

Course Outline

Course Code : DOS4712
Course Title : COORDINATION AND FLEXIBILITY IN SCM
Class Date : From 10/8/2026 To 13/11/2026
Semester : Semester 1, Academic Year 2026
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Overview

Supply chains have become far-flung and global as companies expand their operations to new markets and new supply sources. Concurrently, a number of macro-trends are emerging and evolving which cause changes to traditional supply chains structures and assumptions. These include: rising costs in the usual outsourcing manufacturing sites, entering into emerging markets, changing country regulations and regional trade agreements, impact of technologies on new business models and process changes, cross-border M&A, and emerging marketing companies expanding regionally, etc.

Companies will have to continuously evaluate their strategies and adapt their supply chains to deal with these changes. They will need to improve their flexibility, coordination, and responsiveness to deal with the risks and opportunities.

Course Objectives

The course will cover functional areas of the supply chain and integration of these concepts into a holistic framework. It will examine how global supply chain configurations are changing and adapting, and how companies should prepare for the impact of macroeconomic trends and new technologies to their business models, distribution, and supply chains. Through case studies, simulation game, and project work, students will gain a better understanding of corporate strategies, and how to align their supply chains and manage risks.

- 1) Key supply chain concepts and strategies
- 2) Global supply chain configuration and re-alignment
- 3) Planning for supply chain risk and disruption
- 4) Simulation game
- 5) Impact of technology innovations and new business models
- 6) Group project

PREREQUISITE

- (1) DSC2006 Operations Management or DAO2703 Operations and Technology Management
- (2) DAO1704/DAO1704X Decision Analytics using Spreadsheets (or has knowledge of calculus and probability)

PRECLUSION

BMS5202: Global Supply Chain Management

Assessment

Assessment Components	Weight
Individual Assignments	15%
Class Participation	15%
Group Simulation Game	20%
Midterm Test	25%
Group Project	25%
Total	100%

Schedule and Outline

Lesson/ Week	Date	Session (lesson summary or outline / learning objectives / preparation / cases & assignments / follow-up readings & resources)	Readings	Indicative deadlines
1	14 th Aug	Course Introduction: structure and expectations Challenges and risks of a global supply chain, in an era of globalization, macroeconomic changes, emerging markets, and disruptive technologies	Textbook Preface and Chapter 1: Global Value Chain Evolution: Implications for the World “Ocean shipping surcharges spurred by Iran war weigh on contract talks” “Singapore's semiconductor firms mostly resilient, but keeping eye on Middle East crisis” “Are the Risks of Global Supply Chains Starting to Outweigh the Rewards?” “Maersk, CMA CGM impose container surcharges over Red Sea diversions” “Lego says nearshoring production minimizes distribution costs” “The shifting landscape of tariffs: Strategies for supply chain resilience”	

2	21 st Aug	Managing global supply chains Impact of macroeconomic factors Managing procurement Case: The impact of oil prices on supply chain structures Case: Walmart – procurement for competitive advantage	“The Hormuz Squeeze Is Redrawing Global Oil and Gas Markets for Good” “The Big Story: If less than 1% comes from the Middle East, why are food prices rising in Singapore?” “Naphtha supply disruption raising prices of medical supplies but Singapore has adequate stockpiles” “New Hyundai facility in Singapore could one day build flying cars”	Submission of teams for projects and simulation game
3	28 st Aug	Manufacturing strategies and digitalization of products Push versus pull concepts Integrating the product life cycle to manufacturing strategies Smart factories and advanced manufacturing Case: Dell versus Lenovo – pull and push manufacturing strategies Case: The smart phone wars Simulation game overview and trial run for Year 1 Bill of Materials and use of UN CommTrade data	“Nike Will Let People Design and Sell Sneakers for the Metaverse” “Frontier Technologies in Industrial Operations: The Rise of Artificial Intelligence Agents”	Simulation game round 1
4	4 Sep	Planning for supply chain risk and disruption Risk Management framework Strategic and operational contingency planning Case: Transport Intelligence System by Transported Asset Protection Association (TAPA)	“Ship operators urge clear rules to return Hormuz to normal” “Importance of the Straits of Malacca to global trade” “Color crunch: Japan’s Calbee chip bags go monochrome as Iran war bites”	Simulation Game Round 2

		Case: Food security	“Oil, war, and bottlenecks: rethinking the Strait of Hormuz” Designing Resilience into Global Supply Chains” “The business must go on: get contingency planning right”	
5	11 th Sep	Considerations in supply chain risk and resilience: sustainability and inventory Holistic view of supply chains Inventory risk management – incorporating just in case Case: HP – optimizing the global supply chain Sustainability considerations Key issues around supply chain sustainability Case: Flyoro – Enabling onsite blending of Sustainable Aviation Fuel Case: SK Tes – Recycling of electronic waste	Textbook Chapter 12: Creating a Resilient Fashion Value Chain “UK Factories stockpile goods at fastest pace in 27 years” Sony, Suntory build U.S. stockpiles as Japan faces Trump tariff threat”, “Chinese e-commerce's growing markets in US and beyond” “How Manufacturers Lost The Inventory Battle”	Simulation game round 2
6	18 th Sep	Considerations in supply chain risk and resilience: sourcing, manufacturing and distribution The new manufacturing hubs New distribution networks Case: Foxconn and its manufacturing decisions Case: The new China-Europe distribution network	Textbook Chapter 2: The Role of Vietnam in Global Supply Chains “U.S. and European firms face \$1 trillion in costs to relocate their Chinese supply chains, BofA says” “Even Chinese companies are moving supply chains out China to avoid geopolitical risks. Here are the 6 places they're heading for instead”	Simulation game Round 5 and 6

			"Trump's return sparks questions on tariffs disrupting Asean growth and investment flows" The Robot Revolution: The New Age of Manufacturing Moving Upstream Why Amazon Can't Make A Kindle In the USA	
	25 th Sep	Recess week		
7	2 nd Oct	Simulation game debrief Prize giving		Submission of simulation game report before class
8	9 th Oct	Supply chain as competitive strategy Entering New Markets Outsourcing vs inhouse decisions Supply chain collaboration and integration Case: Lego's outsourcing experience -- "We are more special than we expected" Case: Bossard – VMI using Smart Bin	"Moving Up The Value Chain -- A Strategic Imperative For Asian SMEs" "How Real-Time Inventory-Level Visibility Drives Retail To Efficiency"	Assignment 2 due
9	16 th Oct	Impact of technologies on global supply chains Automation and robotics 3D printing Use of AI in supply chains	Textbook Chapter 11: Key Lessons from Using 3D Printing in the Fight Against Covid-19 "3D Printing And The New Economics Of Manufacturing" "Revolutionizing Supply Chains: The Game-Changing Impact Of AI" "AI power: Expanding data center capacity to meet growing demand"	

			“Redefining Manufacturing: The AI Revolution in Productivity” “Autonomous Sourcing: The Key to AI-Enhanced, Efficient Procurement” “Best Buy launches AI-powered delivery tracking”	
10	23 rd Oct	Midterm Group project discussion		
11	30 th Oct	New distribution channels and new distribution models -- Implications for logistics and supply chains Case: Amazon and its transformation from pure e-commerce The rise of e-commerce and omni-channels	Textbook Chapter 3: Warehouses for E-commerce — An Expanding Infrastructure Requirement “Why Amazon Business is now Offering Same-day Fresh Groceries” “So Much For the Return of In-Person Shopping: Retailers Could Close 50,000 Stores by 2027” “U.S. may need another 1 billion square feet of warehouse space by 2025 as e-commerce booms”	
12	6 th Nov	Submission of Group Project Presentations Videos Watch online and vote for best projects		Submission of Group Project Video Class voting for best projects
13	13 th Nov	Group Project Question and Answers Prize presentation for winning teams Course wrapup: Supply chains of the future	Supply chains of the future – selection of class participation articles	Submission of project report (PPT format)

General Guide & Reading (e.g. Case preparation guide, project report guide, main textbook & supplementary materials, etc)

Textbook: Global Supply Chains in a Glocal World: The Impact of Covid-19 and Digitalisation, Puay Guan Goh and Mabel C Chou, World Scientific, 2022

Article and Media materials

“Are the Risks of Global Supply Chains Starting to Outweigh the Rewards?”, Shih, Willy, Harvard Business Review, Mar 21, 2022, accessed at <https://hbr.org/2022/03/are-the-risks-of-global-supply-chains-starting-to-outweigh-the-rewards>

“Ocean shipping surcharges spurred by Iran war weigh on contract talks”, Apr 22, 2026, <https://www.supplychaindive.com/news/ocean-shipping-surcharges-spurred-by-iran-war-weigh-on-contract-talks/818085/>

Singapore's semiconductor firms mostly resilient, but keeping eye on Middle East crisis, Mar 2026, <https://www.youtube.com/watch?v=mjggSyQm4N0>

“Lego says nearshoring production minimizes distribution costs”, Stroh, Kelly, Supply Chain Dive, Sep 17, 2024, accessed at <https://www.supplychaindive.com/news/lego-production-near-end-markets-virginia-plant-mexico/727171/>

“The shifting landscape of tariffs: Strategies for supply chain resilience”, Colehower, Jonathan, Supply Chain Management Review, Mar 3, 2025, accessed at <https://www.scmr.com/article/the-shifting-landscape-of-tariffs-strategies-for-supply-chain-resilience>

“Maersk, CMA CGM impose container surcharges over Red Sea diversions”, CNBC, Dec 22, 2023, accessed at <https://www.cnbc.com/2023/12/22/maersk-cma-cgm-impose-container-surcharges-over-red-sea-diversions.html>

“Delaying Payments to Suppliers Helps Companies Unlock Cash”, Shumsky, Tatyana and Nina Trentmann, The Wall Street Journal, June 28, 2018, accessed at <https://www.wsj.com/articles/delaying-payments-to-suppliers-help-companies-unlock-cash-1530178201>

“The Hormuz Squeeze Is Redrawing Global Oil and Gas Markets for Good”, Jun 5, 2026, <https://energynewsbeat.co/crude-oil/the-hormuz-squeeze-is-redrawing-global-oil-and-gas-markets-for-goodby-energy-news-beat-channel/>

“The Big Story: If less than 1% comes from the Middle East, why are food prices rising in Singapore?”, Mar 20, 2026, <https://omny.fm/shows/moneyfm-evening-show/the-big-story-if-less-than-1-comes-from-the-middle-east-why-are-food-prices-rising-in-singapore>

“Naphtha supply disruption raising prices of medical supplies but Singapore has adequate stockpiles”, Mar 19, 2026, https://www.youtube.com/watch?v=MJbdfj_bA_k

“Tariffs will cost Harley more than \$40 million in 2018” Robert Ferris, CNBC Network, 23rd Oct 2018, assessed at: <https://www.cnbc.com/2018/10/23/tariffs-will-cost-harley-davidson-more-than-40-million-in-2018.html>

“Walmart changed the way it buys shopping bags and saved \$60 million—and that’s just one way it cut costs”, Thomas, Lauren, Feb 18, 2020, accessed at <https://www.cnbc.com/2020/02/18/walmart-saves-millions-of-dollars-each-year-by-making-these-small-changes.html>

- “Now Showing at Blockbuster: How Revenue-sharing Contracts Improve Supply Chain Performance”, Knowledge @ Wharton, Oct 16, 2000, accessed in Oct 2013 at <http://knowledge.wharton.upenn.edu/article/now-showing-at-blockbuster-how-revenue-sharing-contracts-improve-supply-chain-performance/>
- “Nike Will Let People Design and Sell Sneakers for the Metaverse”, Francesca Perry, Nov 14, 2022, Wired, accessed at <https://www.wired.com/story/nike-will-let-people-design-and-sell-sneakers-for-the-metaverse/>
- “New Hyundai facility in Singapore could one day build flying cars”, Business Times, <https://www.youtube.com/watch?v=dJsoilr49m0>
- “Frontier Technologies in Industrial Operations: The Rise of Artificial Intelligence Agents”, World Economic Forum, Jan 2025, accessed at https://reports.weforum.org/docs/WEF_Frontier_Technologies_in_Industrial_Operations_2025.pdf
- “How Manufacturers Lost The Inventory Battle”, Cecere, Loren, Forbes, May 2, 2023, accessed at <https://www.forbes.com/sites/loracecere/2023/05/02/how-manufacturers-lost-the-inventory-battle/>
- “UK Factories stockpile goods at fastest pace in 27 years”, Romei et al, Financial Times, 01 February 2019, accessed at <https://www.ft.com/content/27ab5752-2604-11e9-b329-c7e6ceb5ffdf>
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- “S’pore manufacturing sector joins regional race to get ahead of Trump’s proposed tariffs”, Tan, Colin, 2 Dec, Straits Times, accessed at <https://www.straitstimes.com/business/spore-manufacturing-sector-joins-regional-race-to-get-ahead-of-trumps-proposed-tariffs>
- “Chinese e-commerce's growing markets in US and beyond: Opportunities and challenges”, Goh, Puay Guan, ThinkChina, 27 Jun 2023, accessed at <https://www.thinkchina.sg/chinese-e-commerces-growing-markets-us-and-beyond-opportunities-and-challenges>
- “Ship operators urge clear rules to return Hormuz to normal”, June 1, 2026, <https://www.reuters.com/world/china/ship-operators-urge-clear-rules-return-hormuz-normal-2026-06-01/>
- “Importance of the Straits of Malacca to global trade”, 27th May 2026, <https://www.youtube.com/watch?v=UUdhXnXhKdA> (in Chinese)
- “Color crunch: Japan’s Calbee chip bags go monochrome as Iran war bites”, May 12, 2026, <https://edition.cnn.com/2026/05/12/asia/calbee-chips-japan-packaging-middle-east-war-intl-hnk>
- “Oil, war, and bottlenecks: rethinking the Strait of Hormuz”, May 2026, <https://www.youtube.com/watch?v=kgHbqYG2Ky4>
- “Designing Resilience into Global Supply Chains”, Aylor et. Al., BCG, accessed at <https://www.bcg.com/publications/2020/resilience-in-global-supply-chains>
- “The business must go on: get contingency planning right”, Goh, Puay Guan, Yahoo, 14 February 2020, accessed at <https://sg.news.yahoo.com/the-business-must-go-on-get-contingency-planning-right-093051152.html>

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“U.S. and European firms face \$1 trillion in costs to relocate their Chinese supply chains, BofA says”, Smith, Elliott, CNBC, Aug 18, 2020, accessed at <https://www.cnbc.com/2020/08/18/bofa-us-european-firms-face-1-trillion-to-relocate-china-supply-chains.html>

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The Robot Revolution: The New Age of Manufacturing | Moving Upstream, accessed at <https://www.youtube.com/watch?v=HX6M4QunVmA>

“How Real-Time Inventory-Level Visibility Drives Retail To Efficiency”, De Muynck, Bart, Forbes, Nov 7, 2023, accessed at <https://www.forbes.com/sites/forbestechcouncil/2023/11/07/how-real-time-inventory-level-visibility-drives-retail-to-efficiency/>

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“Revolutionizing Supply Chains: The Game-Changing Impact Of AI”, Anand, Ketan, Nov 6, 2024, accessed at <https://www.forbes.com/councils/forbestechcouncil/2024/11/06/revolutionizing-supply-chains-the-game-changing-impact-of-ai/>

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“So Much For the Return of In-Person Shopping: Retailers Could Close 50,000 Stores by 2027”, Escobar, Sabrina, April 12, 2023, Barrons, accessed at <https://www.barrons.com/articles/retailers-closing-stores-cc14dbd4>

“Why Amazon Business is now Offering Same-day Fresh Groceries”, May 05, 2026, accessed at <https://procurementmag.com/news/amazon-business-same-day-fresh-groceries>

“U.S. may need another 1 billion square feet of warehouse space by 2025 as e-commerce booms”, Thomas, Lauren, Jul 9 2020, CNBC, accessed at <https://www.cnbc.com/2020/07/09/us-may-need-another-1-billion-square-feet-of-warehouse-space-by-2025.html>

ACADEMIC HONESTY & PLAGIARISM

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is ‘the practice of taking someone else's work or ideas and passing them off as one's own’ (The New Oxford Dictionary of English). The University and School will not condone plagiarism.

Artificial Intelligence (AI) tools such as ChatGPT do not require specialist knowledge to use. Many of these AI tools are commonly used in social media, for example, to create content and disguise and refine content created from programmes like ChatGPT. We understand that students will be drawn to using these AI Tools, as they would for any other electronic aid.

However, to be clear, normal academic rules still apply. As noted in the Code of Student Conduct:

“The University takes a strict view of cheating in any form, deceptive fabrication, plagiarism and violation of intellectual property and copyright laws. Any student who is found to have engaged in such misconduct is subject to disciplinary action by the University.”

With respect to AI tools (e.g., ChatGPT and image generation tools), your instructor will clarify whether the use of these tools as inputs into your assignment development process is acceptable. AI is a technology that requires skill to use, and knowledge about when and how to use it. If you use ChatGPT or any other such AI tool in your work, you must provide a proper representation of how you used the tool and what prompts you used to generate output. Failure to cite its use constitutes academic misconduct.

Further, as with any information source, be aware that minimal efforts yield low quality results. You will need to refine your work and fact check the output, as you would double-check information from any source. Further, you should be selective in how and when you use such tools instead of using it for each and every assignment you create.

To summarise:

1. Always check with your instructors on what are the permitted uses of AI tools.
2. Have a discussion at the start of a course about the use of AI.
3. Where permitted, acknowledge your use of AI.
4. You remain responsible for the quality of your work and its appropriate representation.
5. Failure to follow the above steps can lead to a concern about plagiarism (academic dishonesty).

As always, you have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is entirely your own work. This is a minimum standard.

Additional guidance can be found at:

Admission Condition: <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>

NUS Code of Student Conduct: <https://www.nus.edu.sg/campusconduct/>

Academic Integrity Essentials: <https://libguides.nus.edu.sg/new2nus/acadintegrity#s-lib-ctab-22144949-4>

Guidelines on the Use of AI Tools For Academic

Work: <https://libguides.nus.edu.sg/new2nus/acadintegrity#s-lib-ctab-22144949-3>