Specifically explore Dell's future in tablet markets and Enterprise support.

  Note: In your quantitative analysis make the following assumptions:

  HP seeks a 99% in-stock probability, order 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.

Session 615.9 Monday, November 26

Internet Business Operations

Case: *Amazon. Online Retailing: Operational Strategies (Wharton Case).*

Article: Why would Amazon want to be the new Barnes and Noble? (New Yorker Article).

Case Preparation:

Use the case facts only for background history. Use recent media coverage and think about following questions, focusing on the excel sheet on the course Canvas.

- o For historical reasons, the excel sheet starts of comparing Barnes and Nobles with Amazon. List some companies that you would compare Amazon to.
- o Discuss the complexity associated with Amazon's fulfillment process? Specifically, how does Amazon tackle product variety?
- o Think about back-end technology costs of selling on the internet. Are there savings from scale? How has Amazon gone about scaling their size of their business? What are Amazon's prospects going forward? Specially, examine (in 50 words)
    - o Why is Amazon exploring opening physical stores?
    - o Explore Amazon's challenges in the digital space.
- o What are the key global growth challenges for Amazon? To compare, explore www.alibaba.com, www.flipkart.com

Session 615.10 Wednesday, November 28
Pricing and Revenue Management

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

Reading: Text, Chapter 16

Article: Uber

Session 615.11 Monday, December 3.
Operational Strategies for Coordination and Info-Sharing

In this session, we will 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.

Reading: Text, Chapter 17.

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

- o   Why does Rajat Mehra want to implement a VMI system in the W'Up supply chain?
- o   What are the biggest obstacles in implementing a VMI system?
- o   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 Wednesday, December 5
Course Review.

We will review Course Concepts.

Reading: Text, Chapter 19

Final Exam

December 20, Thursday 6-8pm.

Location TBA.