

NYU Stern School of Business

OPMG-UB 1-001: Operations Management

Spring 2019

**INSTRUCTOR**

Maxime Cohen

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**TEACHING FELLOW**

**TBD**

**E-mail:** TBD

**Office Hours:** TBD

**Office Location:** KMC 8-174

**COURSE MEETINGS**

**Meeting Times:** Tuesday and Thursday 9:30 AM to 10:45 AM

**Location:** TBD

**Schedule exceptions**

Class will NOT meet on: Tuesday, March 19 and Thursday, March 21 (Spring break).

Class will meet on: All other Tuesdays and Thursdays.

**COURSE DESCRIPTION AND LEARNING GOALS**

This course is designed to provide students a better understanding of how firms can gain competitive advantage from their operations. Typically, this requires the firm to achieve, at a minimum cost and a high quality: responsiveness and adaptability to customer needs and desires, rapid time to market, process technology leadership, and sufficient/responsive capacity. A problem solving framework is developed that enables students to undertake managerial and technical analysis that aims to result in the desired competitive advantage. Both service and manufacturing case examples are covered in order to illustrate some of the main concepts.

## **HOMEWORK**

Students will be assigned homeworks on a class by class basis for each topic. The homework assignments are due on the dates indicated below. Assignments are to be handed in at the beginning of class. Please keep a copy of all homework submitted for reference during class.

Homeworks will be graded on a scale out of 100 and will not be accepted late. They must be prepared individually in order to receive credit. Please write clearly or type up your homework.

## **HOW TO PREPARE FOR CLASS DISCUSSIONS**

Read the cases carefully. Be prepared to be called upon to present the details of the case, or to discuss the answers to the study questions.

## **COURSE PRE-REQUISITES**

Either STAT-UB 103 or both STAT-UB 1 and STAT-UB 3.

## **COURSE OUTLINE**

This syllabus is tentative and subject to change.

## **MODULE 1: Introduction to Process Analysis and Design**

### **Jan 29 SESSION 1: INTRODUCTION TO OM**

1. Introduction to Operations Management: Course Introduction and Overview.
2. The Zara Example (covered in class).

### **Jan 31 SESSION 2: PROCESS ANALYSIS**

1. Read, analyze, and be prepared to discuss the Benihana of Tokyo case, which is available in the electronic coursepack. Use the following study questions as an aid in analyzing the case (you are not required to submit your answers).
  - (a) How does Benihana's operations strategy support the overall Benihana concept?
  - (b) Which parameters of Benihana's operations influence the number of customers that a Benihana restaurant can serve per unit of time?
  - (c) How does the cost structure of a Benihana restaurant compare with that of a typical American restaurant? How does Benihana gain its competitive advantage?
2. Homework #1: Pick up a copy of Homework #1. It is due on February 5.

### **Feb 5 SESSION 3: KRISTEN'S COOKIE COMPANY**

1. Read, analyze, and be prepared to discuss the Kristen's Cookie Company case, which is available in the electronic coursepack. Use the six key questions at the end of the case as a guide (you are not required to submit your answers).
2. Homework #1 is due.
3. Homework #2: Pick up a copy of Homework #2. It is due on February 19.

### **Feb 7 SESSION 4: SENATOR SWIFT**

1. Applying process analysis by using the Senator Swift case. The case will be distributed in class. No need to prepare anything.

### **MODULE 2: Time-to-Market & Responsiveness: Queuing Theory**

### **Feb 12 SESSION 5: THE EFFECTS OF UNCERTAINTY - WAITING LINES**

1. Introduction to Queuing Theory.
2. Homework #3: Pick up a copy of Homework #3. It is due on February 21.

### **Feb 14 SESSION 6: QUEUING THEORY IN ACTION**

1. Read, analyze, and be prepared to discuss the First City National Bank case, which is available on NYU Classes.

### **MODULE 3: Optimal Resource Allocation**

### **Feb 19 SESSION 7: THE LINEAR PROGRAMMING (LP) PROBLEM**

1. Introduction to Linear Programming.
2. Homework #2 is due.
3. Homework #4: Pick up a copy of Homework #4. It is due on March 5.

### **Feb 21 SESSION 8: LP SOLUTION TECHNIQUES**

1. We will discuss two common solution techniques: enumerating the corner points and a graphical method.
2. Review carefully Session 7 before class.
3. Homework #3 is due.

### **Feb 26 SESSION 9: LP SENSITIVITY ANALYSIS (USING EXCEL)**

1. Bring laptops to class.

2. Review carefully Sessions 7 and 8 before class.

### **Feb 28 SESSION 10: USING THE LP MODEL: APPLICATION TO REAL-ESTATE**

1. Read, analyze, and be prepared to discuss the Otto Development Corporation case, which is available on NYU Classes.
2. Bring laptops to class.

### **March 5 SESSION 11: REVIEW SESSION FOR THE MIDTERM**

1. Review material for the Midterm.
2. Solving together some sample problems.
3. Homework #4 is due.

### **March 7 SESSION 12: Midterm Exam**

1. The midterm will take place during class time (in the usual room).

### **MODULE 4: Time Based Competition: Project Management**

### **March 12 SESSION 13: THE CRITICAL PATH METHOD**

1. Introduction to Project Management.
2. Homework #5: Pick up a copy of Homework #5. It is due on March 26.

### **March 14 SESSION 14: PROJECT CRASHING**

1. Review the material covered in Session 13 before class.

### **MODULE 5: Managing Quality as a Strategic Issue**

### **March 26 SESSION 15: QUALITY: DEFINITION AND BASIS FOR COMPETITION**

1. Think about quality issues that occurred recently and their impact. Be prepared to discuss at least one quality issue during the class.
2. Homework #5 is due.
3. Homework #6: Pick up a copy of Homework #6. It is due on April 9.

### **March 28 SESSION 16: STATISTICAL QUALITY CONTROL**

1. Bring your laptop to class and download the Excel Sheet “SPC\_Class.xls” from NYU Classes.
2. Read the notes on Statistical Process Control by Nelson Fraiman, which are available on NYU Classes.

## **April 2 SESSION 17: QUALITY IMPROVEMENT**

1. Read the Ritz-Carlton case, which is available in the electronic coursepack. Analyze and be prepared to discuss the issues related to quality from the case.
2. Mid-semester Feedback Form.

## **MODULE 6: Inventory Theory, Supply Chain Management and Revenue Management**

### **April 4 SESSION 18: INTRODUCTION TO INVENTORY MANAGEMENT**

1. Importance of inventory management in various contexts.
2. Economic Order Quantity (EOQ) model.

### **April 9 SESSION 19: NEWSVENDOR MODEL**

1. Introducing the Newsvendor model.
2. Read, analyze, and be prepared to discuss the L.L. Bean Inc. case, which is available in the electronic coursepack.
3. Homework #6 is due.
4. Homework #7: Pick up a copy of Homework #7. It is due on April 23.

### **April 11 SESSION 20: INVENTORY SIMULATION GAME**

1. Read the Managing Champagne Inventory in a Liquor Store case, which is available on NYU Classes (you are not required to submit the answers to the questions at the end of the case).
2. Bring your laptop to class and download the Excel Sheet called "Inventory\_Simulation\_Inclass.xls" from NYU Classes.

### **April 16 SESSION 21: THE BEER GAME (ROOM: TBD)**

1. Note the different classroom TBD
2. We will play the Beer Game.
3. Please, try to come 15 minutes before class (food will be served).

### **April 18 SESSION 22: THE BULLWHIP EFFECT**

1. Debrief of the Beer Game.
2. Announcing the winning team.

### **April 23 SESSION 23: SUPPLY CHAIN CONTRACTS**

1. Introduction to supply chain management and to wholesale price contracts.

2. Bring your laptop to class and download the Excel Sheet called “SC\_contracts\_Inclass” from NYU Classes.
3. Homework #7 is due.

#### **April 25 SESSION 24: REVENUE SHARING CONTRACTS**

1. Introduction to revenue sharing contracts.
2. Read the Cargo case, which is available on NYU Classes.
3. Bring your laptop to class and download the Excel Sheet called “SC\_contracts\_Inclass” (same as last lecture).

#### **April 30 SESSION 25: INTRODUCTION TO REVENUE MANAGEMENT**

1. Introduction to revenue management and its applications.

#### **May 2 SESSION 26: THE REVENUE MANAGEMENT GAME**

1. Form teams of 6-8 students. Each team needs to bring (at least) 2 laptops.
2. Install the game on your laptop (instructions will be posted on NYU Classes).
3. Come up with a Markdown strategy.
4. Submit a one page summary of your strategy (for each team) at the beginning of class.

#### **May 7 SESSION 27: OPTIMIZING PROMOTIONS FOR SUPERMARKETS**

1. Applying OM techniques to practice.
2. Read the Optimizing Promotions for Supermarkets using Data Analytics case, which is available on NYU Classes.
3. An optional homework will be posted on NYU Classes.

#### **May 9 SESSION 28: WRAP UP AND EXAM REVIEW**

1. Summary of the course.
2. Discussing other relevant courses at NYU Stern.
3. Solving together some sample problems.

**FINAL EXAM - Date TBD (Room TBD)**

#### **RECOMMENDED COURSE MATERIALS:**

**CUSTOM TEXT: COMPETITIVE ADVANTAGE FROM OPERATIONS, Pearson Custom Publishing** (available at the NYU Bookstore)

#### **REQUIRED COURSE MATERIALS:**

**ELECTRONIC COURSEPACK CASES** (available at the NYU Bookstore):

- Benihana of Tokyo.
- Kristen's Cookie Company.
- Ritz-Carlton.
- L.L. Bean, Inc.

**OTHER MATERIAL** (available on NYU Classes):

- Senator Swift.
- First City National Bank.
- OTTO Development Corp.
- Managing Champagne Inventory in a Liquor Store.
- Optimizing Promotions for Supermarkets using Data Analytics.
- Supply Chain Coordination and Contracts in the Sharing Economy - a Case Study at Cargo

**OPTIONAL READING:**

**THE GOAL**, Eliyahu M. Goldratt, North River Press, Inc. 2004.

**GRADING**

Attendance and Class Participation: 15%  
 Homework: 15%  
 Midterm: 30%  
 Final Exam: 40%

At NYU Stern, we strive to create courses that challenge students intellectually and that meet the Stern standards of academic excellence. To ensure fairness and clarity of grading, the Stern faculty have adopted a grading guideline for core courses with enrollments of more than 25 students in which approximately 30-35% of students will receive an A or an A- grade.

Please see <http://www.stern.nyu.edu/portal-partners/current-students/undergraduate/resources-policies/academic-policies/index.htm> for more information.

All the exams in this course are closed book and closed notes unless otherwise indicated by the instructor. The use of a scientific calculator which does not have memory is allowed on the exams.

**REGRADING**

The process of assigning grades is intended to be one of unbiased evaluation. Students are encouraged to respect the integrity and authority of the professor's grading system, and are discouraged from pursuing arbitrary challenges to it. If you believe an inadvertent error has been made in

the grading of an assignment or in assessing an overall course grade, a request to re-evaluate the grade may be submitted. You must submit such requests in writing within 7 days of receiving the grade, including a brief written statement of why you believe that an error in grading has been made.

## **PROFESSIONAL RESPONSIBILITIES**

### **Attendance**

Class attendance is essential to your success in this course and is part of your grade. An excused absence can only be granted in cases of serious illness, grave family emergencies, or religious observance and must be documented. Job interviews and incompatible travel plans are considered unexcused absences. Please notify the instructor in advance of an excused absence.

### **Participation**

In-class contribution is a significant part of your grade, and an important part of our shared learning experience. Your active participation helps the instructor evaluate your overall performance. You can excel in this area if you come to class on time, and contribute to the course by:

- Providing strong evidence of having thought through the material.
- Advancing the discussion by sharing insightful comments and questions.
- Listening attentively in class.
- Demonstrating interest in your peers' comments and questions.

### **Assignments**

Late assignments will either not be accepted, or will incur a significant grade penalty (unless due to documented serious illness or family emergency). Exceptions to this policy will only be made when the assignment cannot reasonably be completed prior to the due date and you make arrangements for late submission in advance.

### **Classroom Norms**

Arrive to class on time and stay until the end of the class. Chronically arriving late or leaving class early is unprofessional and disruptive to the entire class. Repeated tardiness will have an impact on your grade.

Turn off all electronic devices prior to the start of class. Laptops, cell phones and other electronic devices are a distraction to everyone.

### **Midterm and Final Exam**

Both the midterm and the final exam are scheduled far in advance. Missing the midterm or the exam will translate to a grade of 0 (unless due to documented serious illness or family emergency).

In addition, coming late to an exam will not grant extra time.

## **STERN POLICIES**

### **General Conduct and Behavior**

NYU Stern expects that students will conduct themselves with respect and professionalism toward faculty, students, and others present in class and will follow the rules laid down by the instructor. Students who fail to do so may be asked to leave the classroom.

Students are also expected to maintain and abide by the highest standards of professional conduct and behavior. Please familiarize yourself with Stern's Policy in Regard to In-Class Behavior and Expectations and with the NYU Disruptive Behavior policy, which may be found online.

## **ACADEMIC INTEGRITY**

Integrity is critical to the learning process at NYU Stern. As members of our community, all students agree to abide by the NYU Stern Student Code of Conduct, which includes the following:

- Exercise integrity in all aspects of one's academic work including, but not limited to, the preparation and completion of exams, papers and other course requirements by not engaging in any method or means that provides an unfair advantage.
- Clearly acknowledge the work and efforts of others when submitting written work. Ideas, data, direct quotations, paraphrasing, creative expression, or any other incorporation of the work of others should be fully referenced.
- Refrain from behaving in ways that knowingly support, assist, or in any attempt to enable another person to engage in any violation of the Code of Conduct.

The entire Stern Student Code of Conduct applies to all students enrolled in Stern courses and can be found here: <http://www.stern.nyu.edu/uc/codeofconduct>

## **RECORDING OF CLASSES**

Your class may be recorded for educational purposes.

## **STUDENTS WITH DISABILITIES**

If you have a qualified disability and require academic accommodation of any kind during this course, please notify the instructor at the beginning of the course and provide a letter from the Moses Center for Students with Disabilities (CSD, 998-4980, [www.nyu.edu/csd](http://www.nyu.edu/csd)). If you will need to take an exam at the CSD, you must submit a completed Exam Accommodations Form to the CSD at least one week prior to the scheduled exam time to be guaranteed accommodation.