

OPRE 6378 – INFORMATION ENABLED SUPPLY CHAINS

SCHOOL OF MANAGEMENT
THE UNIVERSITY OF TEXAS AT DALLAS

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Course Description:

OPRE 6378 discusses various topics in how information technologies serve as enablers and change agents in supply chain management. The success of a product in today's global marketplace depends, to a large extent, on activities of firms in the product's supply chain and their processing of information. This course will focus on how innovative processes, and information (technology) can be effectively used to manage and restructure global supply chains. The course will cover some frameworks to quantify the value of information, technology and processes used in supply chain improvement initiatives or supply-chain restructuring opportunities. Case studies will be used to discuss innovative processes, (e.g., CPFR) and the role of technology (e.g., RFID), in functional areas such as new product development, manufacturing, outsourcing, and distribution operations. This course is not about the technical aspects of information technologies. The anchor will be on supply chain management.

The goal of this course is to teach students some quantitative methods and tools to efficiently manage global supply chains. We discuss innovative management practices through case studies and use the learning from this class to solve the case studies.

The topics that are covered in OPRE 6378 include:

- coordination of material, information and financial flows within and across firms
- manage and use information for global operations
- matching products with supply chains
- inventory, information and service tradeoff
- leverage product and process design for supply chains
- valuation of emerging technologies for SCM
- supply chain integration
- behavioral issues, trust and trustworthiness

Prerequisites: Some exposure to managerial statistics and probability, or instructor's consent. OPRE 6302 would be helpful but not required.

Class Times: Monday 4:00p.m. – 6:30p.m. (+15 min) Rm: SOM 2.722

Required Reference: There is no textbook for this course. Instead, students need to purchase a course pack. The course pack contains reading materials, and cases used for this course. OPRE 6378 Supplemental Course Pack (CP)

General References: D. Simchi-Levi, *Operations Rules: Delivering Customer Value through Flexible Operations*, 2010, The MIT Press.
D. Simchi-Levi, P. Kaminsky, E. Simchi-Levi, *Designing and Managing the Supply Chain*, McGraw-Hill/Irwin, 2nd Edition, 2002
G. Cachon and C. Terwiesch, *Matching Supply with Demand: An Introduction to Operations Management*, McGraw-Hill/Irwin, 2nd Ed.
Achieving Supply Chain Excellence through Technology (ASCET), Montgomery Research Inc
Some other relevant resources include websites and magazines:
<http://www.ascet.com/>
<http://www.ebnews.com/>
<http://www.cio.com/research/scm/>
<http://www.cioinsight.com/>
<http://www.supplychainbrain.com>
<http://www.manufacturing.net/pur/>

Teaching Team Leader: Professor Özalp Özer, SOM 3.412, oozer@utdallas.edu

Faculty Office Hours: Monday 11:00am-12noon and 1:00-2:00pm

Teaching Assistant: Emre Ertan, SOM 3.205, emre.ertan@utdallas.edu

TA Office Hours: By appointment only – email TA

Student Learning Objective:

The students will be able to (1) analyze supply chains; (2) understand the role of information coordination and collaboration both across multiple firms and within a firm; (3) evaluate and quantify the cost/benefit of new technology; (4) understand how behavioral issues can hinder or enhance operational decisions; (5) learn several recent innovative SCM practices.

Case Assignments:

Cases provide an opportunity to apply the concepts and methodologies from the course to “real-life” situations. You are encouraged to work on cases in groups of two to four people. We will discuss each case extensively in class, and a portion of your class participation grade depends on your input during these class discussions.

There are two types of case assignments, which are marked as “prepare” and “due” in the detailed schedule below.

When a case is “Due,” you are asked to submit a write-up of no more than three pages (single-space, 12 point font) to answer questions regarding the case assignment. Specific instructions, the cases and the due dates are given in the detailed schedule below and also with the course pack.

When a case is “Prepare”, I expect students to have read the case, thought about the questions, and to be prepared to engage in discussion of the answers in class. In particular, students must be

prepared to summarize the case and to suggest a solution in class. Be prepared to discuss your solution in front of the class. I will distribute a separate handout regarding case assignments.

Final Project:

The final project is an integral part of the course. It should be carried out in groups of four. The project is expected to complement the class learning. Students are expected to explore a new innovation in supply chain management that is based on information technology advances. A report not exceeding 15 pages, submitted in the last class, is expected from each group.

You can select a business entity, a company or set of companies in a supply chain, and write a case around how its supply chain management has changed as a result of information technology advances. You can also develop a business case for a new innovation that could be developed by a new enterprise. In both cases, you should describe the current status of the company/industry, what values the new innovations bring to the table, how to quantify the values and costs, potential competition, and how the innovation can be sustainable.

Preparing for Classes and Attendance:

I have given you detailed schedules of classes, the reading relevant for each class, the case to be prepared if any, and questions to prepare for case discussions. The reading assignments will help you to better understand the material covered in class.

It is crucial that you attend all classes. *If you cannot attend a particular class due to illness or other special commitment, please send email to the professor. Otherwise, I will record your missing classes as non-justified absences and this will be reflected in the class participation grade.*

Handouts:

There will be a class handout for each lecture summarizing the main points to be covered. All handouts will be posted on the course website. You may obtain the information (regarding how to access these handouts) from the TA after identifying yourself as a student in this course. We recommend you print and bring hard copy of the lecture notes to each class to facilitate taking notes.

Groups:

You will work in groups of at most four people on the preparation of the cases. Please email TA and let him/her know your group (one email per group). If you are unable to find a group by January 20, we will assign you to a group.

Grading:

Midterm (TBD, In class)	20%
Homework and Case Writeups	30%
Class Participation	20%
Final Project and Presentation	30%

Deadlines:

The assignments are due the first five minutes of the class in which they are assigned. We will not accept any late homework or any late case write-ups.

If you are unable to attend the day of the midterm, a written explanation and arrangements must be made by the second week of class. Otherwise, we will not offer any alternative times for the scheduled examination.

Overall Course Outline:

- I. What is information enabled supply chain management?
- II. Information coordination and collaboration across firms
 - Information distortion, the Bullwhip, VMI, CPFR
 - Incentives for sharing information
 - Forecast Information Sharing
- III. Supply chain design
 - Inventory, information and service tradeoff
 - Product mix and resource allocation
 - Product re-design and SCM
 - Process competency, re-design and SCM
- IV. Supply chain integration and outsourcing
- V. Data rich supply chain management
- VI. Value of information and technology: RFID, decision tools as technologies, LP
- VII. IT is a necessary but not a sufficient enabler: Behavioral issues in OM, Trust
- VIII. Coordination of information and decisions within a firm: New product introduction
- IX. Guest lectures

OPRE 6378 – Information Enabled Supply Chains

Monday 4:00am –6:45 pm, Room: SOM 1.110

(TENTATIVE DETAILED SCHEDULE)

<u>Class</u>	<u>Date</u>	<u>Topics and Assignments</u>
Week 1		
1	Mon., Jan 23	INTRODUCTION WHAT IS INFORMATION ENBALED SUPPLY CHAIN MANAGEMENT? Read: Hammond, Learning by the Case Method. HBS
Week 2		
2	Mon., Jan 30	SUPPLY CHAIN PERFORMANCE MEASURES Read: Hausman. Supply chain performance metrics.
Week 3		
3	Mon., Feb 6	VENDOR MANAGED INVENTORY (VMI) Prepare: Barilla Case Read: Lee, Padmanabhan, Whang. The Bullwhip Effect in Supply Chains COLLABORATION IN SUPPLY CHAINS: ENABLING TECHNOLOGIES Read: Temkin, B. Building a Collaborative Supply Chain. ASCET
Week 4		
4	Mon, Feb 13	LP TECHNOLOGY: REVIEW OF LP and SOLVER PRODUCT MIX AND COST ALLOCATION Due: XMicron Case
Week 5		
5	Mon., Feb 20	INVENTORY MANAGEMENT: INFORMATION & SCALE Read: Özer, Introduction to Inventory Management. Secs 1, 2, 3, 4.1, 4.2 INVENTORY AS A HEDGE AGAINST UNCERTAINTY Read: Özer, Inventory Management under Demand Uncertainty
Week 6		
6	Mon., Feb 27	SAFETY STOCK ALLOCATION. INVENTORY, INFORMATION, SERVICE TRADEOFF Due: Genoa Electronics Case
Week 7		
7	Mon., March 5	MIDTERM In class; open notes, references and books
Week 8		
	March 11-17	No Class: SPRING BREAK
Week 9		
9	Mon., March 19	PRODUCT DESIGN AND POSTPONEMENT Prepare: Hewlett Packard Case

<u>Class</u>	<u>Date</u>	<u>Topics and Assignments</u>
Week 10 10	Mon., March 26	PROCESS CHOICE and PROCESS DESIGN Watch a Video on Process Choice Prepare: Zara Case Project Milestone #2
Week 11 11	Mon., Apr 2	VALUE OF NEW TECHNOLOGY: RFID Read: Lee and Özer. Unlocking the True Value of RFID. Sections 1, 2, and 3 SUPPLY CHAIN VISIBILITY, SECURITY, and RFID Due: Quad-Savi Case
Week 11 12	Mon., Apr 9	SUPPLY CHAIN INTEGRATION and OUTSOURCING Prepare: Solelectron Case
Week 12 13	Mon., Apr 16	HOW CAN A NEW TECHNOLOGY TRANSFORM A SUPPLY CHAIN? Prepare: Netflix Case Project Milestone #3 Read: Porter, Strategy and the Internet.
Week 13 14	Mon., Apr 23	IT IS NECESSARY BUT NOT SUFFICIENT Behavioral Issues in Operations Management Guest Speaker from Stanford University
	Tue., Apr 24	STRATEGIC CAPACITY PLANNING AND FORECAST SHARING GAME Meet to play the forecast sharing game. Location will be announced TESTING BUSINESS DECISIONS: TRUST AND TRUSTWORTHINESS Read: Ozer, Trust in forecast information sharing and procurement decisions.
Week 14 15	Mon, Apr 30	INFORMATION COORDINATION WITHIN A FIRM: PLM, NEW PRODUCT INTRODUCTION Due: Hitachi GST Case Project Milestone #4 is due by May 2 nd at 5pm (sharp)
Week 15 15	Mon., May 7	PROJECT PRESENTATIONS

Technical Support

If you experience any problems with your UTD account you may send an email to: assist@utdallas.edu or call the UTD Computer Helpdesk at 972-883-2911.

Field Trip Policies Off-campus Instruction and Course Activities

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm. Additional information is available from the office of the school dean. Below is a description of any travel and/or risk-related activity associated with this course.

Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD printed publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Series 50000, Board of Regents, The University of Texas System*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391) and online at <http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html>

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic Dishonesty, any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another

person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

Copyright Notice

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials, including music and software. Copying, displaying, reproducing, or distributing copyrighted works may infringe the copyright owner's rights and such infringement is subject to appropriate disciplinary action as well as criminal penalties provided by federal law. Usage of such material is only appropriate when that usage constitutes "fair use" under the Copyright Act. As a UT Dallas student, you are required to follow the institution's copyright policy (Policy Memorandum 84-I.3-46). For more information about the fair use exemption, see <http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm>

Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

Withdrawal from Class

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

Disability Services

The goal of Disability Services is to provide students with disabilities equal educational opportunities. Disability Services provides students with a documented letter to present to the faculty members to verify that the student has a disability and needs accommodations. This letter should be presented to the instructor in each course at the beginning of the semester and accommodations needed should be discussed at that time. It is the student's responsibility to notify his or her professors of the need for accommodation. If accommodations are granted for testing accommodations, the student should remind the instructor five days before the exam of any testing accommodations that will be needed. Disability Services is located in Room 1.610 in the Student Union. Office hours are Monday – Thursday, 8:30 a.m. to 6:30 p.m., and Friday 8:30 a.m. to 5:00 p.m. You may reach Disability Services at (972) 883-2098.

Guidelines for documentation are located on the Disability Services website at <http://www.utdallas.edu/disability/documentation/index.html>

Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

These descriptions and timelines are subject to change at the discretion of the Professor.