

**Graduate School of International Management  
International University of Japan**

**OPR 1010/6050: Operations Management**

**Instructor**

Tomoaki Shimada, Associate Professor of Operations Management at Kobe University

Office Hours: After class or by appointment

Email: [shimada@b.kobe-u.ac.jp](mailto:shimada@b.kobe-u.ac.jp) or [shimada@iuj.ac.jp](mailto:shimada@iuj.ac.jp)

**Course Description**

This course will introduce fundamental concepts and practices of operations management in service industries as well as manufacturing sectors. The primary objective of this course is to learn how to manage process flows between inputs and outputs. The topics include process management, operations strategy, inventory management, waiting line management, quality management, supply chain management, *etc.* Thus, the course is not only for operations managers but also for general managers who need to revamp business processes to establish competitive advantage.

The course consists of three main parts. In the first part (Session 1-3), we study core concepts in operations management. We define and investigate processes which transform inputs into outputs. We also review basic statistics which is related to the second part. In the second part (Session 4-7), we take a quantitative approach and analyze traditional problems in operations management (*i.e.*, inventory management and queueing analysis). In the last part (Session 8-10), we explore how to manage process flow variability. The topics include quality management and supply chain management. As a course methodology, I will give lectures and conduct interactive case discussions.

It is recommended that students take Applied Statistics course (QIS1020) before enrolling in this course, though Applied Statistics is not a prerequisite for this course. Session 2 will cover basic statistics which help understand inventory management and queueing analysis.

**Course Materials****Textbooks:**

- 1) (MBPF) “Managing Business Process Flows: Principles of Operations Management (2nd Edition)” by Ravi Anupindi, Sunil Chopra, Sudhakar D. Deshmukh, Jan. A. Van Mieghem, and Eitan Zemel (Pearson Prentice Hall, 2005).
- 2) “The Goal: A Process of Ongoing Improvement (3rd Revised Edition)” by Eliyahu M. Goldratt and Jeff Cox, (North River Press, 2004).

“The Goal” is a popular novel which is often used for a MBA-level operations management course.

**Cases:**

- 1) Shouldice Hospital Limited (Abridged) (HBS Case: 9-805-002).
- 2) Marks & Spencer and Zara: Process Competition in the Textile Apparel Industry (INSEAD Case: 602-010-1).
- 3) Laurence & Ralph: The Basic Economics of Capacity and Inventory (INSEAD Case: 602-018-1).
- 4) LongXi Machinery Works – Quality Improvement (A) (Ivey Case: 9A98D001).
- 5) Bose Corporation: The JIT II Program (A) (HBS Case: 9-694-001).

Reference Books:

These four books are for reference only, and not required for the course. The first two textbooks complement some topics in the operations management area. The second book is more quantitative than the first book. We use the first book for queueing analysis, but the second book shows how the formulae in queueing theory are derived. The third book, which was written by two professors in the Wharton School, introduces supply chain management as well as basic operations management. The last book is a required textbook for the Applied Statistics course. I will distribute necessary parts from the first textbook and the last book.

- 1) **(OMPVC)** “Operations Management: Process and Value Chains (8th Edition)” by Lee J. Krajewski, Larry P. Ritzman, and Manoj K. Malhotra (Pearson Prentice Hall, 2007).
- 2) “Production and Operations Analysis (5th Edition)” by Steven Nahmias (McGraw-Hill/Irwin, 2004).
- 3) “Matching Supply with Demand: An Introduction to Operations Management” by Gerard Cachon and Christian Terwiesch (McGraw-Hill/Irwin, 2005).
- 4) **(SBE)** “Statistics for Business and Economics (6th Edition)” by Paul Newbold, William L. Carlson, and Betty Thorne (Pearson Prentice Hall, 2006).

Articles (available in Business Source Premier):

Reading the following articles is optional, but they will be helpful for the case analyses.

- 1) “Disruptive Technologies: Catching the Wave” by Joseph L. Bower and Clayton M. Christensen (Harvard Business Review, January-February 1995).
- 2) “The Bullwhip Effect in Supply Chains” by Hau L. Lee, V. Padmanabhan, and Seungjin Whang (MIT Sloan Management Review, Spring 1997).

Lecture Notes:

Lecture notes will be available ahead of each session at [\\uij-home\IM-Materials\2007-2008\MBA1st\2008Winter\Operations Management](http://uij-home\IM-Materials\2007-2008\MBA1st\2008Winter\Operations Management). Since I do not distribute any material for this course, you need to print them out by yourself.

**Grading Scheme**

The course grade will be based on a weighted evaluation as follows:

Class Participation	15 points
Group Case Write-up	10 points
Midterm Exam (Covering Session 1 to 5)	35 points
Final Exam (Covering Session 1 to 9)	40 points
Total	100 points

**Class Participation**

You are expected to contribute to class discussions. The evaluation is based on the quality of your class participation rather than its quantity. I will NOT practice cold calling, but you should be well prepared for class participation. Otherwise, you will not have fun in this course.

**Group Case Write-up**

You are to form your own working group which consists of 4 or 5 students **during the break in Session 1**. Each group is required to submit a write-up for the case “Laurence & Ralph: The Basic Economics of Capacity and Inventory.” Specified questions are provided in the case study. However, **you need to solve only the first two questions and can ignore the last question**. The case write-up must be handed in by email **by the beginning of Session 5**. The report will be graded on a group basis. The working process for the case write-up in a group will help you prepare for the in-class midterm

exam in Session 6. For this reason, the evaluation of the group case write-up is based on how you derived the answers rather than whether your answers are correct or not.

### **Examinations**

The midterm exam covering Session 1 to 5 is scheduled in **Session 6**. The midterm exam contains multiple-choice questions only. The duration of the mid-term exam will be 90 minutes. The final exam covering Session 1 to 9 is scheduled in **Session 10**. The duration of the final exam will be 120 minutes. **Both exams are open-book/notes, and a calculator/dictionary is permitted.** However, a notebook PC, a mobile phone, or any other electronic/communication device is not allowed. In other words, sharing/discussing answers during the exam are strictly prohibited. Sharing your belongings (e.g., notes or books) during the exam is also prohibited.

### **Guest Speaker**

The guest speaker has not been confirmed yet. The detailed information about the guest speaker will be provided later.

### **Class Schedule**

#### **Part I: Basic Concepts**

##### **Session 1**

##### **Topic: Process Management and Operations Strategy**

- *Course Overview*
- *Products and Processes*
- *Foundation of Operations Strategy*

Readings: (MBPF) Chapter 1 and 2

Case: Shouldice Hospital Limited

##### **Session 2**

##### **Topic: Review of Basic Statistics**

- *Normal Distribution*
- *Exponential Distribution*
- *Poisson Distribution*

Readings: (SBE) pp. 160-165; 188-218

##### **Session 3**

##### **Topic: Process Flow Analysis**

- *Various Process Flows*
- *Little's Law*
- *Theory of Constraints (Bottlenecks)*

Readings: (MBPF) Chapter 3

(The Goal) pp. 1-161 <until the end of Chapter 19>

#### **Part II: Quantitative Analysis**

##### **Session 4**

##### **Topic: Inventory Management I**

- *EOQ (Economic Order Quantity)*
- *Reorder Point Policy*
- *Safety Inventory and Service Level*

Readings: (MBPF) Chapter 6 and 7

**Session 5**

**Topic: Inventory Management II**

- *Pooling Inventory*
- *Newsvendor Model*
- *Review of Inventory Models*

Readings: (MBPF) Chapter 6 and 7 <Same as Session 4>  
(Article) Disruptive Technologies: Catching the Wave

Case: Marks & Spencer and Zara  
Laurence & Ralph (**Case Write-up Due**)

**Session 6**

**Topic: Midterm Exam and Guest Speaker's Talk**

- *Midterm Exam*
- *Guest Speaker's Talk (subject to his/her schedule)*

**Session 7**

**Topic: Queuing Analysis**

- *Waiting Line Management*
- *Single-Server Model*
- *Multiple-Server Model*

Readings: (OMPVC) Supplement C, pp. 276-295

**Part III: Qualitative Analysis**

**Session 8**

**Topic: Quality Management**

- *TQM (Total Quality Management)*
- *Statistical Process Control*
- *Six-Sigma*

Readings: (MBPF) Chapter 9

Case: LongXi Machinery Works

**Session 9**

**Topic: Supply Chain Collaboration**

- *Supply Chain Coordination Programs*
- *Bullwhip Effect*
- *(Supply) Push vs. (Demand) Pull*

Readings: (MBPF) Chapter 10  
(Article) The Bullwhip Effect in Supply Chains

Case: Bose Corporation

**Session 10**

**Topic: Course Review and Final Exam**

- *Course Review*
- *Final Exam*