Course Description

**Conceptual:** Management is about matching demand and supply. This course focuses on the demand without attempting to manage the supply. But it does take the amount, location, condition, or vintage of the supplies into account. Demand must be understood first to be managed. This understanding comes partly from statistical forecasting but more importantly from the identification of the demand drivers. These drivers are specific to industries but some are common and easily obtainable such as general macroeconomic indicators, demographic data, housing inventories, and temperatures. Unlike these demand drivers, prices can be managed over time, customer classes, locations. A good portion of the course is dedicated to determining good prices depending on inventory, capacity, input costs, and previous prices.\(^1\) In this process, both analytical arguments and methods are presented and their appropriateness in various practical contexts are discussed.

**Practical:** Revenue management (RM) first emerged in US airline industry after the deregulation in 1980s. It has successfully implemented by companies in air transportation, hospitality (hotels, cruises, theme parks, casinos), car rental, media, broadcasting, natural-gas storage and transmission, electricity generation and transmission, show business (concerts, theaters, sport events), universities. Most applications are recent and made possible by the advances in technology, information systems, and data mining. However, there are issues of legality and customer backlash for charging different prices for virtually the same product. The course will touch upon these issues as well.

**Course Objectives:** Students will be
- able to list and relate demand drivers to demands in specific industries,
- able to obtain price-demand relationship, optimal prices and revenues,
- aware of revenue management practices.

Pre-requisites and Related Courses

- Pre-requisites: OPRE 6302 and exposure to probability, or consent of the instructor.
  - Knowledge (not expertise) of equation solving, derivatives and integrals of polynomials, and expectation. Familiarity with linear programming formulations. Read MBA math review 1-2 under the “Supplements” section of the course web site. Khan Academy [https://www.khanacademy.org/](https://www.khanacademy.org/) has free online courses on probability and calculus.
  - Math refresher: UTD has a math refresher course that can help you remember what you learnt in a calculus course. The math refresher should always be available online; to test whether you need this course, see [https://jindal.utdallas.edu/application/math-refresher-course/](https://jindal.utdallas.edu/application/math-refresher-course/).

- Related courses by Prof. Metin Çakanyıldırım:
  - This Fall OPRE 7310 Probability and Stochastic Processes.
  - Other semesters: OPRE 6302 Operations Management; OPRE 6366 Global Supply Chain Management; OPRE 6389 Managing Energy: Risk, Investment, Technology; OPRE 7372 Advanced Topics in Supply Networks.

\(^1\)This dependence distinguishes the course from a standard marketing course.
Required Textbooks and Materials


- Linear/Integer Programming Notes: Students are expected to know how to formulate a linear/integer program. This subject is discussed in OPRE 6302. To refresh that discussion and see more formulation examples, students are advised to study the “Formulation”, “Transportation” (pp. 1-4) and “Location” course notes under the “Supplements” section of the course web site.

Suggested Course Material

  
  
  
  
  

- Supplementary books:
  
  
  
  
  
  
  

Web Pages/Groups

LinkedIn group “Informs DFW Chapter” managed by your professor has more than 250 local members. You can join for free [https://www.linkedin.com/groups/1822768](https://www.linkedin.com/groups/1822768).

SCM-MS degree unofficial web page is [www.utdallas.edu/~metin/SCM/scm-ms.html](http://www.utdallas.edu/~metin/SCM/scm-ms.html). UTDSCM Google Group web page is [http://groups.google.com/group/utdscm](http://groups.google.com/group/utdscm). UTD SCM community communicates via a facebook personality named Utd Scm – become its friend to join the community.

UTD Resources

- UTD has two centers relevant to this course. The centers perform interdisciplinary research and develop co-operation in risk management, supply chain management and decision-making by exchanging knowledge and experience among academia, industry, and public agencies. For more info:
  - Center for Intelligent Supply Networks (C4ISN) [http://som.utdallas.edu/centers/c4isn/](http://som.utdallas.edu/centers/c4isn/).
  - International Center for Decision and Risk Analysis (ICDRiA) [http://som.utdallas.edu/centers/icdria](http://som.utdallas.edu/centers/icdria).

- E-Access to Journals via UTD Library: Library electronically subscribes to many journals such as Harvard Business Review, Management Science, which are of interest. To access such a journal go to the UTD Library web page. Click on “E-Journals”. You will see an alphabetical list of journals. Click on “H” for “H”arvard Business Review. You will see that HBR is listed 15-20 from the top among the journals starting with letter ”H”. Click on HBR link, you will be transferred to EBSCO web site which keeps the journal. To access Interfaces journal, click on “I” for “I”nterfaces, and continue as before. To access from a non-UTD computer, you need UTD ID and password. Please respect the copyright laws.

- Career Center: The SOM Career Center ([http://som.utdallas.edu/somResources/somCareerCenter](http://som.utdallas.edu/somResources/somCareerCenter)) provides the following services: Career Counseling, Resume Assistance, Interview Assistance, Job Search Assistance, Career Resource Library, Resume Database, On Campus Recruiting, Active Internship Program.

Revenue Management Solution Developers

This is an incomplete list. Solution development/software industry is very dynamic. I can add more companies to this list, if you tell me about them.


Course Modules: 1-6 Demand Management; 7-12 Revenue Management

1. Introduction to pricing and revenue optimization.
2. Demand functions and price optimization: Price-response function; Competition.
3. Demand drivers.
5. Price differentiation: Volume discounts; Arbitrage and cannibalization; Consumer welfare.
6. Constrained supply: Opportunity cost; Segmentation; Variable pricing.
7. Revenue Management.
10. Overbooking.
11. Markdown Pricing.
12. Customized Pricing: List prices vs. customized prices; Responses to competitor bids.
Assignments

4% for Class attendance and contribution to discussion. Please bring your nametags to the class.
+ 25% * Homeworks: There will be 5-6 homeworks. You can discuss homeworks with others but must write up by yourself with the full understanding of what you write. Students handing in identical assignments violate university regulations! Your minimum homework grade will be dropped from consideration.
  ●  Homeworks submissions → “Assignment area” in the eLearning course page and due by default to 11:59 pm on Wednesdays. The TA will post solutions by Friday. Late homeworks are not allowed unless you negotiate with the TA at least one day in advance.
+ 27% * Quiz 1. Oct 03 in class.
+ 28% * Quiz 2. Nov 14 in class.
  ●  During quizzes, any printed or hand-written hard-copy material (book/note) can be used but no device with cellular (mobile, wireless) communication capability is allowed even if that capability is disabled.
+ 16% *[Proposal 1% due to Sep 12 + Report 10% due to Nov 26 + Presentation 5% on Nov 28].

Grading Policy

- Students who score less than 50% of the first quiz grade must schedule an appointment with the instructor to discuss the possible ways to improve their performance.
- Students earn a grade in this course by mastering the course material. Students are not graded based on any type of need, amount of effort, family, personal circumstances, or their previous record in other courses.
- Overall grades will be partially based on the following catalogue scheme: A for [90, 100]; A− for [85, 90); B+ for [80,85); B for [75,80); B− for [70,75); C+ for [65,70); C for [60,65); C− for [50,60); F for [0,50).

Previous year class averages:

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End points of the catalogue intervals will be shifted to left (right) if the current class average is significantly below (above) those of previous years.

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-Baslexamples.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.