

SCM 6397 (25382)
Topics in SCM: Demand and Supply Integration
Fall 2013
Bauer College of Business; University of Houston
Department of Decision and Information Systems

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Class Time: Wednesday 6:00-9:00pm

Office Hours: Wednesday 4:15-5:30pm, 9:00-10:00pm (or by appointment).
Tuesday & Thursday 4:15-5:30pm

COURSE DESCRIPTION

Supply chain management is the integrated management of the flow of materials, products, services, and cash from the suppliers all the way to the customers and often from the customers back to the suppliers. Due to the large-scale and complex nature of supply chains, effective management of these flows is a challenging task and requires integration within the firm and across the supply chain. This is often referred to Demand-Supply Integration, where the challenge is to balance the customers' demand characteristics with the supply chain's capabilities for providing product. This is accomplished by strategically managing both the customer's demand characteristics and supply chain processes. This requires a deep understanding of a firm's distribution and manufacturing planning and control (DMPC) systems (which are embedded in Enterprise Resource Planning (ERP) systems in a great number of organizations) and how they can be tailored to provide competitive advantage.

COURSE OBJECTIVES

This course provides an understanding of the strategies and techniques used to obtain demand and supply integration. Specifically, the focus is on (1) the components comprising the DMPC and their integration and (2) alternative strategies for balancing demand and supply.

COURSE TEXTBOOK AND OTHER MATERIALS

Textbook: *Manufacturing Planning and Control for Supply Chain Management- APICS/CPM Certification Edition* by Jacobs, F. R., Berry, W. L., Whybark, D. C. and Vollmann, T. E. (2011). ISBN 978-0-07-175031-8

Case studies: There is a course page created on Harvard Business Online for you, where you can access the cases required for the course. You will have to register with Harvard Business Online to get access to the cases the easiest and the least expensive way.

STRUCTURE OF THE COURSE

This course meets only once per week. Hence, every session is important. In class activities will be designed to explain the material covered by the cases and readings. However, in class activities only enhance the materials found in the texts, not replace them. You must read the assigned course material!

Suggested problems, quizzes, case studies and examinations provide an opportunity to apply the concepts developed in course and demonstrate knowledge of the material.

GRADES

A 100 point scale is used for this course. Grades will be made up of the following items:

Mid-term Examination: In-class examination which measures the mastery of the course material. Each student will be allowed to use a regular calculator during the exam. The exam format will be a combination of short problems, short answers and multiple choice questions.

Final Examination: In-class examination which measures the mastery of the course material. Each student will be allowed to use a regular calculator during the exam. The exam format will be a combination of short problems, short answers and multiple choice questions. This exam draws on all material covered in the class. However it draws primarily on material covered after the Mid-term Examination.

Quizzes: There will be several announced and unannounced quizzes during the semester. Each will entail knowledge of materials already assigned or discussed in class. At the end of the semester, the lowest quiz grade will be dropped. If you miss a quiz (e.g. for illness, job interview or any other circumstances), that quiz will count as your lowest quiz grade and will be dropped at the end of the semester.

Case Analysis: Each student will be assigned to a team for case analysis. The team will prepare the case for in class presentation and present their analysis in class. The presenting team should provide copies of the power point slides and other relevant material to each class member prior to the case presentation.

In Class Performance: I view each class meeting as a business meeting. During this time the course material and topic will be discussed. Each student is expected to actively participate during class meetings. Your contributions toward advancing the class' understanding of the course material provide the basis for you in class performance grade. The quality of ones contributions versus the quantity of contributions weighs more heavily in demonstrating a high level of in class participation. Insightful analysis of the day's topics is a plus. Class attendance alone does not indicate in class performance—you must make a contribution to class learning.

Grade Calculation:	<u>Percentage</u>
Mid-term Examination	30%
Final Examination	30%
Case Analysis	15%
In class performance	15%
Quizzes	<u>10%</u>
Total	100%

In determining the final course grade, the following scale is used to convert points into letter grades:

A =	93 - 100 %	C+ =	78 < 80 %
A- =	90 < 93 %	C =	70 < 77 %
B+ =	88 < 90 %	D =	60 < 69%
B =	80 < 87 %	F =	0 < 59%

MAKE-UP EXAM POLICY

The syllabus contains the dates of the examinations so that you can schedule your other activities around these dates. If a major exam is to be missed due to an approved university absence, you should inform the instructor as soon as possible prior to the exam (if not possible, no later than 24 hours after the exam). A make-up exam will then be scheduled as soon as possible. The make-up exam will cover all the material presented up to the date of the make-up exam. The format of the exam may be different than the original exam format.

GENERAL POLICIES

1. **Office Hours:** I will have regularly scheduled office hours. If for some reason you need to meet at an alternate time, please contact me so we can make arrangements to meet. You are encouraged to contact the professor at the first sign of any problem or lack of understanding. Do not wait until it is too late!
2. **Technology in class:** Please note that computer use and Internet network access is not granted for the purpose of 'surfing the Web', 'checking e-mails' or instant messaging during class times as this behavior is unprofessional, and fails to meet the standards of the business program. The sole purpose of allowing Internet access during class times (when necessary) is to enhance the overall learning environment by providing electronic access to relevant class related material.
3. **Study Groups:** I strongly encourage students to form study groups for the course. This will provide a resource for information should you miss class, a venue for discussing assignments, and a study group for exams.
4. **Blackboard Learn:** Course materials, announcements, grades or changes to the course outline will be posted on Blackboard Learn. It is the student's responsibility to check Blackboard before every class period for important announcements, class notes, emails, grades and changes to the course schedule.
5. **Academic Dishonesty:** Scholastic Dishonesty is defined as (1) Acquiring or attempting to acquire information from others (e.g., observing the work of others during an exam), (2) Providing others with information on quizzes/exams; (3) Plagiarism, (4) Conspiracy to commit any of the above, (5) Fabrication of information. The University of Houston honor code statement applies to all students in this class. For more information, see Bauer Academic Honesty on <http://www.bauer.uh.edu/current/academic-honesty.asp>. Any student caught providing or receiving assistance on an exam/quiz will immediately be given a grade of "F" for the course.
6. **Students with Disabilities:** Any student who feels s/he may need an accommodation based on the impact of a disability should contact the professor privately within the first two weeks of classes to discuss his/her specific needs. The student also needs to contact the Center for Students with Disabilities (contact information is below) within the first two weeks for coordinating accommodations.

Justin Dart Center for Students with Disabilities
CSD Building #568, Room #110
University of Houston
Houston, Texas 77204-3022
Phone: (713) 743-5400
TDD: (713) 749-1527

HAVE A GREAT SEMESTER!

Course Schedule and Topics

Aug 28: Course Overview and Introduction to Demand-Supply Integration

Read:

1. Supply Chain Management lecture notes
2. Chapter 1: Material Planning and Control
3. Learn by Case Method
4. The Normal Distribution: (This is a refresher from your statistics course. Please review it and be sure you can work the problems. The Normal Distribution is the most widely used distribution in supply chain, operations and project management.)

Sept 4: Demand Management

Read:

1. Chapter 2: Demand Management

Discussion Questions:

- a. Explain the components of Manufacturing Planning and Control Systems and how they relate to demand management. (see Figures 1.1 and 2.1)
 - b. What is the difference between “planning” and “execution” phases of demand management?
 - c. The “customer order decoupling point” can be looked at as the point at which demand changes from independent to dependent demand. Explain what this means and why it is important?
 - d. How do MTS, ATO and MTO relate to the customer order decoupling point?
 - e. Collaborative Planning, Forecasting, and Replenishment (CPFR) attempts to improve communications between customers and suppliers in forecasting product demand. How does it work?
2. “What is the Right Supply Chain for Your Product? Fisher, Marshall. *Harvard Business Review*. March/April 1997, p105-116.”

Discussion Questions:

- a. What are the basic differences between functional and innovative products in terms of demand characteristics and the features of the supply chain that is best suited for each product type?
 - b. How does the ‘Matrix’ on page 109 help a company evaluate their supply chain?
3. “Rapid Fire Fulfillment, Ferdows, Kasra; Lewis, Michael A.; Machuca, Jose A.D. *Harvard Business Review*. Nov2004, Vol. 82 Issue 11, p104-110.

Discussion Questions:

- a. Explain the key elements of Zara’s demand and supply integration strategy? How do they manage the customer decoupling order point to provide wide product variety within a short lead-time?
- b. What could a company such as Levi Straus or Nike learn from Zara?

Sept 11: Forecasting and Planning for Medium and Long-term Demand

Read:

1. Chapter 4, Medium and Long-term Forecasting Techniques, Simple Regression Analysis, pages 75-91.
2. Forecasting Lecture Notes: Medium and Long-Term Forecasting
3. Forecasting Problem Set: Medium-Term Forecasting: (Problems to be assigned.)
4. See the following website to see how leading economic indicators can be used in medium/long term forecasting.

<http://usatoday30.usatoday.com/money/economy/story/Economic-Outlook/35290148/1>

Sept 18: Short-term Demand Forecasting

Read:

1. Forecasting Lecture Notes: Short-Term Forecasting
2. Chapter 4, pages 91-105
3. Forecasting Problem Set: Short-Term Forecasting (Problems to be assigned.)

Sept 25: Managing Inventory at the Point of Sale: Newsvendor and Order Point Systems

Read:

1. Inventory Lecture Notes: Single Period and Economic Order Quantity
2. Chapter 16: Order Point Inventory Control Methods
3. Inventory Problem Set (Problems to be assigned)

Oct 2: Managing In-stock Service Level and Periodic Review Systems

Read:

1. Inventory Lecture Notes: Setting Safety Stock and Periodic Review Systems

Forecasting in multi-echelon systems: POS versus Order Data

Read

1. Lecture Notes: Forecasting: POS versus Order Data
 - a. What is the proper application of POS and Order based forecasts?
 - b. What error metric should be used when planning short to medium term requirements for capacity planning?
 - c. Which error metric should be used when planning inventory safety stocks?

Oct. 9: Demand Management in Practice

Case: L.L. Bean, Inc.

Discussion Questions:

1. How does L.L. Bean use past demand data to determine how many units of an item to stock?
2. What item costs and revenues are relevant to the decision of how many units of the item to stock?
3. What information does Scott Sklar need to help him arrive at a demand forecast for a particular style of men's shirt that is a new catalog item?
4. How would you address Mark Fasold's concern that the number of items purchased usually exceeds the number forecast?
5. What should L.L. Bean do to improve its forecasting process?

Revenue Management

Read:

1. "Revenue Management," http://en.wikipedia.org/wiki/revenue_management
2. "Yield Management," http://en.wikipedia.org/wiki/Yield_management
3. "Introduction to the Theory and Practice of Yield Management", *INFORMS Transactions on Education*, 3:1 (34-44).

Discussion Questions:

- a. What is the basic objective of Revenue Management?
- b. What are the basic assumptions underlying Revenue Management?
- c. What are the benefits/drawbacks of Revenue Management to the firm? Customer? Examples.

Oct 16: Examination 1

Oct 23: Sales and Operations Planning

Read:

1. Chapter 5, Sales and Operations Planning, pages 115-142
2. Caselette: Farm Aid Aggregate Planning

Oct 30: Master Production Scheduling (MPS)—Determining how much to make of each item.

Read:

1. Chapter 7, Master Production Scheduling
2. MPS Problem Set

Nov 6: Material Requirement Planning (MRP)—Getting the right part at the right time to support the MPS

Read:

1. Chapter 8, Material Requirements Planning
2. MRP Lecture Notes

3. MRP Problem Set

Nov 13: No Class: Work on Case Presentations

Nov 20: Team Case Presentations

Case: Managing with Analytics at Proctor & Gamble

1. Describe P&G's restructuring initiative including, objectives and the four independent global organizations. What did they hope to achieve?
2. How did Passerini structure the Global Business Services (GBS) organization with respect to Information Technology? What role did centralizing GBS and keeping IT activities in-house play?
3. Describe objectives and characteristics of the Information and Decision Solutions (IDS) group. How did IDS support the Global Business Units (GBU)?
4. Describe the forecasting and Business Sufficiency Models developed by IDS. How are they applied? What impact did they have on P&G's culture?
5. What advice can you provide Alan Torres with respect to detergent forecasts and the planned roll-out of the compacted detergents?

Case: Playa Dorada Tennis Club: Expansion Strategy

1. What is the dilemma facing Douglas Hall? What are his options?
2. How many tennis courts will be needed in March 2007 and April 2007? In March 2008 and April 2008? (Assume the growth rate stays the same.) How does that requirement compare to present capacity?
3. What should Douglas Hall do for the coming season? For next year?
4. What are the implications for future of tennis at PD Resort?

Nov 27: Thanksgiving Break – No class

Dec 4: Case Presentations (continued)

Case: Four Star Industries Singapore –Managing the MPS

1. What are the problems facing Four Star Industries in the mattress manufacturing operations?
2. How does increasing mattress variety impact four Star's operations?
3. Analyze the various courses of action that Sia Meng is contemplating to solve the operations problems. How effective will these actions be?
4. Discuss possible ways in which Four Star can reconfigure its product design, manufacturing and order fulfillment strategies. How will this help to solve its operational problems?

Case: Alden Products, Inc.—European Manufacturing

1. Looking back, do you agree with the logic that let API in 1962 to consolidate its European production into a single facility?
2. What is your evaluation of the Uniplant's performance during the 1980's?
3. What recommendations would you make to Mr. Genet, API-Europe's Executive V.P., as regards the operations strategy his organization should follow in the future? Specifically, how much additional production capacity should be provided, where should it be located, and how should it be managed?

Case: Amazon.com's European Distribution Strategy

1. Outline the development of Amazon focusing on the objectives and supply chain initiatives at each stage of their development.
2. Determining the decentralization and centralization of the organizational structure and physical supply chain of multi-national companies plays a central role in strategic planning. What are the major tradeoffs that must be addressed in answering these questions?
3. What recommendations can you provide Tom Taylor as he ponders what changes Amazon needs to make to sustain its growth in Europe?

Dec 11 or 18 **Final Examination**