

SUPPLY CHAIN MANAGEMENT

The Pratt School of Engineering EGRMGMT 563 Spring 2025



ProfessorPranab MajumderTeaching AssistantVarun Bhardwaj

Office Magat A234, Fuqua School of Business

Email majumder@duke.edu Phone (919) 660-7694

Website (919) 660-769

Website Duke Canvas

Coursepack: https://hbsp.harvard.edu/import/1253290

You must procure an individual course pack with the required cases and articles. You may buy the options articles in the course pack as well, or search and read other articles on that topic. Cost: \$54.45 for required items, and \$18.90 for optional items.

Course Description

A supply chain is a network of organizations that are involved in the different processes and activities that produce value in the form of products and services. Increased competition, expanding product variety and more demanding consumers require more efficient supply chains. Supply chain management is an essential competitive tool. Innovations arise from three main sources: application of information technology; reconfiguration of the supply chain network; and modification of incentives. Effective supply chain management can enable companies to increase market shares, reduce costs, and improve customer service. In this course, we will introduce main concepts, best practices, and key strategies of supply chain management. We will address the following issues:

- Manage and use information to improve supply chain efficiency;
- Information distortion (the bullwhip effect) and its countering strategies;
- Collaborative Planning, Forecasting and Replenishment;
- Utilize postponement for efficient supply chain design;
- Supply chain inventory management;
- Manage short life cycle products through accurate response;
- Global sourcing strategy;
- Supply chain incentive design;
- Outsourcing and contract manufacturing;
- Emerging topics in supply chain management.

Readings and Textbook

There is no textbook for this course. The course pack contains all required reading materials and cases used for the course. Supplemental materials will be handed out in class. We recommend two reference books on supply chain management:

Simchi-Levi, D., P. Kaminsky and E. Simchi-Levi, *Designing and Managing the Supply Chain*, 3rd ed., McGraw-Hill Higher Education, 2007;

Lee, H.L. and C.Y. Lee, Building Supply Chain Excellence in Emerging Economies, Springer Science, New York, 2007.

(Any version will do- even the older ones).

Grading

Distribution:

Campus section	Individual	• Attendance 10%	20%
Class Participation		Canvas discussions 10%	
Distance section	Individual	Canvas Discussions 20%	20%
Class Participation			
Case Presentations	Team	• 2 Cases, PPT+presentation 10%	25%
		• Team feedback survey 15%	
Assignments	Individual	3 Assignments	30%
Mid Term Exam	Individual	On Canvas	25%
Optional Project	Team	Report	Extra Credit

Presentation

Your grade will depend upon your individual grade components subject to your participation in the team components.

- **Team:** For team assignments, a team should consist of **4 students**. Please send me an e-mail with a list of your team members (one e-mail per team) by/after the first class. I may change team composition at my discretion. It may help to have a student on the team who has taken the Operations Management course (a suggestions, not a requirement).
- Class Participation: Successful class participation requires regular attendance and regular and positive contributions to case and class discussions. For everyone to get the most out of each class session, it is necessary that all students read the assigned materials and come to class

prepared to participate constructively in the discussion. Students are encouraged to share their relevant work experience as part of class discussion. Discussion questions are provided for each of the class sessions. Students should use these questions as a starting point and rough guide for thinking about the material in the readings. The components are:

- o In-Class discussion contribution
- o In-Class team presentation
- Articles and discussion on current topics
- Case Presentations: Each team will have to present cases and topics in class. We will ask for your team preferences, and will try to match your assignments to your preferences, if possible. I may assign different case and topics to any team. The case presentations should address the case questions, and be planned for 15 minutes, plus 5 minutes for Q&A.
 - o Campus: Your deliverable is your PowerPoint presentation. If a team member is not present on the day of the presentation, another team member should present.
 - O Distance: Your deliverable is your PowerPoint presentation and a recording of your team members presenting it- you may record with any online meeting tool, and send me a link to the video file with permissions for me to download.
 - o Please write your talking points in the Notes section for each slide.
 - o Send me your PPT by email.
 - o Please have a cover slide with the names of all team members.
- Individual Assignments You will turn in individual assignments on Canvas.
- Optional Team Final Project: The final project is to examine a supply chain of your own company or of your own interest. First, you need to write about what the strength and weakness of its supply chain management are and what the challenges are. Then you need to apply what we have learned in the class to provide recommendations on how to improve the supply chain. Alternatively, you can write a research paper or a case study about the new trends and challenges in supply chain management. Such papers should also relate the new issues with the supply chain strategies covered in the course. The final paper should not exceed 15 pages (exhibitions excluded), 1.5-spaced, 12-point font, and is due in the last class. You must do this with a team of four. Please submit a proposal at any point until the end of March, and I will schedule a time for you to present.

I will assign extra credit at my discretion based on (a) the depth of your work, (b) the real-world insight.

Note: The Optional Team Final Project will not improve your grade if you are already in the top half of the class (after all other components are evaluated). Thus, for example, if your grade would already have been a B+ or higher, it will not improve your grade. However, it can be used to make up one missed assignment.

Attendance (On Campus)

It is expected that you attend all the class sessions. The only permitted excuse is sickness. If you cannot attend a particular class due to illness, please send email to me, preferably ahead of the class that you will be missing. If you need to travel for recruitment, family events, and other reasons then you will be docked for missing attendance.

I will expect you to attend 11 out of the 12 class sessions (the 13th one is the mid-term).

Honor Code

It is each student's responsibility to understand and abide by the Honor Code as it applies to each class activity. You will not search for solutions on the web (many sites contain solutions to all cases, and often assignments and exams as well).

In regard to the **individual assignments**, all work is to be done on an **individual** basis. You may not discuss or exchange information regarding questions or answers with others either inside or outside of this class. In exams, asking anyone other than the professor to interpret a question is a violation of the Honor Code.

For the **case write-ups**, all work is to be done by **individuals in your team**—team members may not discuss or exchange information regarding the case analysis with members of other teams.

In regard to **preparation for class discussion** involving readings, exercises or cases which you are not required to write up, you may discuss the material with other members of the class. You may not reference notes from, or exchange information with, students from previous years. You also may not access solutions, analyses, etc. of cases that you are assigned to write up or that will be discussed in class.

Failure to adhere to any of these requirements constitutes a violation of the Honor Code. If there is any question as to whether an activity is or is not permissible (in this class) under the Honor Code, consult the professor prior to undertaking the activity.

Classroom Norms

We will set up the classroom norms for the class based on what enables every one of us to learn in a supportive manner.

Here are some examples of norms I would like to use

- Please arrive 5 minutes early- we will start on time.
- Please sit at the front of the class.
- Please do not use cellphones in class, or keep on the desk.
- Please come prepared and ready to discuss/answer when called upon.
- Food and drink- please consume discretely if needed, or during breaks.

1: Introduction

Case:

"Amazon.com: Supply Chain Management", Johnson, Mark. Ivey Publishing W18451 (2018)

Readings:

- 1. Raz, G; "Introduction to Supply Chains", Darden Teaching Note, UV5138 (2009)
- 2. Enright, M; "Buyer-Supplier Relationships", CABC University of Hong Kong, HKU257 (2003)

Case Questions:

- 1. Review Amazon's supply chain. How is Amazon's supply chain different from that of traditional brick-andmortar retailers?
- 2. What are the key advantages to the structure of Amazon's supply chain and the company's management of its supply chain operations? Support your analysis with data form the case.
- 3. What are the challenges Amazon faces, and what are the implications for its supply chain?
- 4. As Jeff Bezos, what steps would you take to improve Amazon's supply chain? Why?

Topic Questions:

Consider some firms you have visited (e.g. a local grocery, a fast food outlet, a mall anchor store, and an online store), and answer these questions for each firm:

- 1. What types of products do they sell?
 Can you categorize them according to their product attributes and demand characteristics?
- 2. Who produces each product? What are the ingredients/parts/components of each one?
- 3. How do they receive these products? How frequently do they receive these products?
- How does the firm make money? How does each supplier make money? Categorize the revenue streams and costs.

2: Supplier Relationships

Case: "1-800-Flowers.com Collaborating with Suppliers" (W17131), 2017	Readings: 1. "The Triple-A Supply Chain", Hau Lee, HBR October 2004 2. "A Note on the Base Stock Model." Fuqua School of Business OPS476.
Case Questions:	Topic Questions:
1. What supply chain capabilities does 1-800-Flowers.com need to succeed in its business?	Read the Lee article. For each question, provide examples for each question.
2. Assess the key supply chain strategies that 1-800-Flowers.com has adopted since the economic downturn. Why is the supplier-designer collaboration approach unique and sustainable?	 What is the relation between product characteristics and the design of its supply chain? How will you measure the performance of a supply chain?
3. Should 1-800-Flowers.com go ahead with the electronic marketplace?	3. How does your analysis differ for inhouse supply chains and outsourced
4. What are your recommendations as 1-800-Flowers.com integrates its gift and floral supply chain?	supply chains? Read the note on the base stock model.

3: Information Distortion, Vendor Managed Inventory

Case: "Walmart: Supply Chain Management", Johnson, Mark Ivey Publishing W19318 (2019)	Readings: 1. "The Bullwhip Effect in Supply Chains", Hau Lee, V Padmanabhan, Seungjin Whang, Sloan Management Review, 38, 3, Spring 1997, 93-102.		
 Case Questions: What is your analysis of Walmart's supply chain? Were the company's supply chain capabilities a source of competitive advantage? Why or why not? How was Walmart doing? How did it compare to its competitors? What were the challenges facing Walmart, and what were the implications for its supply chain? As Doug McMillon, Walmart's president and CEO, what steps would you take to improve the company's supply chain? Why? 	 Topic Questions: What is the Bullwhip Effect in Supply Chains? How is the bullwhip effect for soap different from the bullwhip effect for building construction material? The Nintendo Wii was in short supply for at least two or three years after its launch. Is this an example of the Bullwhip Effect? Justify your answer. 		

4: Cross Docking/Collaborative Planning Forecasting & Repl.

	T
Case: "Merloni Elettrodomestici SpA: The Transit Point Experiment" (HBS 9-690-003)	Readings: 1. "A Practical Look at CPFR: The Sears-Michelin Experience", Hank Steerman, Supply Chain Management Review, July-August 2003.
Case Questions: Assume the transit point experiment is adopted in Roma and Catanzaro. What would be the change in total costs for each of these regions? Assume: • Fabriano to Rome: Large truck costs 410,000 Lire, and small truck 220,000 Lire. • Fabriano to Catanzaro: Large truck costs 900,000 Lire, and small truck is 500,000 Lire. • There is at least one shipment per day in the transit point system. • 5 days/week, 4 weeks/month. • Assume that the costs in Exhibit 10 are given in terms of Lire/Piece sold/Month (Look at the average demand at Roma and Catanzaro in Exhibit 8). Should Merloni replace its network of regional warehouses with transit points? If so, what contingency plans and support systems are necessary to support the new logistics network? If not, how should Merloni change its distribution system?	 Topic Questions: What are the benefits of adopting CPFR? What are some of the challenges? What new investments does each partner need to make to adopt CPFR? What new capabilities does each partner need to develop to make CPFR successful? Mention three different examples of situations where CPFR will not work. Explain.

Due: Individual Assignment I.

5: Postponement Strategy, Demand Forecasting

Case:	Readings:	
"Marks & Spencer and Zara: Process Competition in the Textile Apparel Industry" (INS849-PDF-ENG)	1. "Note on Postponement" by Chopra, et al, 1997 (KEL128-PDF-ENG)	
Case Questions:	Topic Questions:	
 What is innovative about Zara? What are the major differences in Zara's supply chain when compared with that of M&S? What role does "postponement" play in Zara's supply chain? Why is it so difficult for M&S to start playing the "fashion" game? What do you think of the programs launched by Peter Salsbury in response to the troubles at M&S? What guidance, if any would you offer for turning M&S around? 	 Provide three examples of postponement. Provide at least one example of postponement by the retailer, and one by the customer (i.e. the final option/customization is done at these stages). How does each example you provide help (a) the manufacturer (b) the retailer, and (c) the customer? How can a firm decide where in the distribution network to place postponement activities? Forecasting Download any time series data (e.g. cars sold per month in the US). Predict the next value in the series. How will you find out (quantitatively) if the series 	
	has seasonality? Read the note on supply chain inventory management.	

6: Accurate Response

Case:	Readings:	
"Sport Obermeyer, Ltd" (HBS 9-695-022)	 "Making Supply Meet Demand in an Uncertain World", Fisher M, Hammond J, Obermeyer W, Raman A; Harvard <i>Business Review</i>, May-June 1994, 83-93. "The Newsvendor Model", Fuqua School of Business Teaching Note. 	
Case Questions: 1. What makes the supply chain management at Sport Obermeyer so challenging?	Topic Questions: 1. Pick your favorite retail segment. What is the nature of uncertainty in the sales for this segment?	
2. Describe the factors that you would use in determining which styles and how much of each that Wally should make	2. How does the uncertainty differ in these stages: (a) before a product in this segment is launched, (b) during the	
during the initial phase of production.3. What operational changes would you recommend to Wally to improve Sport Obermeyer's performance?	lifetime of the product, and (c) at the end of product life? 3. What is the nature of uncertainty in the design/production of this	
4. How should Sport Obermeyer management think (both short-term and long-term) about sourcing in Hong Kong versus China?	product/service? Read the note on the newsvendor model.	

7: Supply Chain Finance, Mid-Term Review

"Rwanda Trading Company Facing a Cash Flow Crisis" (NA0489) 2017	None)
1	,
Case Questions:	Copic Questions:
is microfinance? 2. Explain the interrelationship between RTC's dual goals of profitability and having an impact on the poorest of the	Read up on the different types of trade inancing and invoicing terms that are sommon in supply chain contracts. . What risks does a firm encounter with respect to its supply chain that can be addressed by each of the following: (a) Contracting and the use of financial terms? (b) Buying insurance? (c) Vertical Integration?

8: Mid-Term

Case: (None)	Readings: (None)
Case Questions: (None).	Topic Questions: (None).

9: Global Sourcing and Innovation

Case: "Global Sourcing at Nike" Hsieh, Toffel, Hull (HBS 9-619-008) (2019)	Readings: (none)
 Case Questions: What is Nike's responsibility for harms in its supply chain? How well is Nike delivering on its responsibilities not only on this dimension, but also more generally (e.g., to investors)? What is your assessment of Nike's push to have suppliers take more ownership of working conditions? How should Amanda Tucker handle the specialty supplier and the possible opportunity in the Caribbean or Central America? 	 Topic Questions: What are the changes that have enabled the globalization of supply chains? Please provide specific examples. How are some of these factors still influencing globalization? What factors determine where a product is (a) designed, (b) produced, and (c) sold?

10: Outsourcing

	_		_	_
•	a	C	Δ	•
·	а	o	·	•

Boeing's Strategic Initiative: Raw Material Supply Chain Risk Mitigation", Sathe P (WDI Publishing W58C01), 2019.

Readings:

1. "Outsourcing Production without Losing Control", Amaral J, Billington C A, Tsay A A; *Supply Chain Management Review*, November-December, 2004.

Case Questions:

- 1. Is aluminum supply a major risk for Boeing? How can Boeing develipa forecasting model using the available data?
- 2. Is titanium supply a major risk for Boeing?
- 3. Do raw material mills cause delivery problems for Boeing? What are the weaknesses of the current mill risk assessment process? What strategies could be used to revamp the mill risk assessment process?
- 4. Are raw material mills a significant source of risk for Boeing?
- 5. What are the issues behind ThyssenKrupp Aerospace's late deliveries and inaccurate forecasts, and how can Boeing resolve them?
- 6. How much recoverable scrap is not being collected by Boeing, and what is the company's opportunity value?

Topic Questions:

- 1. What factors determine whether a firm keeps an activity in-house or outsources it to someone else?
- 2. What are some of the risks to the firm in outsourcing an activity? Provide specific examples.
- 3. Give me an example of an activity that a firm simultaneously outsources AND does in-house.

11: Disaster Relief Management

Case: "Supply Chain Hubs in Global Humanitarian Logistics" (IN1316), 2017	Readings: 1. "Targeting a JUST-IN-CASE Supply Chain for the Inevitable Next Disaster" Martha J, Subbakrishna S, Supply Chain Management Review, September, 2002. 18-23.		
 Case Questions: Should supply chains for secondary support items (4WDs and building supplies) be the same as the supply chains for the primary beneficiary demand items (food and water)? How centralized or decentralized should the secondary support supply chain be for 4WD vehicles? Show your calculations to determine the tradeoffs. How does the earmarked funding impact the supply chain configuration decision? 	 Topic Questions: How is disaster relief management different from other supply chain management scenarios? Present two dimensions along which you can locate different supply chain scenarios, and also locate disaster relief management on these dimensions. What other scenarios can be represented on this diagram? What can businesses learn from Disaster Relief Management? 		

12: Sustainability

Case:			

"Patagonia: Closing the Loop on Packaging Pollution" Beckman et al, (Berkeley Haas Case Series)

Readings:

1. "Why Sustainability Is Now the Key Driver of Innovation", Nidumolu R, Prahlad C K, Rangaswami M R, *Harvard Business Review*, Sept, 2009.

Case Questions:

- 1. What are the industry forces and trends that have created and propagated the plastic waste problem that we have today?
- 2. What are the changes needed in plastic design, manufacturing and disposal to significantly reduce plastic waste?
- 3. Describe some specific options for alternative packaging and assess the effects of those changes on the supply chain.
- 4. List all the stakeholders in the supply chain. Pick one and discuss how that stakeholder may be motivated to make the needed changes in order to use less plastic, or recyle the plastic that is used more effectively.

Topic Questions:

- 1. What is sustainability?
- 2. How is a sustainable supply chain different from a standard supply chain?
- 3. What are the challenges in making a supply chain sustainable? (Please take a specific product and discuss this).
- 4. Try to locate one example of a sustainability initiative that did not succeed.

13: Course Summary

Case:	Readings:			
(None)	 What is the Right Supply Chain for your Product? Harvard Business Review, March-April, p 105-116, 1997. Aligning Supply Chain Strategies with Product Uncertainties," California Management Review, 44, 3, 2002, 105-119. 			
Case Questions: (None)	Topic Questions: (None)			
Due: SCM III	•			

Schedule Summary

Class	Date	Group	Topic	Case/Readings	Due
1	Jan 08 (Wed)	Goods	Introduction	Amazon.com: SCM "Introduction to Supply Chains"	-
2	Jan 13	Applied	Supplier Relationships	1-800-Flowers.com "The Triple-A Supply Chain" "A Note on the Base Stock Model"	Case*
3	Jan 27	Data	Information Distortion VMI	Walmart: SCM "The Bullwhip Effect in Supply Chains"	Case*
4	Feb 03	Goods	Cross Docking CPFR	Merloni SpA : The Transit Point Experiment	SCM I
5	Feb 10	Goods	Postponement Strategy Demand Forecasting	Marks & Spencer and Zara "Note on Postponement" "Supply Chain Inventory Management"	Case*
6	Feb 17	Data	Accurate Response	Sport Obermeyer "The Newsvendor Model"	Case*
7	Feb 24	Finance	Supply Chain Finance Mid-Term Review	Rwanda Trading Company	SCM II
8	Mar 03			Mid-Term	,
9	Mar 17	Applied	Global Sourcing and Innovation	Global Sourcing at Nike "Fast, Global and Entrepreneurial: Supply Chain Management, Hong Kong Style"	Case*
10	Mar 24	Risk	Outsourcing and Risk Management	Boeing's Strategic Initiative: Raw Material Supply Chain Risk Mitigation "Outsourcing Production without Losing Control"	Case* (Paper/Model topic date)
11	Mar 31	Applied	Disaster Relief Management	Supply Chain Hubs (Humanitarian) "Targeting a Just-In-Case Supply Chain for the Inevitable Next Disaster"	Case *
12	Apr 07	Applied	Sustainability	Patagonia: Closing the Loop on Packaging Pollution "Why Sustainability is Now the Key Driver of Innovation"	Case *
13	Apr 14		Course Summary		SCM III

Subject to change.