

**BAR-ILAN UNIVERSITY**  
**Department of Management**  
**Academic year 2023-2024**  
**SUPPLY CHAIN ANALYTICS**

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**COURSE DESCRIPTION**

Supply chain management has become a main driver for corporate economic performance. Choice of a geographical location, organization of a flow of operations, implementation of a supply program, management of inventory, optimization of product availability, design of a network in a supply chain, determination of a distribution route, etc. These are some of the analytical concerns associated with supply chain management. This course aims to acquire tools to address some of these concerns. Each session will provide with simple analytical framework to optimize supply chain management decision-making.

This course has a dual purpose, namely:

- To identify the basic issues associated with supply chain management,
- To assimilate the main supply chain analytical tools.

The vocation of this course is essentially applicative. The implementation of supply chain management analytical tools will be illustrated using spreadsheet exercises. In addition, a synthesis case will be submitted to the participants during the fourth session of the course.

**CLASS FORMAT**

Class sessions involve a mix of lectures and applications. During the first session, the main point will be to understand the very nature of supply chain management. The subsequent sessions are devoted to a formal presentation of a specific methodology. The students will then be expected to perform computerized applications. The last sessions will focus on a case study.

**EVALUATION**

The work provided in this course is based on:

- Assignments by pairs,
- Case study and presentation of the related conclusions by groups of students.

Grades will be based on the quality of the applications related to the following assignments:

- Application session 3	15%
- Application session 4	15%
- Application session 5	15%
- Application session 6	15%
- Application session 8	15%
- Case study sessions 9-10	25%

## **AGENDA**

### **SESSION 1** – Supply chain inefficiencies *Wed. 10/01 18:00-20:00*

In this session, we identify the main supply chain's inefficiencies and explain how the corporate performance may be improved by supply chain coordination initiatives.

### **SESSION 2** – Supply chain inefficiencies (Cont.) *Wed. 17/01 18:00-20:00*

### **SESSION 3**– Geographical location choice *Wednesday 24/01 18:00-20:00*

In this session, we describe the decision-making process for a geographical location and characterize some common approaches for location choice.

*Application: Excel*

### **SESSION 4** – Optimal level of product availability *Wed. 31/01 18:00-20:00*

In this session, we determine the optimal level of product availability in a supply chain both for seasonal and continuously stocked items. Further, we identify the main levers to improving supply chain profitability and suggest some contractual devices for supply chain coordination.

*Application: Excel*

### **SESSION 5** – Transportation issues in the supply chain *Wed. 07/02 18:00-20:00*

In this session, we explain how transportation decision-making should take into account supply chain issues. We also provide with methodologies for routing in transportation networks.

*- Application: Excel*

### **SESSION 6** – The design of a network in a supply chain *Wed. 14/02 18:00-20:00*

In this session, we develop a framework for optimizing network design decisions. The framework will prove to be useful to solving various network issues as facility location and capacity allocation decision.

*- Application: Excel*

### **SESSION 7** – Supply quality management and control *Wed. 21/02 18:00-20:00*

In this session, we characterize the main steps to design an acceptance sampling plan agreeable to the supply chain members.

### **SESSION 8** – Supply quality management and control (Cont.) *Wed. 28/02 18:00-20:00*

*- Application: Excel*

### **SESSION 9** – Case study: The Poseidon adventure *Frid. 23/02 08:00-10:00*

Small groups of students will be assigned the design of a supply chain policy project during the first part of the session. A brief presentation of the project to the class is scheduled for the second part of the session.

### **SESSION 10** – Case study: The Poseidon adventure (Cont.) *Frid. 08/03 08:00-10:00*

## **REFERENCES**

- SILVER, E.A., PIKE, D.F., THOMAS, D.J. – Inventory and Production Management in Supply Chains, Taylor and Francis, 2017, 4<sup>th</sup> edition.
- HUGOS, M. H. – Essentials of Supply Chain Management, Wiley, 2018, 4<sup>th</sup> edition.
- CHOPRA, S. & MEINDL, P. - Supply Chain Management: Strategy, Planning and Operations, Pearson, 2019, 7<sup>th</sup> edition.