



Supply Chain Operations

The course will take place online and in presence. For information on how to access the online sessions and further course material, see ILIAS.

Course Description

Buying products and using services is part of our daily life. We buy books, groceries, and computers and we use telephones, watch movies, and fly on planes. When doing so, we demand high quality and good service at a low price. Supply chain management addresses these topics. Supply chain management is about designing, producing, delivering and selling products and services – and about doing so profitably. It has emerged as one of the most powerful business subjects and successful companies all over the world are using supply chain management to improve quality, increase customer service, reduce cost and build new revenues.

The course focuses on operational and coordination issues. The course consists of lectures, case studies, a project, and an exam.

In the case study based part of the course, the concepts that are covered in the lectures are applied to solving unstructured problems that real companies have faced. The cases prepare students to identify improvement opportunities that exist in actual supply chains, to quantify the improvements that various supply chain management approaches offer, to overcome implementation barriers, and to control supply chain performance.



Course Administration

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|---------------------------|---|
| Class times | Monday, 16.00-17.30 Wednesday, 10:00-11:30 Thursday, 14:00-15:30 (see course agenda below for exact dates) |
| Faculty | Prof. Dr. Ulrich W. Thonemann Telephone: +49-221-470-7935 E-mail: Ulrich.Thonemann@uni-koeln.de Office hours: by appointment |
| Secretary | Stephanie Rauscher Building 415, Room 2.509 Telephone: +49-221-470-7935 E-mail: Rauscher@wiso.uni-koeln.de |
| Teaching assistant | Laura Maria Poreschack, M.Sc. M.A.St. Telephone: +49-221-470-6237 E-mail: laura.poreschack@uni-koeln.de Office hours: by appointment |
| Assignments | There will be three discussion sessions. Students can hand in preparation exercises for each discussion session on Ilias, which will be rewarded with one bonus point each. In addition, students have to hand in a project assignment and a case study report in groups. |
| Deadlines | Please refer to the submission deadline on ILIAS. |
| Grade | The course will count 6 credit points (LP). The grading consists of a project (20%), a case study (10%) and a final exam (70%). There will be 5 bonus points (3 for the preparation exercises, 1 for presenting the inventory project, 1 for presenting the case study). |
| Exam | May 21, 2022 |
| Language | The lectures and discussion sessions are taught in English. |
| Prerequisites | Interest in the field and working knowledge of quantitative approaches in business administration. |

Learning modules will be published every Friday for the upcoming week.



Course Overview & Literature

Supply Chain Management

The Bullwhip Effect: Causes and Cures

Reading: Lee et al. (1997), "The Bullwhip Effect in Supply Chains".

Multi-Echelon Inventory Management

Multi Echelon Inventory Control I – The METRIC Approach

Reading: Axsäter (2015), Inventory Control, Sections 8.1, 8.2, 10.2, 10.3, 10.4 and 10.5

Multi Echelon Inventory Control II – Guaranteed Service Level Approach

Reading: Axsäter (2015), Inventory Control, Section 10.6

Reading: Graves, S. C., Willems, S. P. "Optimizing Strategic Safety Stock Placement in Supply Chains."

Revenue Management

Revenue Management I

Reading: Phillips (2005), Pricing and Revenue Optimization, University Press: Stanford, chapters 4, 5, 7, 9, 10

Revenue Management II

Reading: Phillips (2005), Pricing and Revenue Optimization, University Press: Stanford, chapters 4, 5, 7, 9, 10



Course Agenda

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|----------------|---|--|--|---|--|
| April | 04 | 05 | 06 | 07 | 08 |
| | Introduction Upload module: Inventory Primer | | | | |
| | 11 | 12 | 13 | 14 | 15 |
| | | | Beer Game | | Upload module: The Bullwhip Effect |
| | 18 | 19 | 20 | 21 | 22 |
| | | Deadline Inventory Project | | Inventory Project Discussion | Upload module: Holistic SCO |
| May | 25 | 26 | 27 | 28 | 29 |
| | | Deadline Multi Echelon Preparation Exercises | Supply Chain Applications I | Discussion Session: Holistic SCO | Upload module: Revenue Management I |
| | 02 | 03 | 04 | 05 | 06 |
| | | Deadline Revenue Management I Preparation Exercises | Supply Chain Applications II | Discussion Session: Revenue Management | Upload module: Revenue Management II |
| | 09 | 10 | 11 | 12 | 13 |
| | Deadline Revenue Management II Preparation Exercises | Deadline Case Study | Discussion Session: Revenue Management II | Case Study Discussion | |
| 16 | 17 | 18 | 19 | 20 | |
| Q&A | | | | | |