DRAFT for Fall 2006

General Course Information:

B60 2306.10 Supply Chain Management
Wednesdays 6:00 pm to 9:00 pm
K-MEC 4-80

Instructor Information:

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Reading Materials

Required

- All the readings and cases are contained in the case packet and will be supplemented by class lectures:

1. Coursepack: cases and readings.
2. *Supply Chain Management – Strategy, Planning, and Operation* by Chopra and Miendl, 2nd Edition, Prentice Hall, Inc., 2004.

Supply Chain Management – Strategy, Planning, and Operation (henceforth referred to as SCM-CM) will be the main text I will follow. I have assigned various chapters to read for every class (see Outline). I expect you to skim through the assigned material before class, and to carefully read the text throughout the term, preferably as we progress through the course.

Course Description

The function of supply chain management is to design and manage the processes, assets, and flows of material and information required to satisfy customers' demands. Supply logistics related costs account for 20-25% of a typical firm's total cost. On the revenue side the supply chain decisions have a direct impact on the market penetration and customer service. Globalization of the economy and electronic commerce has heightened the strategic importance of supply chain management and created new opportunities for using supply chain strategy and planning as a competitive tool. Electronic commerce has not only created new distribution channels for consumers but also revolutionized the industrial marketplace by facilitating inter-firm communication and by creating efficient markets through trading communities. Moreover, the combination of enterprise information infrastructure and the Internet has paved the way for a variety of supply chain optimization technologies.

Prerequisites

The core Operations Management course is the prerequisite.

Course Objectives

The objectives of this course are:

1. To develop an understanding of key drivers of supply chain performance and their inter-relationships with strategy and other functions of the company such as marketing, manufacturing and accounting.

2. To impart analytical and problem solving skills necessary to develop solutions for a variety of supply chain management and design problems and develop an understanding of information technology in supply chain optimization.

3. To understand the complexity of inter-firm and intra-firm coordination in implementing programs such as e-collaboration, quick response, jointly managed inventories and strategic alliances.

4. To develop the ability to design logistics systems and formulate integrated supply chain strategy, so that all components are not only internally synchronized but also tuned to fit corporate strategy, competitive realities and market needs.

Method of Instruction

I shall use a mixture of lectures and case discussion. Speakers from the industry will be invited to share their views on emerging supply chain design and management trends.

I expect each student to read the assigned material before class, discuss the case if scheduled within the group, and actively participate in the class discussions.

Method of Evaluation

Please see below.

- GRADING
- WRITTEN ASSIGNMENTS / SUBMISSIONS
- IN-CLASS PARTICIPATION/CONTRIBUTION
- ELECTRONIC DISCUSSION BOARD
- FINAL PROJECT
- FINAL EXAM
- STUDENT INFORMATION FORM
- TEXT AND CASE/READING PACKET

GRADING

The grade you receive for the course is intended to certify your demonstrated proficiency in the course material. Proficiency will be estimated by measuring your performance on (1) written assignments / submissions, (2) in-class contribution , (3) online contribution (discussion boards - group and common), (4) final project, and (5) a final exam. Your course grade will be based on a weighted evaluation of the following categories:

Written Assignments/submissions	25%
In-Class Contribution	25%
Final Project	25%
Final Examination	25%

WRITTEN ASSIGNMENTS / SUBMISSIONS: CASE WRITEUPS (25%)

Case reports are due with regard to the specific cases as identified in the syllabus. They are due at the beginning of the class session for which they are assigned.

The reports are graded for both content and presentation. A good paper should clearly and succinctly state the recommendations in the first paragraph to provide the reader with a framework. (If a lengthy description of the recommendation seems necessary, append it to the report.) The remaining paragraphs should each present a major part of the rationale for the recommendation in terms of the desirable and undesirable consequences of adopting it. The rationale must consider capabilities that the logistics system under study needs to excel at, and how the current system either provides these capabilities or fails to provide them.

Some common problems in preparing reports:

- ***Presentation related***: **A good report is not a chronology of analysis (i.e., answering the questions listed in sequence), but a clearly articulated statement of recommendation and support**. If there are options under consideration in the case that are rejected by you, a clear rationale for your decision should be provided. Facts stated in the case need not be restated unless used to make a point. I will assume that the most important issues are raised in the report and that all else is less important to the writer. Both desirable and undesirable consequences should be

factually stated and supported. In the overall evaluation of the report the discussion of all consequences of the recommendation is of the greatest importance. You must clearly discuss how your recommendations aid in the development of capabilities that are important for the logistics system under study.

- **Analysis related**: Other reports suffer from inadequate analysis. Analysis for a report is a time consuming and intellectually challenging task. Each case has a set of questions that are essentially a guide to help you with the analysis. The objective is to evaluate a complete range of alternatives and anticipate and discuss the full consequences of your recommendation.

Reports should be typed with 1.5 line-spacing and should not exceed 4 pages, not including appendices and exhibits. Exhibits appended to the reports need not be typed, but should be neat and easy to understand. As per the honor code, an individual should include his/her name on a report only if they have contributed to the analysis.

All case write-ups should be done in teams of no more than *five* members in order to strike a balance between the benefits derived from group work and the cost due to increased logistical complexity.

The honor code stipulates that you may put your name on a write-up only if you contributed to the team's discussion. Furthermore, you may not refer to case writeups from classes offered in earlier semesters. The premise of *academic integrity* is that ideas should be attributed to their source. Therefore, please acknowledge the main source(s) of data, facts, and ideas (other than the instructor) in all your written work and when you make a presentation.

As the course progresses and before any case assignment is due, please check your email and the Web for course files (spreadsheets, etc.) and any announcements.

IN-CLASS PARTICIPATION / CONTRIBUTION (25%)

In a typical class session, one or more students will be asked to begin discussion of a selected topic. I expect you to be prepared before coming to class, especially on the dates we will have a case discussion. The criteria I will use to judge effective class participation include:

- Is the participant a good listener?
- Are points made relevant to the class discussion?
- Are they linked to the comments of others?
- Do the comments show clear evidence of appropriate and insightful analysis of the case data? Is there a willingness to participate?
- Is there a willingness to test new ideas?
- Do comments clarify and highlight important aspects of earlier comments and lead to a clearer statement of the concepts being covered?
- You might to focus on the question in red when analyzing the case for class discussion.

ELECTRONIC DISCUSSION BOARD:

I will set up an electronic discussion board. You can post your contributions on topics related to supply chain management. You can also post your comments on cases to be discussed in class. ***Your postings will be taken into account when determining the class contribution grade.***

FINAL PROJECT (25%):

KEY DATES: (PROPOSAL DUE): October 19, 2005 (REPORT DUE): December 21, 2005

The final project can be done individually or in groups (It would be best to use the same groups that you are using for class assignments. However this is not a requirement). **The project will account for 25% of the overall grade. The project is due in the last class. All reports should be typed with a maximum of 15 pages (1.5 line-spacing, 11 or 12 pt. Font).**

Submit a **powerpoint** presentation of your final project along with your final report.

Another important deadline is October 19 when I expect a one page proposal from each group about their project. My objective at this stage is to make sure that you have decided by this stage on a specific project so that you can spend the remaining six weeks working on it.

There are three possible outcomes from a project report as follows:

- To analyze an existing logistics process and suggest any improvements that need to be made. Examples include a study of the distribution system and store deliveries at McDonalds, design of a logistics system for a manufacturer of refrigeration equipment, and an analysis of intermodal movement for a railroad.

- To study supply chain practices in industry from the point of describing risks, benefits, best practices along with industry examples of each.

- To identify a business opportunity (for example selling furniture on line) involving a product and build a business plan with a focus on supply chain issues. The goal is to identify the business opportunity and design the ideal supply chain for it. The project should include implementation details.

My expected outline for the three types of projects are discussed below:

Analyze an existing supply chain process and suggest improvement

The project report should not be a detailed description of everything you have done but a specific set of observations and recommendations. It should begin with an executive summary no longer that 250 words. All details are to be put in an appendix in the form of exhibits, tables etc. The general guidelines for the project are as follows:

1. Executive summary

2. Define the process and the context (business unit) in which it operates.

3. What is the strategy / market of the business unit?

4. What does this imply in terms of the supply chain process you are studying? What must this process be able to do particularly well in terms of cost, time, quality, and flexibility? The headings mentioned here are broad. You are expected to identify specific dimensions along which the process is expected to do particularly well.

5. Describe the current process structure in terms of information, inventory, transportation, and location.

6. Discuss the process capabilities, given the current structure, in terms of the specific dimensions identified by you in 4.

7. Discuss existing problems and weaknesses in the current process. What additional capabilities does the process need to develop.

8. How should the process be restructured to develop these capabilities? Discuss why the changes suggested by you will have the desired effect along the key dimensions identified by you.

9. Discuss how the suggested changes should be implemented with a time line. Explain any resistance you may face in implementing the changes.

Please note that these are general guidelines. I am not looking for a project report with nine points in the sequence listed above. I have listed the points that I feel are important in most reports. Please feel free to add to or alter the above list as best fits your project.

Study supply chain practices in industry

The objective here is to study supply chain practices in industry such as

§ E-commerce and it's impact on logistics and supply chain in an industry or company
§ EDI Systems including other supporting systems that it makes possible, e.g. CAO (computer assisted ordering systems) etc.
§ Coding and Scanning Technologies (Bar coding, SCM, etc.), RF
§ Third party logistics
§ Warehouse design and management
§ Closed-loop supply chains
§ Revenue management practices
§ Risk management practices
§ Global Outsourcing: Trends and prospects

Please do not restrict yourself to the above list. It is meant simply as a starting point. In each report I expect the following:

1. A description of the supply chain practice including its key elements and its role in the overall supply chain
2. Major benefits of the practice.
3. Major risks/cost of the practice
4. Key issues in designing and implementing the practice
5. Which companies is this practice ideally suited for? Which companies may it not be suitable for?
6. Examples of companies that are successfully using the practice including best practices.
7. Examples of companies that have been unsuccessful in their implementation of the practice and possible reasons.

Once again, please do not feel bound by the above structure. It is simply meant to help you get started.

Build a business plan with a product focus

The objective of this report is to identify a business opportunity (preferably on the web) involving products where supply chain issues are significant. This could be done for a particular company or an industry in general. The business plan should detail the supply chain opportunity and how it will help the business position itself strategically. The report should also detail implementation issues.

FINAL EXAM (25%)

The final exam will be comprehensive and take home. Sample questions will be provided during the latter part of the semester.

STUDENT INFORMATION FORM

Please download the following form at http://www.stern.nyu.edu/om/scm/seshadri/sform.doc, fill it out giving information about yourself, and submit a HARD COPY to me in the first class session.

TEXT AND CASE/READING PACKET

The course is delivered through a combination of lectures and cases. All the readings and cases are contained in the case packet and will be supplemented by class lectures. Required materials available at the professional bookstore

1. Coursepack: cases and readings. This will be labeled CP. Available after September 15 2005.
2. *Supply Chain Management – Strategy, Planning, and Operation* by Chopra and Miendl, Prentice Hall, Inc., 2nd edition, 2004.
3. Files available on the web (Blackboard) will be labeled WP.

Supply Chain Management – Strategy, Planning, and Operation (henceforth referred to as SCM-CM) will be the main text I will follow. While I have assigned various chapters to read for every class (see detailed syllabus later), I do not expect you to read these chapters thoroughly BEFORE class (especially, the technical material from Chapter 4 onwards). I expect you to read these portions during the term, preferably as we progress through the course. I will provide a detailed reading guide (giving specific sections to read, material to focus on, list of suggested problems, etc.).

USE OF EXCEL FOR MODELING

I will make use Excel workbooks during the course as part of the lecture discussion. These can be downloaded from the web site listed above. If you have a laptop, try and bring it to class with these files so you can also work along as I use them in class. This is not a requirement but you may find it useful.

Some other textbooks on the subject that may be of interest:

1. *Modeling the Supply Chain* by Jeremy F. Shapiro.
2. *Designing and Managing the Supply Chain* by D. Simchi-Levi, P. Kaminsky, E. Simchi-Levi.
3. *Inventory Management and Production Planning and Scheduling* by Edward A. Silver, David F. Pyke, and Rein Peterson
4. *Business logistics Management* by Ronald H. Ballou
5. *Strategic Logistics Management* by D.M. Lambert and J.R. Stock.
6. *The Management of Business Logistics* by J.J Coyle, E.J. Bardi and C.J. Langley.
7. *Logistical Management* by D.J. Bowersox, D.J. Closs, O.K. Helferich.

8. Manufacturing, Planning & Control for Supply Chain Management, 5th edition, Vollman, Berry, Whybark and Jacobs, McGraw Hill Irwin, 2005.

Other business books that may be of interest to students taking this course:
1. *Clock Speed* by Charles H. Fine
2. *Mass Customization* by B. Joseph Pine
3. *Markets of One* by James H. Gilmore and B. Joseph Pine
4. *Towards a Better Supply Chain* by Charles C. Poirier
5. *Time Based Competition* by Joseph D. Blackburn
6. *Competing Against Time* by George Stalk, Jr. and Thomas H. Hout
7. *Balanced Sourcing* by Timothy M. Laseter
8. *The World is Flat* by Thomas L. Friedman.

Session 1 September 21

Topic: INTRODUCTION TO SUPPLY CHAIN MANAGEMENT and THE SUPPLY CHAIN MANAGEMENT FRAMEWORK

Class Plan:
Introduction and Overview of the course: In this session we will discuss supply chain management and its importance to the success of a firm. We will discuss various ways to view a supply chain. We will also raise a variety of supply chain related questions that need to be answered by any firm. We will provide a framework within which supply chain drivers may be analyzed and appropriate trade-offs considered. We will illustrate the strategic framework for supply chain decisions in the context of the ChemBright, Inc. case in this session.

Assignments Due:
Please read the first three chapters of the text.
Case (CP): ChemBright, Inc.
Consider the following questions for discussion especially the italicized question:

1. *What is your evaluation of ChemBright's strategy? How sound is the business at this point? What changes could Steve Vitale make to improve company profitability?*
2. What should Steve Vitale do about the price war?
3. If this threat is surmounted, what avenues of expansion appear most promising for ChemBright?

Required Readings:
SCM-CM: Chapters 1-3 -
1. *Get Leverage from Logistics*, Harvard Business Review, May-June 1984.
2. *Tailored Logistics: The Next Advantage*, Harvard Business Review, May-June 1993.

Related links are as follows: Supply Chain and Strategy
http://www.stern.nyu.edu/om/scm/seshadri/download.html - strat.

Session 2 September 28

Topic: INVENTORY MANAGEMENT IN SUPPLY CHAINS: ECONOMIES OF SCALE & UNCERTAINTY

Class Plan:
We start this module with discussion on the management of inventory in the supply chain to ensure fit with stated strategic goals. Our focus will be to understand key inventory related levers that may be used to improve the performance of a supply chain. We will first review the effects of economies of scale (you

probably saw this in the Operations Management core), discuss the effect of volume discounts and short term discounts on order sizes and thus inventory and flow times in the supply chain. We shall discuss the impact of quantity discounts and other inventory incentives on supply chain performance in this session. We shall also discuss ordering multiple items.

Assignments Due:

Case (download): *GLENVIEW SUPPLY COMPANY*
http://www.stern.nyu.edu/om/scm/seshadri/GlenviewSupplyCo.pdf

Consider the following questions for discussion especially the italicized question:

Comment on Martin's claim: "I can't see why it requires any more inventory to keep a one month's supply on hand in four branches and a main location than it did to keep a month's supply on hand back at just the main location. A month's supply is a month's supply no matter how you look at it."

You can use the following information in answering this question (assume that demand is steady, i.e., there is no uncertainty in demand):

(a) Each warehouse of Glenview faces a demand of 5000 units (drives) per week. The warehouse incurs a fixed cost of $20,000 every time it places an order. The marginal cost of a drive is $250, and Glenview's cost of capital is approximately 20%. What order size would you recommend for the warehouse? What will be the total annual ordering and holding cost?
(b) If Glenview closes all four warehouses, all demands will be met directly from the factory's warehouse. Assuming that order costs remain the same, what is the economic order quantity at the factory's warehouse? What will be the annual holding cost?
(c) What do you think of the traffic manager's suggestion that they ship via air?

Required Readings:
SCM-CM: Chapter 10 -

Download: Excel File containing inventory examples
http://www.stern.nyu.edu/om/scm/seshadri/invex-se.xls

Play with the workbook invex.xls associated with examples in the book chapter. These examples will be discussed in class using the workbook.

Related Links: Inventory management topics
http://www.stern.nyu.edu/om/scm/seshadri/download.html - inv

Recommended Readings:
Sample problems - - Download sample inventory problems set.
http://www.stern.nyu.edu/om/scm/seshadri/inv-problem-set.pdf

Session 3 October 05
Topic: DEALING WITH UNCERTAINTY: CENTRALIZATION & RISK POOLING
Class Plan:
We will continue our discussion on Inventory Management to study impact of supply and demand uncertainty. We will try to characterize products by demand characteristics (highly uncertain to stable) and see how appropriate purchasing decisions can be made. In addition, we will introduce the powerful concept of risk pooling in managing inventory. We shall also discuss periodic review inventory systems and computation of fill rate performance measures. We shall touch upon mitigating inventory risk using financial instruments.

Assignments Due:

Case: GLENVIEW SUPPLY COMPANY. Consider the following questions for discussion especially the italicized questions:

(a) The lead time from when the warehouse places an order to when the order is received is two weeks. If demand is stable as before, when should the warehouse place an order?
(b) Glenview has 4 warehouses each of which experiences a demand that is not steady from one week to the next. Weekly demand at any warehouse is in fact normally distributed with a mean of 5,000 and a standard deviation of 1,500. Glenview's order lead time is two weeks. Fixed order costs are $20,000/order and it costs $50 to hold one drive in inventory during one year. If Glenview uses the ordering policy discussed in (a) above, what will the probability of running out of stock in a given cycle be?
(c) Glenview would like this probability to be no higher than 5% for customer satisfaction. What ordering policy would you recommend for Glenview?
(d) What is the total inventory held in the decentralized network of four warehouses and what is the total relevant cost based on your answer to (c)?
(e) How about the centralized system in which all demand is met from a single centralized warehouse? What are its operating characteristic and resulting inventory investment and operating costs if the central warehouse offers a CSL of 95%?
(f) Should the transportation modes be switched to ground transport?

Required Readings:
A Note on Periodic Review Policy in Inventory System (download)
http://www.stern.nyu.edu/om/scm/seshadri/periodic-review.pdf

SCM-CM: Chapter 11 -

- Managing Supply Chain Inventories: Pitfalls and Opportunities, Hau L. Lee and Corey Billington, Sloan Management Review, Spring 1992.
- **Related Links**: Inventory management topics
  http://www.stern.nyu.edu/om/scm/seshadri/download.html#inv

Session 4 October 19
Topic: DISTRIBUTION SYSTEM DESIGN

Class Plan:
In this session we will apply all the concepts we have learned so far in the redesign of a distribution system via the ALKO case.

Assignments Due:
Case: Managing Inventories at ALKO, Inc. (SCM-CM: Chapter 11, pages 335-337). Your formal **report** should address the questions at the end of the case in the book.

One page project proposal due in class today!

Required Readings:
SCM-CM: Chapter 11
Topic:
INTRODUCTION TO THE NEWSVENDOR PROBLEM
Class Plan:
Our ability to manage inventory effectively depends critically on uncertainty, supply lead times, and product life-cycles. Long supply lead times and short product lifecycles characterize fashion goods. Even

in staple consumer goods, today's environment is characterized by explosion of variety. How to manage inventory / procurement in such settings is the primary focus of this session.

The workbook newsboy.xls to help you simulate various ordering policies. Play with the workbook before the lecture to get a feel for the different issues involved in ordering under uncertainty.

Session 5 October 26
Topic: RESPONSIVE SUPPLY CHAINS: ACCURATE RESPONSE

Class Plan:

We will discuss accurate response in the context of a case and explore issues in global sourcing. We will illustrate the notion of accurate response using the Sport Obermeyer case. This is most appropriate for products with highly uncertain demand. We will discuss the role that high cost, low cycle time suppliers can play for a firm that competes on low cost. This will relate back to the role of a small order emergency supplier in a supply chain.

Assignments Due:

Read the Sport Obermeyer (HBS# 9-695-022). Your formal **report** should address the italicized questions:

1. What makes supply chain management at Sport Obermeyer so challenging?

2. *Describe the factors that you would use in determining which and how much of the styles that Wally should make during the initial phase of production.*

3. *What operational changes would you recommend to Wally to improve Obermeyer's performance?*

Use the following questions when preparing your case report. ***Ignore price differences among styles in your analysis.***

1. Using the sample data in Exhibit 10, make a recommendation for how many units of each style Wally Obermeyer should order during the initial phase of production. Assume that there is no minimum order size requirement, and that Obermeyer's initial production commitment must be at least 10,000 units. Assume that an initial order of 10,000 units leaves sufficient capacity for the second order.

2. Using the sample data in Exhibit 10, make a recommendation for how many units of each style Wally Obermeyer should order during the initial phase of production. Assume that all ten styles in the sample problem are made in Hong Kong (a minimum commitment of 600 units per style ordered), and that Obermeyer's initial production commitment must be at least 10,000 units. Clearly spell out the methodology you have used to make your ordering decisions in an exhibit. Spell out the logic behind your methodology. Note that I am not looking for one optimal solution. My focus will be on your thinking about how such an issue can be approached.

3. Can you come up with a measure of risk associated with your ordering policy? This measure of risk should be quantifiable.

4. Repeat your methodology now assuming that all ten styles are made in China. What differences (if any) result?

5. What operational changes would you recommend to Wally to improve performance? Clearly list the expected benefits from each change. Please try and be very specific in terms of the changes

and benefits in response to this question.

6. How should Obermeyer management think (both short term and long term) about sourcing in Hong Kong versus China. What sourcing policy would you recommend?

Required Readings:
SCM-CM: Chapters 12 and 13

- **Download:**
  1. **Excel File containing newsboy simulation**
  http://www.stern.nyu.edu/om/scm/seshadri/newsboy.xls

  2. **Excel File containing Ordering Multiple Items.**
  http://www.stern.nyu.edu/om/scm/seshadri/multi-item.xls
  3. Note on *Ordering Multiple Products.*
  http://www.stern.nyu.edu/om/scm/seshadri/multipleproducts.pdf
  4. Note on *Postponement*
  http://www.stern.nyu.edu/om/scm/seshadri/postponement.doc

Recommended Readings:
Links to quick response - - Responsive Supply Chains: Quick / Accurate Response
http://www.stern.nyu.edu/om/scm/seshadri/download.html#qr

- Quick Response in the Apparel Industry
- Joseph D. Blackburn, Chapter 11: The quick response movement in the Apparel Industry: A case study in time-compressing supply chains, pp. 246-269. in *Time compressing logistics & distribution*. ISBN 55623-321-3.
- Making Supply Meet Demand in an Uncertain World, M.L. Fisher, J.H. Hammond, W.R. Obermeyer, A. Raman, *Harvard Business Review*, May-June 1994 (#94302).

Session 6 November 2
Topic: RESPONSIVE SUPPLY CHAINS: MASS CUSTOMIZATION

Class Plan:
Managing variety efficiently is a challenge. What supply chain designs are appropriate for this purpose? In this session we shall study the ideas underlying mass customization using the National Bicycle Industry Company case. We will discuss how to apply these ideas in other settings and the link to the firm's business and marketing strategy.

Assignments Due:
Case: *National Bicycle Industry Company (The Wharton School, University of Pennsylvania case).* Consider the following questions for discussion especially the italicized question:

1. What are the differences between the new POS and mass production processes.
2. Is it economical to make the POS bikes?
3. How can National Bicycle encourage dealers to participate in selling the POS bikes?
4. *What is the minimum lead time for a bicycle ordered on Saturday? What factors would add to this lead time? What lead time should National Bicycle offer to their POS customers? What actions should they take to achieve this lead time?*
5. *How does mass customization apply to services? For example, consider Fresh Direct's or Peapod's operations.*

Required Readings:
Mass Customization -
Mass Customization at Hewlett Packard - The Power of Postponement, E. Feitzinger and Hau L. Lee, Harvard Business Review, Jan-Feb 1997.

Related Links
http://www.stern.nyu.edu/om/scm/seshadri/download.html - masscustom

Last part of this class we shall discuss several models in excel needed in next 2 sessions.
Session 7 November 9

Topic: MANAGING TRANSPORTATION IN SUPPLY CHAINS, CROSS-DOCKING & TRANSIT POINTS

Class Plan:
We will discuss the domestic transportation industry and consider the different modes available. We will motivate the link between transportation and inventory costs in the design of transportation networks. We will also consider different issues that are relevant when making transportation decisions.
We will discuss the role of transportation in the supply chain and raise various tradeoffs that need to be considered when designing and operating a transportation network. A key issue discussed will be the recent trend towards the use of transit points.

Assignments Due:

Case: Merloni Elettrodomestici SpA: The Transit Point Experiment (HBS Case 9-690-003). Consider the following questions for discussion especially the italicized question:

1. What are the costs and benefits of Merloni's current distribution system? Of a transit-point-based system?
2. *Should Merloni replace its network of regional warehouses with transit points? To focus your thoughts, consider the RDCs at Roma and Catanzaro. Which (or both) of these RDCs would you replace this with a transit-point system (assume that Roma is 175 km and Catanzaro is 600 km from the CDC).*
3. If transit-point is to be implemented, what contingency plans and support systems are necessary to support the new logistics network? If not, what changes, if any, would you recommend Merloni to make to its distribution system?

Read the articles in Blackboard on the *Bombay Dubbawallahs.* How does their system relate to the Merloni case? What are the major risks going forward for the Dubbawallahs? Article can be found on blackboard.

Please hand in your short case (4 pages double spaced maximum) analysis (formal **report**) of the Halloran Metals case. Be sure to address the main questions:

1. What should Jim Rochleau recommend to the president?
2. What are the differences in logistics/supply chain strategy and structure between Halloran and Allied? What impact do those have on the kind of businesses they are and the way they operate?
3. What economic risks are implicit in Halloran's logistics choices? How has the firm endeavored to reduce these? How successful have they been?

Required Readings:
SCM-CM: Chapter 14 - Related Links
http://www.stern.nyu.edu/om/scm/seshadri/download.html - transport

Session 8 November 16

Topic: FACILITY PLANNING IN SUPPLY CHAINS: LOCATION AND ALLOCATION DECISIONS

Class Plan:
We will now develop a framework for facility location decisions that allows for a multi-plant, multi-warehouse network to supply a large and diverse customer base. Our objective will be to optimally structure the distribution network, taking into account cost and customer service factors. The workbooks (see below) location.xls and audit.xls will be used in the class discussion.

We will conclude the discussion on location decisions within the supply chain with a case study exploring such decisions in an international setting. We will develop some notions of value of flexibility.

Assignments Due:
Case: Applichem (A) (HBS# 9-685-051). Use the following questions as a guide when preparing your case **report**.

1. Compare the performance of Applichem's six Release-ease plants. Please be specific about the measures of plant productivity selected by you and why they are important.
2. Why are some plants "better" performers than others? List the factors that you feel affect performance. How should plant performance be compared?
3. How do you think Joe Spadaro should structure his worldwide manufacturing system (e.g., should all the plants be open? If you choose to close any plant which one and why?). Assume that the past is a reasonable indicator of the future in terms of exchange rates and inflation.
4. What impact do you think the abolition of all duties will have on your recommendations?
5. Also address some or all the questions below "applichem questions" (also see the APPLICHE.XLS spreadsheet in Blackboard).

Excel Files containing gravity models (location.xls) , Excel File containing Audit example (audit.xls) and Excel File for Plant Location example (plocex.xls). Excel file containing Applichem data (appliche.xls) – we will discuss the spreadsheet in previous class.

Required Readings:
SCM-CM: Chapter 5, Skim through Chapter 6.

- **Making Most of Foreign Factories, Kasra Fedrows, Harvard Business Review, March-April, 1997.**

1. Additional questions
   http://www.stern.nyu.edu/om/scm/seshadri/applichem-questions.pdf
3. Excel Files containing gravity models (location.xls) , Excel File containing Audit example (audit.xls) and Excel File for Plant Location example (plocex.xls)
   http://www.stern.nyu.edu/om/scm/seshadri/location.xls
   http://www.stern.nyu.edu/om/scm/seshadri/audit.xls
   http://www.stern.nyu.edu/om/scm/seshadri/plocex.xls

Recommended Readings:
Facility Location Links - - Related Links
http://www.stern.nyu.edu/om/scm/seshadri/download.html#facility

Session 9 November 30

Topic: SUPPLY CHAIN COORDINATION: THE ROLE OF INFORMATION

Class Plan:
We will discuss the key supply chain concept of (supply chain) coordination. In the class, until now, we have developed the building blocks of supply chain performance. Synchronization of supply chain performance is, however, critical to leverage the drivers effectively. We shall revisit the **Beer Distribution Game** in class. Our discussion will begin with it and continue on to the causes and managerial implications of the Bull-Whip Effect.

The causes and managerial implications of the Bull-Whip Effect will then be discussed in the context of the Barilla, SpA case.

Assignments Due:
Case: Barilla Spa (A) (HBS# 9-694-046). Use the following questions when preparing the case especially the italicized question:

1. *What do you think are the main causes for large fluctuations in orders observed at the Pedrignano CDC?*
2. What do you think of the JITD program? What actions should Barilla take to reduce fluctuations in demand? What kind of products would such a program be best suited for?

Do you anticipate any problems if the JITD program is implemented?

Required Readings:
SCM-CM: Scan Chapter 13, Read Chapters 16 and 17

- Channel Partnerships Streamline Distribution, R.D. Buzzell, G. Ortmeyer, Sloan Manangement Review, Spring 1995.

- Related Links
  http://www.stern.nyu.edu/om/scm/seshadri/download.html - coord

Topic: SUPPLY CHAIN COORDINATION BY INTERMEDIARIES

Class Plan:
We shall see the role played by intermediaries, their incentives and the role of contracts.

Assignments Due:
Case: *Fast, Global, and Entrepreneurial: Supply Chain Management, Hong Kong Style An Interview with Victor Fung, Harvard Business Review, Sept-Oct., 1998 (#98507).* Consider the following questions for discussion -- especially the italicized question:

1. Why does Li and Fung "break up the value chain and rationalize where they do things"? How does this add value to the supply chain?
2. *How does Li and Fung make the supply chain more responsive (i.e. reduce response time)?*
3. What is the role of the "little John Waynes?"

Recommended Readings:
Role of Intermediaries - - Related Links
http://www.stern.nyu.edu/om/scm/seshadri/download.html - intermediary

Session 10 December 07

Topic: SUPPLY CHAIN COORDINATION: PLANNING SYSTEMS

Class Plan: We discuss how to coordinate internal operations. We shall briefly cover the components of manufacturing resource planning systems and examine the type of integration that is required between different planning systems in a supply chain. We shall examine how order promising is done and what information is needed to drive the order planning system. We will also discuss distribution requirements planning systems. Some or all of these planning systems form the base components of the information systems for supply chains from the viewpoint of manufacturers, distributors and other service providers.

Read the chapters 4 and 17 from the classic text: Manufacturing Planning & Control by Vollman, Berry and Whybark. Chapter 4 discusses how ERP systems support Manufacturing Planning and Control and also presents case studies of firms that have adopted ERP. Chapter 17 discusses the pitfalls of isolated planning and lays out a framework for collaborative planning.

Session 11 December 14

Topic: SUPPLY CHAIN COORDINATION THROUGH JOINT PLANNING

Class Plan: Briefly describe forecasting and aggregate planning techniques. Then describe how collaborative planning can increase supply chain profitability. We shall also discuss collaborative planning and forecasting. If time permits we shall discuss ERP systems and how they can interconnect supply chain partners.

Required Reading:

Read the note abc_of_collaborative_planning.pdf on the web.
Go over chapters 7, 8, 9.

Session 12 December 21
Topic: SUPPLY CHAIN STRATEGY IN A DYNAMIC ENVIRONMENT and COURSE WRAP-UP

Class Plan:
The environment of business is rarely static. How should firms respond with their supply chains in a dynamic environment? We will discuss supply chain strategy from an integrative perspective using the Lucent case as an example.
We will review the entire course to re-emphasize the key points and the framework.

Assignments Due:

Case: *Lucent Technologies: Global Supply Chain Management* (GSB, Stanford University, Case Number GS-01, January 2001). Consider the following questions for discussion especially the italicized question:

1. Outline the factors that explained why the original supply chain network strategy used by Lucent in Asia was adequate prior to 1996.
2. What were the factors that drove the necessary changes in Asia in 1996? What did you see as the benefits from those changes?
3. *What were the strengths and weaknesses of the hub-and-spoke supply chain strategy in this new environment? How would you recommend Lucent to mitigate the risk of material shortages? Should they strive for continuous internal improvement, or should they look for outsourcing opportunities?*

Final Project Submission: Please hand in your final project reports to me in class.

Submit a **powerpoint** presentation of your final project along with your final report.

Required Readings:
Summary Article - What is the Right Supply Chain for your Product, Marshall Fisher, Harvard Business Review, March-April 1997 (#97025).

SCHEDULE OF ASSIGNMENTS

OVERVIEW OF ASSIGNMENTS WITH DUE DATES
4 case reports, all count. Project proposal and final project report.

Session 1:
ChemBright Case

Session 2:
Glenview Supply Co.

Session 3:
Glenview Supply Co.

Session 4:
Alko Inc. (**Report Due**)
Project Proposals (**Submit hard copy)**

Session 5:
Sport Obermeyer (**Report Due**)

Session 6:
National Bicycle Industry Co.

Session 7:
Merloni Elettrodomestici Case
Dubbawallahs articles
Halloran Metals (**Report Due**)

Session 8:
Applichem (A) (**Report Due**)

Session 9:
Barilla (A)

Session 10:
Chapters 4 & 17 from Vollman, Berry and Whybark.

Session 11:
Collaborative Planning and Forecasting Article

Session 12:
Lucent Technologies
Final Project (**Submit hard and softcopy of report and powerpoint file**)

Final Examination (take home)