### Title of Module

Designing and Coordinating the Supply Chain

### Responsible person

Prof. Dr. Fabian Tjon, Prof. Dr. Nadine Roth-Walther

### Lecturer

Prof. Dr. Fabian Tjon, Prof. Dr. Nadine Roth-Walther

### Module Code

SCM01

### Type of Module

X obligatory module, O elective module

### Level

O BA  O BSc  O BEng,  
O MA  x MSc  O MEng  O MBA

### Language

English

### Related Degree Programme/s

Supply Chain Management (M.Sc.)

### Department

Management and Communication

### Location

O Gießen,  
x Friedberg

### Availability/frequency of module

O every semester,  
O annually in the Winter Semester,  
x annually in the Summer Semester,

### Hours per Week / Workload

4.5 HpW, contact hours per week  
240 H in total

### Number of CrP/ECTS

8 ECTS/CrP

### Forms of instruction

x lecture,  
x seminar,  
O supervised training,  
x laboratory practical course

### Qualifications and Goals

This compulsory course covers the most fundamental aspects of supply chain management. It will prepare students to apply product/process design concepts and techniques at strategic and tactical levels relating to the flow of materials and information through a company’s supply chain. The course covers qualitative as well as quantitative subjects.

Students will be able to improve their problem-solving, team working and communication skills by solving authentic case studies in small groups and presenting their solutions to an audience made up of fellow students.

By participating in a role-based simulation game, students will have the possibility to experience coordination problems in a supply chain and will discover suitable solutions in order to level the so-called “Bullwhip-Effect”.

After completion of the course, students are expected to be able to:

- explain the role/function of supply chain management and its importance to the success of a firm in a contemporary global operations setting,
- understand the concept of strategic fit between the supply chain strategy and the competitive strategy of the firm,
- develop a methodological framework for defining appropriate market-driven supply chain strategies,
- develop a methodological framework for supply network design according to the supply chain strategy,
- apply optimisation models and techniques for facility location, capacity allocation, aggregate planning and multi echelon inventory planning,
- identify key obstacles in coordination of a supply chain and to propose managerial counteractions.

### Short Description of Contents

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# Learning Unit 1: Designing Supply Chain Strategies
- Introduction to Supply Chain Strategies:
- Product Design Strategies:
- Process Design Strategies:

# Learning Unit 2: Network Design and Tactical Planning
- factors influencing distribution and supply chain network design
- framework for network design decisions
- factors impacting global supply chain networks
- making global supply network design decisions under uncertainty
- models for facility location, capacity allocation and inventory positioning
- models for demand forecasting, aggregate planning and multi echelon safety stock planning
- managerial levers that help archive synchronization in a supply chain

# Learning Unit 3: Coordination within a Supply Chain
- in-class simulation exercise - The Beer Game: identifying the Bullwhip-Effect as a result of a lack of coordination; measuring the Bullwhip-effect
- key obstacles in coordination of a supply chain: incentive, information-processing, operational, pricing and behavioral.
- counteracting the Bullwhip-effect by ICT-enabled supply chain reform initiatives
- collaborative planning
- counteracting the Bullwhip-Effect through defining new organizational relationships and aligning incentives
- managing reverse flows in the supply chain (an overview)

## Prerequisites
(1) Students should have completed at least one undergraduate level operations management and business administration/strategic management course; (2) B2 level in English; (3) matriculation on master level

## Assessment
O oral (O examination of xx minutes, O presentation), x written (x examination of 120 minutes, O term paper)

## Literature/Textbooks
TBA

## Other