

Course Syllabus

SYS 665 – Integrated Supply Chain Management

<i>Module</i>	<i>Readings</i>	<i>Homework Discussion Questions</i>	<i>Homework T/F & Multiple Choice Attachments</i>	<i>Homework Exercises (may require Excel)</i>
1	<ul style="list-style-type: none"> ▪ Ch01: Understanding the Supply Chain ▪ Ch02: Supply Chain Performance: Achieving Strategic Fit and Scope ▪ Ch03: Supply Chain Drivers and Metrics 	<ul style="list-style-type: none"> ▪ 1.2, 1.5 ▪ 2.1, 2.2, 2.4 ▪ 3.1, 3.2, 3.3, 3.4, 3.8 	<ul style="list-style-type: none"> ▪ Ch1 TF and MC.doc ▪ Ch2 TF and MC.doc ▪ Ch3 TF and MC.doc 	<ul style="list-style-type: none"> ▪ none
2	<ul style="list-style-type: none"> ▪ Ch07: Demand Forecasting in a Supply Chain ▪ Ch08: Aggregate Planning in a Supply Chain 	<ul style="list-style-type: none"> ▪ 7.1, 7.3, 7.7 ▪ 8.1, 8.6, 8.8 	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ 7.1, 7.2, 7.4 ▪ 8.1, 8.2, 8.3
3	<ul style="list-style-type: none"> ▪ Ch09: Planning Supply and Demand in a Supply Chain: Managing Predictable Variability ▪ Ch10: Managing Economies of Scale in a Supply Chain: Cycle Inventory 	<ul style="list-style-type: none"> ▪ 9.3, 9.8 ▪ 10.2, 10.7 	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ 9.1, 9.2, 9.3 ▪ 10.3, 10.8
4	<ul style="list-style-type: none"> ▪ Ch11: Managing Uncertainty in a Supply Chain: Safety Inventory 	<ul style="list-style-type: none"> ▪ 11.2, 11.3, 11.9 	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ 11.1, 11.2, 11.3, 11.14
5	<ul style="list-style-type: none"> ▪ Ch12: Determining the Optimal Level of Product Availability 	<ul style="list-style-type: none"> ▪ 12.1, 12.4, 12.6 	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ 12.1, 12.2, 12.4
6	<ul style="list-style-type: none"> ▪ Ch13: Transportation Decisions in a Supply Chain 	<ul style="list-style-type: none"> ▪ 13.2, 12.5 	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ 13.1, 13.3
7	<ul style="list-style-type: none"> ▪ Ch04: Designing Distribution Networks and Applications to e-Business ▪ Ch05: Network Design in the Supply Chain ▪ Ch06: Network Design in an Uncertain Environment 	<ul style="list-style-type: none"> ▪ 4.1, 4.3, 4.9 ▪ 5.2 ▪ 6.2, 6.6 	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ 5.2 ▪ 6.1
8	<ul style="list-style-type: none"> ▪ Ch14: Sourcing Decisions in a Supply Chain ▪ Ch15: Pricing and Revenue Management in a Supply Chain 	<ul style="list-style-type: none"> ▪ 14.2, 14.4, 14.7 ▪ 15.2, 15.5 	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ 14.1, 14.4 ▪ 15.1, 15.3, 15.6
9	<ul style="list-style-type: none"> ▪ Ch16: Information Technology in a Supply Chain 	<ul style="list-style-type: none"> ▪ 16.2, 16.3 	<ul style="list-style-type: none"> ▪ Ch16 TF and MC.doc 	<ul style="list-style-type: none"> ▪ None
10	<ul style="list-style-type: none"> ▪ Ch17: Coordination in a Supply Chain 	<ul style="list-style-type: none"> ▪ 17.1, 17.3, 17.4 	<ul style="list-style-type: none"> ▪ Ch17 TF and MC.doc 	<ul style="list-style-type: none"> ▪ none

2. Course Description and Overall Objectives

Logistics and supply chain management is unique and, to some degree, represents a paradox because it is concerned with one of the oldest and also the most newly discovered activities of business. Supply chain system activities - communication, inventory management, warehousing, transportation, and facility location - have been performed since the start of commercial activity. It is difficult to visualize any product that could reach a customer without logistical support. Yet it is only over the last few years that firms have started focusing on logistics and supply chain management as a source of competitive advantage. There is a realization that no company can do any better than its logistics system. This becomes even more important given that product life cycles are shrinking and competition is intense. Logistics and supply chain management today represents a great challenge as well as a tremendous opportunity for most firms.

Another term that has appeared in the business jargon recently is *demand chain*. From our perspective we will use the phrases logistics management, supply chain management and demand chain management interchangeably.

In this course we will view the supply chain from the point of view of a general manager. Logistics and supply chain management is all about managing the hand-offs in a supply chain - hand-offs of either information or product. The design of a logistics system is critically linked to the objectives of the supply chain. Our goal in this course is to understand how logistical decisions impact the performance of the firm as well as the entire supply chain. The key will be to understand the link between supply chain structures and logistical capabilities in a firm or supply chain.

3. Grading

Homework 50%
Final Project 50%

4. Text and Other Readings

The textbook is titled Supply Chain Management: Strategy, Planning, and Operations by S. Chopra and P. Meindl(C&M). (**THIRD EDITION**)

Chapters from this book have been assigned as background reading with the material being covered. Lectures will follow the book. The book is best read right after the lecture to reinforce the concepts discussed. The book also provides technical details that may not be discussed in class. All other readings can be read as time allows. They further elaborate on ideas that will be discussed in class but need not be read before class.

Some other text books on the subject that may be of interest are as follows:

1. Strategic Logistics Management by D.M. Lambert and J.R. Stock.
2. The Management of Business Logistics by J.J Coyle, E.J. Bardi and C.J. Langley.
3. Logistical Management by D.J. Bowersox, D.J. Closs, O.K. Helferich.
4. Business logistics Management by Ronald H. Ballou
5. Inventory Management and Production Planning and Scheduling by Edward A. Silver, David F. Pyke, and Rein Peterson

Other books that maybe of interest related to this course include:

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

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Project Guidelines

This is a project that 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). 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 logistics 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 logistics 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 than 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 logistics 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 logistics practices in industry

The objective here is to study logistics practices in industry such as

- E-commerce and its 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 management systems
- Warehouse design and management

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 logistical 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.