

OPRE 6302 Operations Management – Syllabus

- Instructor: Metin Çakanyıldırım , metin@utdallas.edu , SM3.408.
Lecture hours: 9-10:15 am on Tu-Th at SM2.117.
Office hours: 4:00-5:00 pm on M and Tu at SM3.408.
- Teaching Assistant: Di Miao , dxm061000@utdallas.edu , SM3.406.
Office hours: 5:00-6:00 pm on M and W at SM3.406.
- Operations Management (OM): The 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, which customers want and often 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:
 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, corporate governance, etc.
 - (b) To understand how operations affect people and society.
 - (c) To appreciate the challenge, excitement 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.
- Related courses:
 - OPRE 6366: *Supply Chain Management* by Prof. Metin Çakanyıldırım in Falls and Springs.
 - OPRE 6363: *Inventory Management* by Prof. Holly Lutze in Springs.
 - OPRE 6368: *Supply Chain Software* by Prof. Gene Deluke in Summers.
 - OPRE 6370: *Logistics and Distribution* by Prof. Ehad Sabri in Falls.
 - OPRE 6335: *Risk and Decision Analysis* by Prof. Alain Bensoussan in Springs.
 - OPRE 6364: *QC: Lean Six Sigma* by Prof. Divakar Rajamani in Springs.
- Related concentrations and degree:
 - For MBA students: *Operations Management Concentration*.
 - For Master students: *Supply Chain Management Concentration*; see info-sheet at www.utdallas.edu/~metin/schainmore.pdf.
 - *Supply Chain Management Master Degree*
- Required textbook: *Matching Supply with Demand*. By Gérard Cachon and Christian Terwiesch. First edition published by McGraw-Hill in 2006.
- Case package is available at the UTD bookstore. It contains the required cases:
 - *CRU Computer Rentals*, Northwestern Case available as HBS 9-KEL-017.
 - *Toyota Motor Manufacturing, U.S.A, Inc.*, HBS Case 9-693-019.
 - *Hewlett-Packard Co.: Desk Jet Printer Supply Chain (A)*, Stanford Case available as HBS GS3A.

- Supplementary books:
 - *Supply Chain Management: Strategy, Planning and Operation*. By Sunil Chopra and Peter Meindl. Third edition published by Prentice-Hall, Inc., 2007. The 1. edition is HF 5415.13.C533 at the library.
 - Very similar to the Chopra-Meindl book 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.
 - Textbook for logistics course. *Business Logistics Management*. By Ronald H. Ballou. Published by Prentice-Hall, Inc., 1998. HD38.5.B45 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.
 - 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.
 - *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.
 - 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.
 - 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.
 - *E-business focus: eDistribution*. By Barry Lawrence, Daniel Jennings and Brian Reynolds. 1. edition published by Thomson, 2003. ISBN 0-324-12171-7.
- Portal for OM: PortOM (course web page) can be reached via www.utdallas.edu/~metin/teaching.html with the course password
- Name cards: Every body is expected to place a name card on his/her desk.
- Grading:
 - 5% for Class attendance and contribution to discussion. Especially contribution to case discussion is important. Ever body must prepare each case in advance. Please expect to be called upon to discuss the case.
 - 30% * Homeworks: There will be about 5 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 3 cases and writes a report of at most 5 pages. In your report, summarize the case in 1 paragraph, explain *the major problem*, propose and defend your solutions to the major problem. CRU Computer Rentals and Hewlett-Packard Co. cases require computations to substantiate recommendations. In your report, you are expected to use analytical arguments with a clearly identifiable cause-effect relationship(s).
 - 25% * Quiz: March 20 in-class
 - 30% * Final: May 1 in-class.

Overall grades will be curved by considering the current class average and previous class averages.

TENTATIVE COURSE TIMELINE

INTRODUCTION

01. Lec Jan08. Ch1: Introduction.

WORK FLOW MANAGEMENT

02. Lec Jan10. Ch2: Process View. Inventory, Thruput, Flowtime.
03. Lec Jan15. Ch3: Process Capacity. Bottleneck Analysis, Level vs. Chase plans.
04. Lec Jan17. Ch4: Labor Requirements. Line Balancing.
05. Lec Jan22. Ch5: Batching: Set up Times and Economic Order Quantity.
06. Lec Jan24. Epilogue of Flow Analysis.
07. Lec Jan29. *Case: CRU Computer Rental.*

ANALYTICAL DECISION MAKING: FORMULATIONS

08. Lec Jan31. Introduction to Linear Programming Formulations. Objectives, Constraints.
09. Lec Feb05. Linear Programming Formulations. Simple examples.
10. Lec Feb07. Linear Programming Formulations. Advanced examples.
11. Lec Feb12. *Small cases with Excel solver.*
12. Lec Feb14. Epilogue of Formulations.

SERVICE MANAGEMENT: QUEUES

13. Lec Feb19. Ch6: Effect of Randomness on Process Performance. Waiting Line Problems.
14. Lec Feb21. Ch7: Effect of Randomness on Thruput.
15. Lec Feb26. Ch7: Thruput Loss due to Impatience / Limited Buffers.
16. Lec Feb28. Epilogue of Queues.

QUALITY MANAGEMENT

17. Lec Mar04. Ch8: Quality management. Control charts and Just-in-time Processes.
18. Lec Mar06. Epilogue of Quality Management.
19. Lec Mar18. Solved Exercises for quiz.
20. Lec Mar20. **In-class quiz.**
21. Lec Mar25. *Case: Toyota Motor Manufacturing.*

INVENTORY MANAGEMENT

22. Lec Mar27. Ch9: Betting on the Uncertain Demand. The Newsvendor Model.
23. Lec Apr01. Ch9: Betting on the Uncertain Demand. The Newsvendor Model.
24. Lec Apr03. Ch9: Betting on the Uncertain Demand. The Newsvendor Model.
25. Lec Apr08. Ch11: Service Levels and Lead Times. Repeating the Newsvendor Model.
26. Lec Apr10. Epilogue of Inventory Management.
27. Lec Apr15. *Case: Hewlett-Packard Co.: Desk Jet Printer Supply Chain.*

REVENUE MANAGEMENT

28. Lec Apr17. Ch13: Revenue Management. Protection Levels and Overbooking.
29. Lec Apr22. Epilogue of Revenue Management.

Cumulative Final

30. Lec Apr24. Solved Exercises for final.
31. Lec May01. **In-class final.**

- We are skipping two important chapters in the textbook:
 - Ch12: Risk-pooling strategies. Suggested courses to cover this: OPRE 6363 and OPRE 6335.
 - Ch14: Supply chain coordination. Suggested course to cover this: OPRE 6366.
- The textbook overlooks at transportation operations. Suggested course to cover this: OPRE 6370.
- Being an introductory level course, 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.
- 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 som.utdallas.edu/c4isn and som.utdallas.edu/icdria.
- 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 utdallas.edu/student/career.