

The Hong Kong University of Science and Technology

UG Course Syllabus

Data Driven Supply Chain Management

IEDA4410

3 Credits

Pre-requisites: IEDA4100

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Course Description

With the advancement of information technology and globalization, competition is no longer restricted to local participants but on the performance of the entire supply chain. The ability to capture, store, aggregate and analyze data and then extract intelligence is now rapidly becoming a mandate for virtually all organizations. This course offers an introduction to the basic concepts and philosophies of supply chain management including inventory management, risk pooling, bullwhip effect, smart pricing and supply chain coordination. Moreover, real world companies' cases are discussed to show how to leverage big data and analytics to extract new insights and gain competitive advantages from supply chains.

Intended Learning Outcomes (ILOs)

By the end of this course, students should be able to:

1. Understand the fundamental concepts and principles of supply chain management.
2. Master the basic theories and models in supply chain management.
3. Evaluate and analyze the practical problems in various industries.
4. Leverage data analytics to extract insights and propose better solutions for supply chains.

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)	Due date*
Homework assignments	5%	Please check the updated schedules on canvas
Participations	15%	Week 5, 6, 7, 8, 10, 11, 12 (see the updates on canvas)
Mid-Term Exam	30%	27 Oct. 2025
Final Exam	40%	University Examination Week
Group Project	10%	Week 13

Course Outline

	Topics	Readings
1	Introduction	
2	Inventory management	Chapter 2
3	Risk pooling strategies	Chapter 2 <i>Case 1: Sport Obermeyer (pp. 63-67)</i>
4	Bullwhip effect controlling	Chapter 5 <i>Case 2: Barilla SpA(A) (pp. 143-152)</i>
5	Postponement	<i>Case 3: Zara: An integrated store and online model</i>
6	Smart pricing	Chapter 13 <i>Case 4: Allegiant Airlines</i>
7	Supply contracts and risk sharing	Chapter 4 <i>Case 5: Supply Chain Coordination and Contracts in the Sharing Economy – a Case Study at Cargo</i>
8	Supply Chain Design Strategies	<i>Case 6: Apple Inc.: Global Supply Chain Management</i> <i>Case 7: Amazon.com: Supply Chain Management</i>

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Homework assignments	ILO1, ILO2	Homework assignments assess the students' ability to master the basic theories and principles, and apply the theories to formulate and optimize supply chain management related problems (ILO1, ILO2).
Participations	ILO1, ILO3, ILO4	Case discussions and in-class activities assess students' ability to understand supply chain related principles (ILO1), evaluate and analyze practical problems (ILO3), and derive new managerial insights by data analytics (ILO4).
Midterm Exam	ILO1, ILO2, ILO3, ILO4	The midterm exam assesses students' ability in mastering the basic theories, principles (ILO1), apply theories in solving related problem (ILO2), evaluate practical cases (ILO3), as well as provide guidelines using data analytics tools (ILO4).
Group Project	ILO1, ILO3, ILO4	The group project presentation evaluates students' ability in solving a real life case based on the understanding of basic principles in supply chain (ILO1), and pointing out the problem/challenges facing by the companies (ILO3), and finally provide new solutions (ILO4).
Final Exam	ILO1, ILO2, ILO3, ILO4	The final exam assesses students' ability in mastering the basic theories, principles (ILO1), apply theories in solving related problem (ILO2), evaluate practical cases

		(ILO3), as well as provide guidelines using data analytics tools (ILO4).
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Final Grade Descriptors:

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of concepts and philosophies of supply chain management, and exceptional ability in solving related problems. Participates actively and effectively in group activities and shows high ability in collaboration and stimulating ideas in group discussions. Exhibits exceptional critical thinking skills and creativity in evaluating and analyzing cases.
B	Good Performance	Shows good knowledge and understanding of the concepts and philosophies of supply chain management and effectively ability in solving related problems. Participate effectively in group discussions and demonstrates good critical thinking skills. Displays high motivation to learn and the ability to collaborate with others in group activities.
C	Satisfactory Performance	Possess adequate knowledge of concepts and philosophies of supply chain management, and some capacity for analysis and critical thinking. Shows persistent and effort in group activities but may lack depth in analysis.
D	Marginal Pass	Has threshold knowledge of the concepts and philosophies of supply chain management, potential to achieve related problem solving skills, and the ability to make basic judgement. Benefits from the course and has the potential to develop.
F	Fail	Demonstrates insufficient understanding of the subject matter and lacks the necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort towards achieving learning goals. Does not meet the threshold requirements for professional practice or development in the discipline.

Course AI Policy

All students are encouraged to use AI wisely in group project preparations with proper acknowledgement.

Communication and Feedback

Students who have further questions about the feedback including marks should consult the instructor/TAs within one week after the feedback is received.

Resubmission Policy

To ensure fairness for students who submit assignments on time, a penalty for late submission is listed as follows:

- Late submission within 12 hours, 25% penalty will be applied.
- Late submission between 12 to 24 hours, 50% penalty will be applied.
- Late submission for more than 24 hours will not be accepted.

Required Texts and Materials

Textbook:

David Simchi-Levi et al., Philip Kaminsky and Edith Simchi-Levi. Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies, 4th edition, McGraw-Hill, 2022.

Case readings (copyright protected versions to be provided on canvas):

- Sport Obermeyer
- Barilla SpA (A)
- Zara: An Integrated Store and Online Model (A)
- Allegiant Airlines: Finding a New Customer Segment
- Supply Chain Coordination and Contracts in the Sharing Economy – a Case Study at Cargo
- Apple Inc.: Global Supply Chain Management
- Amazon.com: Supply Chain Management

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to [Academic Integrity | HKUST – Academic Registry](#) for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

Grading Rubrics for Group Presentation

Criteria	Excellent	Good	Satisfactory	Marginal	Fail
Content	Demonstrates exceptional, insightful supply chain analysis with nuanced understanding. Rich, well-researched evidence strengthens arguments. Recommendations are innovative, actionable, and grounded in analysis; discussions address long-term implications.	Clear, thorough analysis of supply chain with logical connections between components. Strong supporting details (data, case studies, trends) enhance credibility. Practical and thoughtful discussions/recommendations, though minor gaps in innovation or feasibility.	Competent analysis of supply chain elements but lacks critical insight. Some relevant evidence/examples provided, but gaps in detail or support. Discussions/recommendations are present but lack originality or actionable depth.	Basic understanding of supply chain concepts but lacks depth or clarity. Limited evidence or examples; reliance on vague or generalized statements. Discussions/recommendations are underdeveloped, impractical, or lack connection to analysis.	Demonstrates minimal or no understanding of supply chain analysis. Little to no supporting evidence, examples, or data. Discussions/recommendations are absent, irrelevant, or superficial.
Organization	Flawless, professional structure with purposeful sequencing. Engaging introduction, well-paced body, and impactful conclusion. Audience can effortlessly track arguments and insights.	Clear, cohesive structure with smooth transitions. Strong introduction sets context; conclusion summarizes key takeaways. Easy for the audience to follow and retain information.	Logical structure with identifiable introduction, body, and conclusion. Main points are addressed, though some sections feel rushed or repetitive. Audience can follow the presentation with minimal confusion.	Basic structure exists but is inconsistent or unclear. Introduction or conclusion is weak; key points lack focus. Flow is choppy, requiring audience effort to connect ideas.	Presentation lacks logical structure; ideas are disjointed or random. No clear introduction, body, or conclusion. Audience struggles to follow the narrative or purpose.
Delivery	Natural, sustained eye contact that connects with the entire audience. Speech is polished, enthusiastic, and tailored to audience understanding. Posture and body language exude confidence and professionalism.	Consistent eye contact with most of the audience. Speech is articulate, well-paced, and uses vocal variety for emphasis. Confident posture and purposeful gestures enhance messaging.	Steady eye contact with parts of the audience. Speech is generally clear but lacks vocal variety or emphasis. Posture is neutral; gestures are occasional but not distracting.	Occasional eye contact but relies heavily on notes/slides. Speech is uneven. Body language is stiff or inconsistent; limited gestures.	Minimal/no eye contact; reads directly from notes/slides. Speech is unclear. Posture is slouched or nervous; distracting body language (e.g., fidgeting).