

REV 2017-11-26

KRONOS CHAIR IN SOURCING AND PROCUREMENT LLSMS2035 SUPPLY CHAIN COORDINATION AND SOURCING

LANGUAGE	English
SEMESTER	Fall 2017
ASSESSMENT	Final exam (60%), case solutions (40%).
PREREQUISITES	LLSMS2030 or equivalent introductory class in supply chain management Microeconomics, elements of game theory, industrial organization/economics.
ORGANIZATION	Lectures and simulations (see course)
INSTRUCTORS	Prof. Per J. AGRELL, Kronos Chair in Sourcing and Procurement, Professor of Operations Management, UCL/LSM and CORE, per.agrell@uclouvain.be , Office CORE, Phone: +32 10 474305
ASSISTANT	Ms Sarah DAMAI, UCL/LSM/OIS (LSM; BI I 6) sarah.damai@uclouvain.be
COURSE FOCUS	A vital function in supply chain management is to coordinate multiple firms or links in order to achieve an optimal outcome. The coordination could be in terms of materials, information and/or financial flows along the value chain. Considerable applied and theoretical interest has been shown in developing organizations, methods and models that facilitate this coordination. However, since it involves both an in-depth understanding of the supply chain optimization and the mastery of mechanism design, coordination skills are rare and sought-after by industry. The class is part of the Kronos Chair in Sourcing and Procurement, offering real-life cases and also opportunities for internships and/or Master's theses in the area.
LEARNING OBJECTIVES	<p>The purpose of the course is to provide analytical skills in supply chain coordination techniques. The base models will be primarily the standard newsboy model for inventory management and simple two-period investment-production models for the strategic game models. Some topics that will be studied:</p> <ul style="list-style-type: none">• Contractual Mechanisms for coordination• Quantity Discounts• Buy-back contracts• Revenue Sharing• Price Protection and Quantity Flexibility• Hold-up problems in supply chain interaction (investment, inventory)• Investment incentives for product and process innovation
TEACHING METHODS	The class is mainly analytical and based on modern readings in the area. The sessions are devoted to theoretical discussions of selected aspects and debriefs of cases and assignments. Applied examples for the concepts using real firms, newspaper clips and numerical illustrations are provided at the lectures. At some occasions, interactive games are used to illustrate the intuition or complexity of certain models. In-between sessions, participants work on the reading assignments and the cases. Following a seminar discussing an assigned reading, there may be a short quiz to solve individually or in pairs.

GROUPS	Groups can comprise at most four members, but note that each report should be marked with the names of those, and only those, who collaborated towards its completion. Names cannot be added to already submitted reports.
CASE SUBMISSION	At indicated dates, each group is responsible for submitting the solution through the Moodle platform (under Assignments only). Submit the reports in PDF, one per group, under each case heading. Submissions or corrections of assignments after the debrief session are not accepted. For specific requirements and limitations concerning format and number of pages, see each Assignment. The weight for the case grades is equal for each assignment. Case points are valid in the January and September exam sessions.
EVALUATION	The final evaluation may be made through a written exam (default); closed book and one A4 page (two faces) of notes, 3 hours answering time, questions of two categories – coordination instruments (design) and outcomes (analysis). Some exams are available on Moodle.
FINAL EXAM OPTION	The default examination in the course is the written final exam on the course text in mid-January. For requests regarding exams off-campus (e.g. at your home university in January), please obtain clearance from the International Student Office.
PARTICIPATION	Given the condensed format for the class and the role of case teaching, participation at all project presentations, guest lectures and games is mandatory.
COURSE TEXT	Cachon G (2003) <i>Supply Chain Coordination with Contracts</i> . Ch 6 in ed. S Tayur, R Ganeshan and M Magazine, <i>Quantitative Models for Supply Chain Management</i> , pp. 198-232. (also on Moodle) Van Weele, A. J. (2009). <i>Purchasing and supply chain management: Analysis, strategy, planning and practice</i> . Chapter 1 Cengage Learning EMEA.
CASES	C1: <i>Toner for the World</i> , Agrell, UCL/LSM, 2017. C2: <i>IKEA Global Supply Chain</i> , Agrell, UCL/LSM, 2017 C3: <i>Global Supply Chain Simulation</i> , HBS C5: <i>Retail-supplier negotiation game</i> , Agrell-Jörnsten, UCL/NHH, 2012
ARTICLES	Under 'Readings' on the Moodle webpage. Articles are included in the exam. Papers under 'optional readings' are not included. Paulraj, A., Chen, I. J., & Flynn, J. (2006). Levels of strategic purchasing: impact on supply integration and performance. <i>Journal of Purchasing and Supply Management</i> , 12(3), 107-122. Monczka, R. M., & Petersen, K. J. (2012). The competitive potential of supply management. <i>Supply Chain Management Review</i> , 16(5), 10-18. Swink, M. L., & Mabert, V. A. (2000). Product development partnerships: Balancing the needs of OEMs and suppliers. <i>Business Horizons</i> , 43(3), 59-68.
HONOR CODE	Any case of plagiarism is penalized with 0/20 for the assignment. In case of group work, the members are collectively responsible for the submitted work unless reported before.

Lecture Plan				
LEC	DAY	TOPIC / INSTRUCTOR	READING	CASE / ASSIGNMENT
1.	1711	Coordination - introduction	NR	
2.	1711	SAAB civilian aircraft - minicase	SAAB	
3.	1711	Coordination instruments: four approaches	NR	
4.	2411	Basic newsvendor models	C 6.2	
5.	2411	Newsvendor contracts, buyback	C 6.2.3	
6.	2411	Newsvendor contracts, QF, RS, SR	C 6.2	
7.	0112	Debrief C1 Toner for the World	C 6.2.4	Toner C1
8.	0112	Price-dependent demand	C 6.3	
9.	0112	Coordination and postponement	C 6.6	
10.	0812	Global Sourcing Simulation	-	Simulation C3
11.	0812	Debrief C2 IKEA Global sourcing	C2	IKEA C2
12.	0812	Sourcing methods	VW 11	
13.	1512	Sourcing and business strategy		
14.	1512	Site visite and guest lecture Kronos Group - sourcing	Moodle	Visit C4
15.	1512	Sourcing of innovation and product development		
16.	2212	Retail-supplier negotiation (no pre-reading)	10h45 12h45	Simulation C5

Course contents

The main focus of the lectures is to highlight particular features of the text – they do not replace the text! Thus, use the lectures wisely by reading the assigned material before the lecture and ask any questions that may have arisen during the reading. Slides not covered during a lecture are still valid unless stated.

CACHON

Cachon (2003) [Chapter 6] - excluded chapters are grey

- 6.1 Introduction
- 6.2 Coordinating the newsvendor
 - 6.2.1 Base model
 - 6.2.2 Wholesale price contract
 - 6.2.3 Buyback contract
 - 6.2.4 Revenue sharing contract
 - 6.2.5 Quantity flexibility contract
 - 6.2.6 Sales rebate contract
 - 6.2.7 Quantity discount contract
 - 6.2.8 Discussion
- 6.3 Coordination with price-dependent demand
 - 6.3.1 Model and analysis
 - 6.3.2 Discussion
- 6.4 Coordination with effort-dependent demand
 - 6.4.1 Model and analysis
 - 6.4.2 Discussion
- 6.5 Coordination with multiple newsvendors
 - 6.5.1 Competing newsvendors with fixed retail price
 - 6.5.2 Competing newsvendors with market clearing price
 - 6.5.3 Discussion
- 6.6 Coordination with demand updating
 - 6.6.1 Model and analysis
 - 6.6.2 Discussion
- 6.7 Coordination in single-location base stock model
 - 6.7.1 Model and analysis
 - 6.7.2 Discussion
- 6.8 Coordination in two-location base stock model
 - 6.8.1 Model
 - 6.8.2 Cost functions
 - 6.8.3 Behavior in decentralized game
 - 6.8.4 Coordination with linear transfer payments
 - 6.8.5 Other coordination methods
 - 6.8.6 Discussion
- 6.9 Coordination with internal markets
 - 6.9.1 Model and analysis
 - 6.9.2 Discussion
- 6.10 Asymmetric information
 - 6.10.1 Capacity procurement game
 - 6.10.2 Full information
 - 6.10.3 Forecasting sharing
 - 6.10.4 Discussion
- 6.11 Conclusion

EXAMPLES OF PAST MASTER'S THESES IN THE KRONOS CHAIR

Topic	Proj
Post-implementation analysis of value-chain analysis for perishable goods: Case of Delhaize SA	Y
A two-period coordination model for perishable goods with upgrading option	
Analysis of platforms for retail-supplier catalogue coordination: Delhaize	Y
Managing dual channels in supply chains: impact on service levels downstreams	
Intra-group logistical competition: market share, incentives and coordination effects at L'Oréal	
Reverse logistics, recycling and central sorting in beer bottles in Belgium	Y
Design of car pooling models for inter-city travel	
Innovation incentives and vertical cooperation among telecom supply chains	
Contractual coordination in three-stage systems based on variable delivery times	
Coordination effects in supply chains with consignment and deferred payments	