

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

**OIDD 615: Operations Strategy**

**Spring 2017 Course Syllabus**

**Course Instructors**

Professor Ken Moon  
559 Jon M. Huntsman Hall  
[kenmoon@wharton.upenn.edu](mailto:kenmoon@wharton.upenn.edu)  
Office Hours: By appointment

Professor Hummy Song  
560 Jon M. Huntsman Hall  
[hummy@wharton.upenn.edu](mailto:hummy@wharton.upenn.edu)  
Office Hours: By appointment

**Course Teaching Assistants**

Chloe Kim Glaeser, OID Doctoral Candidate  
532.1 Jon M. Huntsman Hall  
[chloekim@wharton.upenn.edu](mailto:chloekim@wharton.upenn.edu)  
Office Hours: TBA

Additional TAs: To be announced during first week of course

**Course Website**

Canvas site TBA

**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, here are the classroom expectations. We realize the expectations codified in this design are high. In fact, we 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 goals when we share class time together.

- We will use seating charts. Please be seated in assigned seats. Given the brevity of quarter classes, this structure is principally to help us get to know you better.
- Please do 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 unless specifically asked by the instructor.
- Please remain in the classroom during the *entire* session.
- Please bring up your questions to the entire class (i.e., no parallel discussions).

## Electronic Device Policy

- No electronic devices in class, unless specifically pre-announced and requested by the instructor.
- While we understand that everyone's personal learning needs/preferences vary, we have found the implementation of this policy is beneficial for (i) maximal collective learning through focus and extended deliberation, (ii) the teaching design, and (iii) setting norms when individual learning styles clearly vary. Recent academic research also supports this approach. In fact, student feedback and some initial data have largely been quite supportive.
- Curious about how such a policy may help? Read this article by Clay Shirky: <http://www.pbs.org/mediashift/2014/09/why-clay-shirky-banned-laptops-tablets-and-phones-from-his-classroom/>
- We are actually fairly interested in Technology Operations. Nevertheless, we do not see the electronic device policy and our interests in technology to be in conflict. In fact, we will use some of the latest classroom learning technologies (e.g., ForClass).

## Course Grading

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

- Class Attendance (10%)
- Class Preparation and Participation (25%)
- Individual Homework Assignments (30%)
- Final Exam (35%)

Your final 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).

### Class Attendance (10%)

- To allow for exploration of classes, scheduled and unanticipated personal events outside of class: missing 1-2 classes does not result in any penalty.
- Attendance grade is cumulative and scheme is *non-linear* as follows:
  - Up to 7 sessions, no points;
  - 8-9 sessions, 5-6 points;
  - 10-12 sessions, 10 points.
- We expect 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).
- Please use your name tent in each class.

### Class Preparation and Participation (25%)

#### *Preparation:*

- Class preparation includes your responses to the case prep questions, which are collected via Canvas and are due by 7am on the day of the session. These questions are simple multiple-choice or short answer questions.
- Answers will be used for class discussion, so well-reasoned but incorrect answers are not penalized.
- By submitting the answers, you affirm that you are prepared to discuss the case in class.

#### *Participation:*

- At the minimum, **classroom expectations** should be met (see page 2).
- Class participation is scored based on the consistency of participation, your continued engagement in discussions, and finally the degree to which your comments/questions contribute to learning in case discussions and lectures.
- Be a good listener to others' comments, too: 'More Airtime'  $\neq$  High Participation.
- To improve participation opportunities, we reserve the right to call on students.

### Individual Homework assignments (30%)

- There are 3 graded homework assignments. Each assignment is weighed equally.
- Assignments are due at 11:59pm ET on the due date. Late assignments are not accepted; i.e., late assignments will receive zero credit.
- Submissions must be submitted electronically through Canvas.
- 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.
- No partial credit will be given.

### Final exam: (35%)

- 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!

## **Course Materials**

### Handouts

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

### Cases

- Cases should be read *before* class as preparation. Cases define the *minimum* information necessary for class discussion.
- Cases are available via Study.net.

### Articles

- Articles are recommended. Read them to maximize your classroom learning experience and improve your class participation. Any relevant class discussion can be on the exam.
- Articles are posted on Canvas.

### 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.
- 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 |
| OPIM 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<br>Shaded Cell = Not allowed<br>NA = Not Applicable |                            |               |                                       |                        |                          |                   | W = Allowed to work together<br>D = Discussion of general concepts and procedures is allowed but no sharing of specific answers.<br>Shaded Cell = Not allowed |                                  |  |  |                           |
| The information above covers many common situations but will not cover every circumstance. Remember: The <a href="#">Wharton MBA Code of Ethics</a> 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

| Session # | Date                      | Topic and Readings  |
|-----------|---------------------------|---|
| 1         | Mon 1/09                  | <b>Introduction and Thinking about Uncertainty</b><br>Text: Appendix A, Chapter 12 (sections 0-3)   |
| 2         | Wed 1/11                  | <b>Betting on the Unknown: Newsvendor Model</b><br>Text: Chapter 12 (sections 4-8)  |
| 3         | Wed 1/18                  | <b>Newsvendor Applications: Managing Biases in Operational Decisions</b><br>Case: Forecasting and Procurement at Le Club Français du Vin<br>Article: Talent on Demand                     |
|           | Thu 1/19                  | <b>Assignment #1 due by 11:59pm</b>   |
| 4         | Mon 1/30                  | <b>Second Chances: Speculative and Reactive Strategies</b><br>Case: Sport Obermeyer, Ltd.<br>Text: Chapter 13 (sections 0-4)  |
| 5         | Wed 2/01                  | <b>More of Less or Less of More: Make to Stock v. Make to Order Strategies</b><br>Text: Chapter 14  |
| 6         | Mon 2/06                  | <b>Off-shoring and In-sourcing: Sourcing Strategies</b><br>Case: Where in the World Is Timbuk2?<br>Article: Managing New Product Development and Supply Chain Risks – The Boeing 787 Case |
| 7         | Wed 2/08                  | <b>Managing Risk in Operations</b><br>Text: Chapter 15<br>Article: Predicting Holiday Sales Poses Issues for Lego   |
|           | Thu 2/09                  | <b>Assignment #2 due by 11:59pm</b>   |
| 8         | Mon 2/13                  | <b>Technology: Product Design and Clock Speed</b><br>Case: Hewlett-Packard Company DeskJet Printer Supply Chain<br>Article: Dell goes private   |
| 9         | Wed 2/15                  | <b>Operations on the Internet: Online Strategies</b><br>Case: Online Book Retailing: Operational Strategies (Amazon)<br>Article: Why would Amazon want to be the new Barnes and Noble?    |
| 10        | Mon 2/20                  | <b>Revenue Management: Pricing and Demand Management Strategies</b><br>Text: Chapter 16   |
| 11        | Wed 2/22                  | <b>Coordination and Information Sharing Strategies</b><br>Case: Supply Chain Management at W'Up Bottlery (A) and (B)<br>Text: Chapter 17  |
|           | Thu 2/23                  | <b>Assignment #3 due by 11:59pm</b>   |
| 12        | Mon 2/27                  | <b>Review Session</b>   |
|           | <b>Tue 2/28<br/>6-8pm</b> | <b>Final Exam (Location TBA)</b><br>Exam Date or Location <u>NOT</u> subject to Change.<br><b>Please Mark Your Calendars!</b>   |

## OIDD 615: Session Descriptions

### Session 615.1. Introduction and 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 elements from 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

*Case Preparation:*

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

*Article:* Peter Cappelli, "'Talent on Demand': Applying Supply Chain Management to People." <http://knowledge.wharton.upenn.edu/article.cfm?articleid=1899>

**Assignment # 1 Due on Canvas by January 19, 11:59pm ET**

### **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.

*Case Preparation:*

- 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 and where should they be produced (Hong Kong or China)? Give qualitative arguments.
- How would you modify their current system to better match supply to demand?

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

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

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?

*Case Preparation:*

- 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. For instance, discuss the analysis for different buckles v. changing the dimensions of panels.
- 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 615.7. Managing Risk in Operations**

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

*Text:* Chapter 15

*Article:* "Predicting Holiday Sales Poses Issues for Lego."

|  |
|--|
| <p><b>Assignment # 2 Due on Canvas by February 9, 11:59pm ET</b></p> |
|--|

### **Session 615.8. Technology: Product Design and Clock Speed**

We discuss how operational strategies interact with product design and industry clock speed. 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)

*Case Preparation:*

- 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?
- Discuss the operational implementation issues. What could change the final decision?
- 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.
- *Note:* In your quantitative analysis 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.

*Article:* "Dell goes private."

### **Session 615.9. Operations on the Internet: Online Strategies**

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:* Online Book Retailing: Operational Strategies (Amazon)

*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.

- What are the operational advantages and disadvantages of Amazon's business model?
- For historical reasons, the Excel sheet starts off comparing Barnes and Nobles 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?
- Think about back-end technology costs of selling on the internet. Are there savings from scale? How has Amazon gone about scaling the size of their business? What are Amazon's prospects going forward? Specifically, in 50 words or less,
  - Why is Amazon exploring opening physical stores?
  - What are Amazon's challenges in the digital space?
- What are the key global growth challenges for Amazon? To compare, explore [www.alibaba.com](http://www.alibaba.com), [www.flipkart.com](http://www.flipkart.com), and [www.redmart.com](http://www.redmart.com).

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

### **Session 615.10. Revenue Management: Pricing and Demand Management Strategies**

In this session, we introduce and 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

### **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)

*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?

**Assignment #3 Due on Canvas by February 23, 11:59pm ET**

### **Session 615.12. Review Session**

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

**Final Exam on February 28, 6-8pm ET (Location TBA)**