Syllabus - Operations Management

(PADM-GP 2173)

Course Information

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Office Hours (variable): TBD or by appointment
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Class Date: Wednesdays 4:55-6:35pm
Class Location: Silver Center for Arts and Sciences (100 Washington Square East), Room 401

Course Description and Objectives

This course provides a general introduction to operations management (OM), or the production and delivery of goods and services. Students will learn to observe and analyze an organization from a systems- or process-perspective. From this lens, students will learn to design, operate, and improve the systems that deliver goods and services through OM tools such as prescriptive analytics method and linear optimization. Ultimately, this course aims to familiarize students with the major operational issues that confront managers, and provide them with the basic language, concepts, insights, and analytical tools to deal with these issues. This course will cover the following topics:

Operations Strategy
- Operations Strategy
- Decision Analysis
- Consulting & Reengineering

Operations Analysis
- Process Analysis
- Waiting & Queues

Operations Design
- Service Operations
- Lean Production Systems
- Supply Chain Management

Operations Planning and Control
- Inventory Mangement
- Forecasting
- Quality Management: Six Sigma

These topics will be explored through readings, class discussions, lecture, assignments, and case studies from a wide variety of public sector application areas, including education, hospital administration, social services and more.

Prerequisites

- **CORE-GP.1020** Managing Public Service Organizations (MPSO). This is a core course and the gateway to the broader management curriculum.
- **CORE-GP.1011** Statistical Methods for Public, Nonprofit, and Health Management or equivalent knowledge.
- **Excel Knowledge** *Expected knowledge includes but is not limited to the following*: Entering Data; Fill Down; Locking Cells ($); Using Formulas (e.g., AVERAGE, SUM, etc.); Advanced Formulas (e.g., IF, COUNTIF, AVERAGEIF, VLOOKUP, etc.); Formatting; Printing with appropriate formatting; Creating Charts.

  Wagner offers a non-credit, 3-session MS Excel class and a one-day workshop on MS Excel. For more information, visit:
  http://wagner.nyu.edu/portal/students/academics/advisement/quantitative

  Complete at least the "basics" and "essentials" Excel tutorials on Lynda.com, which can be accessed by (1) going to Lynda.com and clicking "Sign In" in the upper right-hand corner and (2) choosing the bottom option of "Log in through your organization or school," and typing 'nyu.edu' when prompted.

  The below lists the available Excel tutorials from most basic to more advanced - select the appropriate option for the version of excel you have access to:

Topic	Excel 2016 or Office 365	Excel 2013	Excel 2010 or earlier
Basics	Learn Excel 2016: The Basics or Office 365: Learn Excel		Learn Excel 2010: The Basics
Essentials	Excel 2016 Essential Training or Office 365: Excel Essential Training	Excel 2013 Essential Training	Excel 2010 Essential Training or Excel 2007 Essential Training
Charts	Excel 2016: Charts in Depth	Excel 2013: Working with Charts and Graphs or Excel 2013: Charts in Depth	
Advanced	Excel 2016: Advanced Formatting Techniques and Excel 2016: Advanced Formulas and Functions	Excel 2013: Advanced Formatting Techniques and Excel 2013: Advanced Formulas and Functions	Excel 2010: Advanced Formulas and Functions or Excel 2007: Advanced Formulas and Functions
Tips	Excel Tips Weekly or Excel 2016 Tips and Tricks	Excel 2013 Tips and Tricks	

Course Text and Materials

There is no required textbook for this course. The required readings will come from the following two sources:

- **NYU Classes** will be used to post readings and assignments throughout the semester. Students are encouraged to check it frequently. Many of the readings listed in this syllabus can be found online. In such cases, URLs are specified here and links can also be found on NYU Classes.
- A **Harvard Business Publishing (HBP) coursepack** with the root beer game and some case readings accessible at this link: http://cb.hbsp.harvard.edu/cbmp/access/58345651

The course materials will be mostly drawn from the following three books:

- Jacobs, F.R. & R.B. Chase. (2010). Operations and Supply Chain Management (13th edition). Boston: McGraw-Hill Irwin.
- G. Cachon and C. Terwiesch. Matching Supply with Demand: An Introduction to Operations Management (3rd Ed). McGraw-Hill. 2013
- Y.A. Ozcan. Quantitative Methods in Health Care Management: Techniques and Applications (2nd Ed). Jossey-Bass. 2009

Course Grading and Requirements

In this course, we will develop an understanding of operations management through lecture, reading, and the case study method. Final grades are determined by the following course components:

- **Assignments (50%)** **Individual or Team**
  There will be five assignments, each worth 10% of your grade. These are an important part of this course as they solidify the concepts we learn in class. Team work is encouraged on assignments. Teams should be four or fewer student, and such teams should submit only one assignment.
- **Take-Home Midterm Exam (15%)** **Individual**
  This exam will be completed individually.
- **Introduction to Supply Chain Management Simulation: Root Beer Game V2 (5%)** **Individual**
  In this fast-paced, multi-player simulation, students experience the effects of a supply chain dynamic called the "bullwhip" effect. Students play one of four roles in a root beer supply chain: factory, distributor, wholesaler, or retailer. In each simulated week, they must examine inventory, anticipate demand, and send orders to the adjacent connection in the supply chain. Each student attempts to minimize inventory carrying costs while avoiding costly inventory shortages. Students must make rapid ordering decisions while dealing with limited information, a lack of demand visibility, and shipping delays.
- **Take-Home Final Exam (15%)** **Individual**
  This exam will be completed individually; there is to be NO collaboration or discussion with your classmates or any other person in any way.
- **Classroom Participation (15%)** **Individual**
  You are expected not only to attend class, but to be an ***active*** participant! This means being engaged, asking questions, bringing critical discussion, and enjoying it. ☺

Course Policies

Assignments and Exam Submission. All homeworks, group write-ups, and final exam answers should be submitted electronically through NYU Classes, unless otherwise noted in class. Each should be properly labeled with your name (teammates' names), the course number, the assignment number, and the date.

Attendance. You should arrive to class on time with all pre-requisite readings or assignments completed. Any absence must be explained and justified beforehand.

Late assignments. Extensions will be granted only in case of an emergency, out of respect for those who abide by deadlines despite hectic schedules. Late submissions without prior permission will be penalized by 10% of the grade per day (so if you are 1 day late and would have scored 100%, your grade is 90%).

Students with disabilities. Any students requiring accommodation should contact me to make proper arrangements. Please be prepared to share your documentation from the NYU Moses Center for Students with Disabilities (https://www.nyu.edu/life/safety-health-wellness/studentswith-disabilities.html).

NYU/Wagner grading policy: http://wagner.nyu.edu/students/policies/grading

NYU/Wagner academic integrity policy: http://wagner.nyu.edu/portal/students/policies/code

Course Calendar (Schedule at a Glance)

#	Date	Description	Assignments (Due at Start of Class)
1	1/25	Course Overview and Intro to Operations Strategy	
2	2/1	Process Analysis I	
3	2/8	Process Analysis II	
4	2/15	Lean Production Systems – GUEST LECTURE	1: Process Analysis
5	2/22	Service Operations	
6	3/1	Waiting and Queues I	2: Service Operations
7	3/8	Waiting and Queues II	*Midterm Exam Distributed*
	3/15	SPRING BREAK – NO CLASS	
8	3/22	Supply Chain – Root Beer Game Online – NO CLASS	Midterm Exam Due
9	3/29	Supply Chain Management	3: Waiting & Queues
10	4/5	Inventory Management	
11	4/12	Forecasting	4: Supply Chain & Inventory
12	4/19	Decision Analysis	
13	4/26	Quality Management: Six Sigma	5: Forecasting & Decision Trees
14	5/3	Review and Reflection	*Final Exam Distributed*
	5/10	FINALS WEEK – NO CLASS	FINAL EXAM DUE (FRIDAY)

Course Schedule

Please note: the topics covered here are subject to change throughout the semester depending on students' overall progress, understanding, and interests in course material. All non-HBR readings can be found in the "Resources" folder of this course in NYU Classes; all CASES can be purchased in the HBR Coursepack. (Abbreviations: HBR = Harvard Business Review; OM = Operations Management)

#	Date	Broad Topic	Readings Issued	Readings Due (start of class)	Homework Assigned	Homework Due Online (start of class)
1	25-Jan	Course Overview and Intro to Operations Strategy	• Student Survey • HBR Coursepack: OM Reading: Process Analysis • Optional: Polaris, Shaw			
2	1-Feb	Process Analysis I: Systems Lens	• CASE: Aravind Eye Hospital, In Service of Sight • Little's Law • Optional: Wharton, TED talk video on Aravind	• Complete the Student Survey • HBR Coursepack: OM Reading: Process Analysis	1: Process Analysis	
3	8-Feb	Process Analysis II: Systems Analysis	• CASE: Decoding the DNA: Toyota Production Systems • CASE: Virginia Mason Medical Center • ThedaCare	• CASE: Aravind Eye Hospital, In Service of Sight • HBR Coursepack: OM Reading: Process Analysis • Little's Law		
4	15-Feb	Lean Production Systems - GUEST LECTURE	• CASE: The Dabbawala System • Breaking the tradeoff • Customer-centered innovation map • Service Blueprinting	• CASE: Decoding the DNA: Toyota Production Systems • CASE: Virginia Mason Medical Center • Thedacare		1: Process Analysis
5	22-Feb	Service Operations	• Revisit CASE: Aravind Eye Hospital: In Service of Sight • HBR Coursepack: OM Reading: Managing Queues • NPR on the VA	• CASE: The Dabbawala System • Breaking the tradeoff • Customer-centered innovation map • Service	2: Service Operations	

				Blueprinting		
6	1-Mar	Waiting and Queues I: Managing Actual Wait Times	• Designing Waits that Work • While Customers Wait, Add Value • VIDEO: Disney Lines • Why Waiting in Line is Torture • LINK: WBUR: Doctor says it won't hurt • Self-service kiosks	• Revisit ARAVIND case • HBR Coursepack: OM Reading: Managing Queues • NPR on the VA	3: Waiting and Queues	2: Service Operations
7	8-Mar	Waiting and Queues II: Managing Perceived Wait Times		• HBR Coursepack: OM Reading: Managing Queues • Designing Waits that Work • While Customers Wait, Add Value • VIDEO: Disney Lines • Why Waiting in Line is Torture • LINK: WBUR: Doctor says it won't hurt • Self-service kiosks	Midterm Exam	
	15-Mar	SPRING BREAK – NO CLASS				
8	22-Mar	Supply Chain Management - Online Root Beer Game NO CLASS	• CASE: Unsafe for Children: Mattel's Toy Recall			Midterm Exam
9	29-Mar	Supply Chain Management	•	• CASE: Unsafe for Children: Mattel's Toy Recall	4: Supply Chain and Inventory	3: Waiting and Queues
10	5-Apr	Inventory Management	• Revisit ARAVIND CASE	•		
11	12-Apr	Forecasting	•	• Revisit ARAVIND case	5: Forecasting and Decision	4: Supply Chain and Inventory

					Trees	
12	19-Apr	Decision Analysis	• Revisit Virginia Mason CASE	•		
13	26-Apr	Quality Management: Six Sigma	•	• Revisit Virginia Mason CASE		5: Forecasting and Decision Trees
14	3-May	Review and Reflection	•	•	Final Exam	
	10-May	NO CLASS - FINAL EXAM DUE	•	•		Final Exam (due Friday)