

**Nanyang Technological University
Nanyang Business School**

BC2408: Supply Chain Analytics

Course Description

Supply chain analytics is a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses and stores and to efficiently manage material, information and financial flows so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to maximize system-wide surplus or value. It plays an important role in today's global economy, because efficient supply chains not only make companies more profitable but also allow customers to receive better products at lower prices. For business and technology management students, it becomes critical to have a good understanding of supply chains and its vital role as a source of both performance improvement and business innovation.

In this course, students will learn four key challenges facing supply chain managers, six drivers of supply chain performance, techniques to optimize these key drivers, supply chain best practices, as well as strategies for supply chain coordination and integration. They will learn how to optimally leverage on facilities, inventory, transportation, information, sourcing and pricing in order to address the complexity, uncertainty, dynamic environment and fragmented ownership inherent in supply chains. In the process, the course will cover the success stories of Amazon's centralization, Walmart's cross-docking, Hewlett-Packard's postponement, Dell's modular design, Timbuk2's mass customization, Sport Obermeyer's quick response, Barilla's vendor-managed inventory, Ford's flexible manufacturing, and Blockbuster's revenue-sharing contract.

The goals of the course are i) to provide an understanding and appreciation of key challenges in supply chain analytics and key drivers of supply chain performance, and ii) to expose students to techniques and strategies used to optimize supply chain decisions and to anticipate or explain supply chain phenomena. The teaching method used is seminar style with a mix of lectures, case discussions, problem-solving exercises, spreadsheet-modeling demonstrations and class discussions. Students will be graded on class participation, individual assignments, quizzes, and a final group project. The course is suitable for students of business analytics or technology management, as well as aspiring consultants or entrepreneurs.

Course Assessment

Class Participation (20%) – Individual

Individual Assignments (10%) – Individual

Quizzes (40%) – Individual

Group Project (30%) – Team

Seminar Schedule

Class	Topics
1	Introduction to Supply Chain Management
2	Forecasting: Mature versus New Products
3	Facilities: Basic Network Design
4	Inventory: Cycle Stocks and Safety Stocks
5	Field Trip
6	Inventory: Seasonal Stocks and Perishable Stocks
7	Quiz 1 Transportation: Modes, Network Types and Routing Techniques
	Recess Week
8	Facilities, Inventory and Transportation: Advanced Network Design
9	Sourcing: Supplier Management and Contracting for Coordination
10	Quiz 2 Information: Demand Distortion and Role of IT
11	Pricing: Differential Pricing and Revenue Management
12	Supply Chain Integration
13	Group Projects