

**ISE/MSE 362**  
**Logistics & Supply Chain Management**  
**Spring Semester, 2017**

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**Office Hours:** TBD

**Course Outline**

This course examines quantitative models for the analysis of supply chains. The course is intended for seniors and first-year graduate students who are interested in logistics, supply chain, operations management, quantitative methods, and information technology. The course stresses the modeling, analysis, and computational issues associated with supply chain design and operations. Topics include: Analytic Framework for the Supply Chain, Demand and Supply Planning, Supply Chain Inventory Management, Transportation, Network Design, Impact of IT, Supply Chain Coordination, and Financial Factors in the Supply Chain. Mathematical modeling techniques will be introduced in the above application contexts.

**Course objectives:**

Upon completion of this course, students will:

- have developed an understanding of key drivers of logistics system and supply chain performance and their inter-relationships with strategy and other functions of the company such as marketing, manufacturing, and accounting.
- be able to analyze data and from this analysis, apply models to forecast future changes for decision-making purposes
- be able to apply analytical models and problem solving skills to solve a variety of supply chain management and design problems and develop an understanding for use of information technology in supply chain optimization.
- better 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.

- be able 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.
- have the opportunity to enhance spreadsheet skills through the solutioning of homework and project assignments that integrate concepts introduced in the course

**Prerequisites:**

Basic knowledge of operations research models, and production and inventory models.

**Grading:**

Midterm Exams (2)

Homework Assignments

Final Exam

(( The lowest homework grade will be dropped ))

**Proportion of final grade:**

24%, each

20%, collectively

32%

**Required Reading:**

Text: Sunil Chopra and Peter Meindl, *Supply Chain Management: Strategy, Planning, and Operations*, Pearson, Sixth Edition, 2016.

Any supplementary material will be posted electronically and/or handed out in class.

Chapters from the text book are assigned as background reading with the material being covered. Lectures will follow the general outline of the book along with supplementary materials. The book is best read right after the lecture to reinforce the concepts discussed. The book also provides details that may not be discussed in class. **It is your responsibility to keep up with the reading.** Some other *text books* on the subject that may be of interest are as follows:

1. Quantitative Models for Supply Chain Management by S. Tayur, R. Ganeshan, M. Magazine.
2. Strategic Logistics Management by D.M. Lambert and J.R. Stock.
3. The Management of Business Logistics by J.J Coyle, E.J. Bardi and C.J. Langley.
4. Logistical Management by D.J. Bowersox, D.J. Closs, O.K. Helferich.
5. Business Logistics Management by Ronald H. Ballou
6. Inventory and Production Management Planning in Supply Chains by Edward A. Silver, David F. Pyke, and Douglas J. Thomas
7. Introduction to Logistics Systems Planning and Control by G. Ghiani, G. LaPorte, and R. Musmanno
8. Modeling the Supply Chain, by J.F. Shapiro

**Required Software:**

Microsoft Excel with Solver Add-In

**Course Contents:**

<b>Week</b>	<b>Topic</b>	<b>Readings</b>
1	Strategic Framework for the Supply Chain	Chapters 1-3
2-3	Designing Distribution and Supply Chain Networks	Chapters 4-5
4	Designing Global Supply Chains under Uncertainty	Chapter 6
5	Forecasting	Chapter 7
	<i>Mid-Term Exam 1</i>	
6	Aggregate Planning	Chapter 8
7	Sales and Operations Planning	Chapter 9
	Supply Coordination	Chapter 10
8	Inventory Economies of Scale	Chapter 11
	<i>Mid-Term Exam 2</i>	
9	Safety Inventory	Chapter 12
10	Optimal Level of Product Availability	Chapter 13
11	Transportation	Chapter 14
12	Sourcing Decisions	Chapter 15
13	Pricing and Revenue Management	Chapter 16
14	Supply Chain Sustainability (as time permits)	Chapters 17
	<i>Final Exam</i>	

**Accommodations for Students with Disabilities:** If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center 212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

**Principles of Equitable Community:** Lehigh University endorses The Principles of our Equitable Community (<http://www4.lehigh.edu/diversity/principles>). We expect each member of this class to acknowledge and practice these Principles. Respect for each other and for differing viewpoints is a vital component of the learning environment inside and outside the classroom.