

The Wharton School, University of Pennsylvania
OIDD 220-002 Introduction to Operations Management

Spring Semester 2016

Syllabus

Status: Dec. 6, 2015. Please check for updates on website.

Class Meetings: Tuesday and Thursday 1:30-2:50 p.m.
JMHH F70

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Office hours: TBA

Website: Canvas <https://canvas.upenn.edu/courses/...>

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Venue: JMHH 606

1. Course Description

This course introduces concepts of operations management and their application to solve business problems in order to enhance a firm's competitive advantage or to improve the performance of an organization. The operations function is responsible for those activities in a firm/organization that lead to the production of outputs (products) that are made available to users (customers) in order to generate value. We will examine the theoretical foundations of operations management and how its principles and methods are employed in practice to support both tactical and strategic decision making. Real world examples are drawn from the automobile industry, fashion retailers, health care services, semiconductor, and high tech industries, among others. These examples will illustrate how companies use operations management principles in order to gain competitive advantage.

This course is highly recommended for students:

- Majoring in operations management;
- Interested in consulting jobs in various industries;
- Majoring in engineering or science disciplines with an interest in understanding the operational issues involved in designing or producing new products and services;
- Majoring in other fields and being curious about perspectives of operations management in areas such as marketing, accounting, health care, sports industries or financial services;
- Interested in entrepreneurship and start-ups.

Topics covered include forecasting techniques, inventory control under deterministic and uncertain demand, queueing systems and the impact of variability, lean systems, quality control, newsvendor models, risk pooling and supply chain risk management strategies, capacity and revenue management, supply chain coordination, sustainment and global supply chain sourcing. The Course builds on analytical models, and includes analysis of a significant number of business cases and applications. The cases, assigned readings and material provide a supportive structure for the application of the theory developed in the course.

OIDD 220 is an introductory course for students interested in Operations Management. This course may be followed by other operations courses such as Service Operations Management, Process Management, Retail Supply Chain Management, Management Science or other elective courses in OPIM.

2. Course Logistics

Prerequisites

There are no official prerequisites for this course. A background in probability and statistics is desirable but not required; any necessary background will be introduced in class.

Course Website

We will be using a Canvas based website <https://canvas.upenn.edu/courses/...>

If you have difficulty accessing the course website, please let me know as soon as possible. Canvas is the portal for all class communications. In particular, I will post all lecture notes, slides, and assignments on Canvas. Please, check the site frequently for course materials and updates. In particular, you should always refer to the web site for up to date information about our syllabus, any changes to the schedule, and for additional handouts or reading material.

Course Text and Materials

- Course material will be mostly drawn from two books: *Production and Operations Analysis* by Nahmias and *Matching Supply with Demand: An Introduction to Operations Management* by Cachon and Terwiesch. Both books are on reserve at the Lippincott Library.
- The chapters from Cachon and Terwiesch are available as a custom made textbook at the PENN Bookstore: Cohen/Rieders, *Introduction to Operations Management – OIDD 220*, 2016.
- The book chapters from the Nahmias text, the cases, and other materials are available through Study.Net which is linked to the course Canvas site.
- Additional reading material (articles, assignments, and lecture notes) will be posted on the course's website.

Learning Environment

Our class sessions will be a mix of traditional lectures, class discussions and learning activities that involve all students, either individually or in teams. It is imperative that students come prepared to class and are fully engaged in our class meeting. During discussions and/or group work, I expect students to pay attention to other participants and to respect different points of view.

The instructor welcomes your questions during class and outside the classroom. I encourage you to take advantage of the regular office hours listed above. If they don't fit your schedule, please make an appointment. I will make every effort to be available. E-mail is another good way to have your questions answered. It is vital that you communicate with me early on about any difficulties or concerns. In addition to regular office hours by the instructor and the TAs, we may also offer some review sessions if there is sufficient student interest. Logistics for these will be discussed in class.

Wharton concert rules apply: Classes will start and end on time. Regular attendance is expected. Please, display a typed, readable name tent in all classes. Late entry or reentry to a class session is allowed only under exceptional circumstances. All phones, laptops and other electronic devices should only be used during class if you are requested to use them. We will announce the need to bring computers to class.

3. Grading Policy

Your grade in this course will be based on individual and group evaluations according to the following rubric:

Class Participation	individual	10%
Assignments	individual	20%
Case Write-Ups	group	20%
Midterm 1: Thursday, March 3, in class	individual	25%
Final Exam: Friday, May 6, 9-11 am, room TBA	individual	25%

A student's grade is based on the ranking of the student's overall numerical score in the course. The grades are in general relative, however with minimal absolute standards for passing the course. Please refer to the Wharton undergraduate handbook for code of conduct and guidelines.

Class Participation

Attentive participation and informed discussions are critical to the learning process; they make classes more interesting and enjoyable for all the students. Students are encouraged to come prepared to class, to participate, and to volunteer substantive comments freely. On my part, I shall enable a friendly classroom atmosphere that permeates and promotes good discussions. I will include interactive activities in class as well as opportunities to add to class discussions online. Occasionally, I will post articles from magazines and journals on Canvas and discuss them in class (after due notification through email). Students are encouraged to send interesting articles to me. I shall post them on Canvas and may discuss them in class, thus recognizing the student's effort. This will help us discuss and keep abreast of current innovative ideas in operations management. I consider the quality of comments made by students to be an important factor in enhancing the classroom experience. While attendance is not mandatory, it should be clear that missing classes cannot add anything positive to your participation score, and may have a negative impact. Please, communicate with me on special circumstances regarding attendance.

Assignments

The problem sets will ensure that you have ample opportunity to apply the concepts learned in class and will increase your understanding of the material. Assignments will be posted on the canvas website; for a schedule of due dates, please see the course outline below. While group discussions of course material, including assignments, are encouraged, the work you submit must be your own. Each student is required to submit an individual copy of the written assignment at the beginning of class on the given due date. Please, make sure assignments are either typed or clearly written. Put your Penn ID number on the front; no names please. I will post practice problems as well as solutions to all assignments. Should you have any conceptual questions, please contact me during office hours or by e-mail. Late submissions will not be accepted unless you have prior permission from the instructor.

Group Case Write-Ups

During the course, we will discuss interesting cases in class, drawn from different industries such as a hospital setting, car manufacturing, the food industry, the high tech sector, the music industry, and the clothing retail industry. Cases are considered an integral part of the course. You are expected to *prepare for each case* by reading the case carefully and by answering a list of guiding questions posted in the case (see Canvas web site). This will enable us to have a productive and meaningful classroom discussion; it will also give you an opportunity to earn scores in your participation grade. Three of these cases are marked with a due date on the course outline below. You are expected to submit a case write-up for these three cases. For the case write-ups, please form *groups of 3 students* and submit one report per group. Indicate the group members by PENN ID on the cover of the report. If a particular group member has not been able to participate in the write-up, please do not include him/her on the cover. The report should clearly state the key problems, provide your analysis, and summarize any takeaways. Reports are to be typed (3 pages, double spaced) and are due *at the beginning of the class* in which the case is discussed. Please, submit your case write-ups electronically via Canvas.

Academic Integrity

Students are expected to follow Wharton's guidelines on academic integrity. In particular, you are to submit your own work for assignments and cases. Consulting case discussions from other semesters/classes or using assignment solutions from other sources is considered academic dishonesty and is prohibited.

Exams

There will be two closed book exams: One midterm exam on **Thursday, March 3, during class** and a final exam on **Friday, May 6, 9-11 am**. Please, mark the dates in your calendars. If you cannot attend class on the scheduled exam dates do not sign up for this course. Some guidelines and sample questions will be offered during the course.

Course Outline

Status: Dec. 5, 2015. Always check website and lecture slides for updates!

Session #	Date	Topic	Assignment/Case Due
1	Thu 1/14	Introduction	
2	Tue 1/19	Forecasting – Stationary Series	
3	Thu 1/21	Forecasting – Trend and Seasonality	
4	Tue 1/26	Data Analysis / Analytics Bring computer to class.	
5	Thu 1/28	Inventory Control - EOQ Model	
6	Tue 2/2	Inventory Control – Variations of EOQ Model	
7	Thu 2/4	Process Flows – Introduction to Queueing	Assignment 1 Forecasting/EOQ
8	Tue 2/9	Queueing Theory	
9	Thu 2/11	<i>Case: Paediatric Hospital</i>	<i>Case Write-up: Paediatric Hospital</i>
10	Tue 2/16	Variability and Queueing	
11	Thu 2/18	JIT Manufacturing – <i>Case: Toyota</i>	
12	Tue 2/23	Lean Systems, Quality Control	
13	Thu 2/25	Statistical Quality Control	Assignment 2 Queueing/Lean/JIT
14	Tue 3/1	Quality Management	
15	Thu 3/3	In-Class Mid-Term #1 [Mark your Calendars]	
---	3/8 & 3/10	Spring Break	
16	Tue 3/15	Newsvendor Model	
17	Thu 3/17	Newsvendor Model: Assemble / Make to Order	
18	Tue 3/22	Quick Response with Reactive Capacity	
19	Thu 3/24	<i>Case: Sport Obermeyer</i>	<i>Case Write-up: Sport Obermeyer</i>
20	Tue 3/29	Lead Times: The Order Up-to Model	
21	Thu 3/31	Postponement <i>Case: Hewlett Packard</i> Bring computer to class.	
22	Tue 4/5	<i>Root Beer Game</i> Meet in computer lab.	Assignment 3 Newsvendor
23	Thu 4/7	Supply Chain Coordination, <i>Case: Barilla</i>	
24	Tue 4/12	Managing Risk in Operations – Risk Pooling <i>Costco, Amazon Fulfillment</i>	
25	Thu 4/14	Supply Chain Risk Management, <i>Case: Cisco</i>	
26	Tue 4/19	Revenue Management - Theory	
27	Thu 4/21	Revenue Management – Problem Solving Bring computer to class.	
28	Tue 4/26	Supply Chain and Sustainability <i>Case: Taylor Guitars</i>	<i>Case Write-up: Taylor Guitars</i>
	Fri 5/3, 9 - 11 am	Final Exam [Mark your Calendars]	