

OPRE 6302 **Operations Management** Syllabus

Section	OPRE 6302-001	Term	Fall 2015
Professor	Metin Çakanyıldırım	metin@utdallas.edu	JSOM 3.408
Lecture hours	4:00-6:45 pm on F		JSOM 2.901
Office hours	4:00-6:00 pm on T		JSOM 3.408

- Teaching Assistant: Chungseung Lee , cxl143430@utdallas.edu , JSOM 14.211.
Office hours: 6-7 pm on W and Th at JSOM 14.211, new SOM building.
- Operations Management (OM): Management of the [efficient transformation](#) of inputs into outputs to [suitably](#) satisfy [customers](#). Inputs are materials, labor, capital and management. Outputs are products or services that customers want and pay for. The course provides an introduction to the operations and the related management concepts. The level of discussion varies from [strategical to daily control](#) of business processes.
- Course Objective: The student should be able to determine performance measures of manufacturing/service processes/systems in key operational dimensions. The student should also know what factors affect these measures, how these measures can be calculated and how these measures can be improved. Specifically,
 1. **Describe:** Describe & explain services, manufacturing, just in time and total quality management strategies.
 2. **Prescribe:**
 - (a) Derive and compute optimal decisions, and performance measures such as costs and profits.
 - (b) Develop analytical thinking in operations practices.

Said differently, students will be able

1. To discuss a range of operation settings
 - (a) To explain the [role of operations](#), and their [interaction with the other activities](#) of a firm: finance, marketing, organization, accounting, corporate governance, etc.
 - (b) To understand the [effect of operations](#) on firm, people and society.
 - (c) To appreciate the [excitement, challenge](#) and [creativity](#) associated with managing operations.
 2. To [analyze operation processes](#) from various perspectives such as efficiency, responsiveness, quality and productivity. To learn basic but useful analytical skills and tools in studying operations in specific and other activities (marketing, finance, etc.) in general.
- Prerequisites: [Elementary knowledge of calculus and probability](#), or consent of the instructor. Math refresher: UTD has a math refresher course that can help you remember what you learnt in a calculus course. The math refresher should be available online at <https://jindal.utdallas.edu/application/math-refresher-course/>. Khan Academy <https://www.khanacademy.org/> and others have free online courses on probability and calculus.
 - Related concentrations and degree. For MBA students: *Operations Management* Concentration. For Master students: *Supply Chain Management* Concentration; [Master of Science Degree: Supply Chain Management](#).
 - Related operations courses are listed in UTDallas Graduate Course Catalog and include the following, of which the first three are core courses for Supply Chain Management MS degree:
 - OPRE 6366: [Global Supply Chain Management](#) by Prof. Metin Çakanyıldırım et al.
 - OPRE 6370: [Logistics, Distribution and Warehousing](#) by Prof. Alp Muharremoglu et al.
 - OPRE 6371: [Strategic Purchasing, Sourcing and Contract Management](#) by Prof. Elena Katok et al.
 - OPRE 6377: [Demand and Revenue Management](#) by Prof. Metin Çakanyıldırım.
 - OPRE 6389: [Managing Energy: Risk, Investment, Technology](#) by Prof. Metin Çakanyıldırım.
 - Required textbook: [Matching Supply with Demand](#). By Gérard Cachon and Christian Terwiesch. Third edition published by McGraw-Hill in 2013.
 - Required cases available online at <https://cb.hbsp.harvard.edu/cbmp/access/39483421> are
 - [CRU Computer Rentals](#), 6p, Northwestern Case available as HBS 9-KEL-017.
 - [Kristen's Cookie Company \(A1\)](#), 3p, HBS Case 9-686-093.
 - [Toyota Motor Manufacturing](#), U.S.A, Inc., 22p, HBS Case 9-693-019. Audio file is optional.
 - [Hewlett-Packard Co.: Desk Jet Printer Supply Chain \(A\)](#), 12p, Stanford Case available as HBS GS3A.

Suggested Course Material

- Textbooks for other Supply Chain Management cores:
 - * Supply Chain Management: Strategy, Planning and Operation. By Sunil Chopra and Peter Meindl. Fourth edition published by Prentice-Hall, Inc., 2010. The 1. edition is HF 5415.13.C533 at the library.
 - * Business Logistics Management. By Ronald H. Ballou. Published by Prentice-Hall, Inc., 1998. HD38.5.B45 at the Library.
 - * Inventory Management and Production Planning and Scheduling. By Edward Silver, David Pyke & Rein Peterson. 3. edition published by John Wiley & Sons, 1998.
- Supplementary books:
 - * Very similar to our textbook but more qualitative: Designing and managing the supply chain: concepts, strategies, and case studies. By David Simchi-Levi, Philip Kaminsky and Edith Simchi-Levi. 1. edition published by McGraw-Hill, 2000. HF5415.7.S425 at the Library.
 - * For linear programming type modelling and finance focus: Modeling the supply chain. By Jeremy F. Shapiro. 1. edition published by Pacific Grove, 2001. TS161.S485 at the Library.
 - * E-business focus: eDistribution. By Barry Lawrence, Daniel Jennings and Brian Reynolds. 1. edition published by Thomson, 2003. ISBN 0-324-12171-7.
 - * Conceptual logistics focus: The Management of Business Logistics. By John Coyle, Edward Bardi and John Langley. 1. edition published by Thomson, 2003. ISBN 0-324-00751-5.
 - * Service focus: Service Operations Management. By Richard Metters, Kathryn King-Metters and Madeline Pullman. 1. edition published by Thomson, 2003. ISBN 0-324-13556-4.
 - * Supply chain design and management: Strategic and tactical perspectives. By Manish Govil and Jean-Marie Proth. 1. edition published by Academic Press, 2002. ISBN 0-12-294151-9. HD38.5.G68 at the library.
 - * For purchasing and contracting focus: Purchasing and supply chain management. By Robert Monczka, Robert Trent and Robert Handfield. 2. edition published by South-Western, 2002. ISBN 0-324-02315-4. Also see Purchasing and Supply Management by Michiel Leenders, Fraser Johnson, Anna Flynn and Harold Fearon. 13. edition published by McGraw-Hill, 2006. ISBN 0-07-287379-5.

Academic Integrity

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. 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 of the Board of Regents of the University of Texas System, Part 1, Chapter VI, Section 3, and in Title V, Rules on Student Services and Activities of the Course Syllabus Page 8, 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 (SSB 4.400, 972.883.6391). 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.

The faculty and administration of the School of Management expect from our 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. We want to establish a reputation for the honorable behavior of our graduates, which extends throughout their careers. Both your individual reputation and the school's reputation matter to your success. The Judicial Affairs website lists examples of academic dishonesty: <http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-Basicexamples.html>.

Plagiarism on written assignments, especially from the web, from portions of papers for other classes, and from any other source is unacceptable. On written assignments, this course can use the resources of <https://turnitin.com>, which searches the web for plagiarized content and is over 90% effective.

During tests/quizzes, students in this section are not allowed to use any electronic devices, including iPads, iPhones, iPods, MP3 Players, earphones, radios, smart phones, cameras, multi-function timepieces or computers. When possible, students should sit in alternating seats, face forward at all times, and remove any clothing which might conceal eye movements, reflect images of another's work. Exam proctors will monitor any communication/signaling between students by talking, whispering, making sounds or by using your hands, feet, other body movements, the test paper itself or your writing implement.

- Grading:

- 5% * **Class attendance and contribution**: Especially contribution to case discussion is important. Every body must prepare each case in advance. Please expect to be called upon to discuss the case.
- 30% * **Homeworks**: There will be about 6 homeworks. You may discuss homework problems with others, but you must write up by yourself with the full understanding of what you write. Students handing in identical assignments will be violating university regulations and will not receive credit! Late homeworks are not allowed unless you negotiate with the TA at least one day in advance. Your minimum homework grade will be dropped from consideration.
- 10% * **Case report**: Each student chooses 1 case out of 4 cases and writes a report of at most 5 pages. Each report is due to the beginning of the lecture which includes the case discussion. In your report, summarize the case in 1 paragraph, explain *the major problem*, propose and defend your solutions to the major problem. Cases such as CRU Computer Rentals and Hewlett-Packard Co. require computations to substantiate recommendations. In your report, you are expected to use analytical arguments with a clearly identifiable cause-effect relationship(s).
- 27% * **Quiz A**: Oct 23 in-class
- 28% * **Quiz B**: Dec 11 in-class.

Two-case report option: Each student has the option to submit two case reports to increase case report weight to 20% and to decrease Quiz A weight to 22% and Quiz B weight to 23%. If you are planning on exercising this option and would like to have some flexibility of choosing among cases, you may want to write a case report before Quiz A. You do not have to inform the professor about your intentions, it suffices to submit two case reports to exercise the option.

- Overall grades will be curved by considering the current class average and previous class averages.
- Name cards: Every body is expected to **place a name card on his/her desk**. This will increase your attendance/participation grade.
- Two SOM centers of interest are the Center for Intelligent Supply Networks (C4ISN) and the International Center for Decision and Risk Analysis (ICDRIA). Centers sponsor activities that complement the classroom learning. Interaction with the Advisory Boards of the centers, participation in a capstone project and student internships provide students the opportunity to network with industry leaders and gain practical experience. Students are also exposed to the current operations challenges and trends by listening to guest speakers and by visiting manufacturing and service organizations running effective operations. The web addresses for the centers are <http://som.utdallas.edu/centers/c4isn> and <http://som.utdallas.edu/centers/icdria>.
- Local professional organizations of interest include: Informs <http://www.informs.org/site/ChapterDFW>; APICS <http://www.ntxapics.org>; CSCMP <http://www.dfwcscmp.org>; ISM <http://www.ismdallas.org>. These organizations have monthly meetings in DFW.
- Career Center: The SOM Career Center provides the following services: Career Counseling, Resume Assistance, Interview Assistance, Job Search Assistance, Career Resource Library, Web Resume Database, On Campus Recruiting, Active Internship Program. The SOM center is located on the second floor of SOM. The UTD career center is at <http://www.utdallas.edu/career/>.
- Portal for OM: PortOM (course web page) can be reached via www.utdallas.edu/~metin/teaching.html with the course password

Tentative Course Timeline

WORK FLOW MANAGEMENT

- 01. Lec Aug28. Ch1: Introduction.
Ch2: Process View. Inventory, Thruput, Flowtime.
- 02. Lec Sep04. Ch3: Process Capacity. Bottleneck Analysis, Level vs. Chase plans.
Ch4: Labor Requirements. Line Balancing.
- 03. Lec Sep11. Ch6: Finanace/Accounting interface with Operations.
..... *Case: CRU Computer Rental.*
- 04. Lec Sep18. Ch7: Batching: Set up Times and Economic Order Quantity.
..... *Case: Kristen's Cookie Co.*

ANALYTICAL DECISION MAKING: FORMULATIONS

- 05. Lec Sep25. Introduction to Linear Programming Formulations. Objectives, Constraints.
..... Formulation Examples with 2 variables.
- 06. Lec Oct02. Formulation Examples with many variables.
..... Integer Programming Formulations. Examples.
- 07. Lec Oct09. *Small cases with Excel solver.*

SERVICE MANAGEMENT: QUEUES

- 08. Lec Oct16. Ch8: Effect of Randomness on Process Performance. Waiting Line Problems.
..... Effect of Randomness on Thruput and Examples.
Oct23. Quiz A
- 09. Lec Oct30. Ch9: Thruput Loss due to Impatience / Limited Buffers.

QUALITY MANAGEMENT

- 10. Lec Nov06. Ch10: Quality management.
..... Statistical Quality Control.
- 11. Lec Nov13. Ch11: Lean operations.
..... *Case: Toyota Motor Manufacturing.*

INVENTORY MANAGEMENT

- 12. Lec Nov19. Ch12: Betting on the Uncertain Demand.
..... The Newsvendor Model.

Week of Nov23 Fall break and Thanksgiving holiday.
- 13. Lec Dec04. Ch14: Service Levels. Lead Times.
..... *Case: Hewlett-Packard Co.: Desk Jet Printer Supply Chain.*
Dec11. Quiz B

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- Being introductory, this course does not discuss the software used to manage real life operations. Suggested courses to cover such software: OPRE 6368 and SAP courses offered by informations systems area.
 - We are skipping 6 important chapters in the textbook:
 - Ch 5: Project Management. Suggested course: OPRE 6362.
 - Ch13: Assemble-to-Order, Make-to-Order, Quick Response. Suggested courses: OPRE 6363 and OPRE 6366.
 - Ch15: Risk-pooling strategies. Suggested courses: OPRE 6363, OPRE 6366 and OPRE 6335.
 - Ch16: Revenue management with capacity controls. Suggested course: OPRE 6377.
 - Ch17: Supply chain coordination. Suggested course: OPRE 6366.
 - Ch18: Sustainable Operation. Suggested courses: OPRE 6366 and OPRE 6389.
 - The textbook overlooks at transportation operations. Suggested course to cover this: OPRE 6370.