

**IE415 Revenue Management
Spring 2024
Middle East Technical University**

Instructor: Zeynep Müge Avşar
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office hour: to be announced, or by appointment.)

Assistant(s): to be announced

Course homepage: ODTU-Class

Lecture hours: Section 01 Tuesday 13:40-16:30 IE102

The classroom assigned to the course will be available for the students taking the course in order for them to join the online lecture meetings.

Prerequisite: IE361

Textbook: Talluri K.T., van Ryzin G.J., *The Theory and Practice of Revenue Management*, Springer, 2005.
(HD60.7.T35 2005 in the main library)

Reference: Phillips R.L., *Pricing and Revenue Optimization*, Stanford University Press, 2005.
(HF5416.5.P457 2005 in the main library)

Course Conduct

- Synchronous (Online) Lectures
Lecture notes will be uploaded to the course web page on ODTU-Class under the headings of the corresponding weeks.
- Midterm and final exams and quizzes will be in-class face-to-face examinations.
- You can use the course forum which is a platform on ODTU-Class where you can ask questions and start discussions in the form of posted messages. You can add new discussion topics, reply to each other and share online learning sources with each other. Please, follow the forum rules for posting a message.
For personal or urgent issues, you can send an e-mail to the instructor and/or teaching assistant(s).

Grading

- In-Class face-to-face Midterm Examination (with a weight of 30%)
(Tuesday, at 13:40)
- In-Class face-to-face Quizzes (with a weight of 30%)
(Tuesday, 13:40-14:30)
- In-Class face-to-face Comprehensive Final Examination (with a weight of 40%)
(exam date to be announced by the Registrar's Office)

Exams

- Midterm and final examinations and quizzes will be open-book, in-class face-to-face exams.
You can bring your textbooks, reference books and lecture notes to the exams, but you will not be allowed to exchange these with other students during the exams.
- Comprehensive makeup exams will be given at the end of the final examination period and only in an unanticipated or serious case.
Only students with official excuses will be allowed to take makeup exams.
- You are expected to attend all classes regularly.
- Participation in class is strongly encouraged.
- Nobody will receive a higher letter grade if he/she collects a lower total grade. After the letter grades are announced, an extra work that might change the total grade will not be given.

METU Honour Code

Every member of METU community adopts the following honour code as one of the core principles of academic life and strives to develop an academic environment where continuous adherence to this code is promoted. The members of the METU community are reliable, responsible and honourable people who embrace only the success and recognition they deserve, and act with integrity in their use, evaluation and presentation of facts, data and documents. Academic integrity is expected of all students at all times, whether in the presence or absence of members of the faculty.

Information for Students with Disabilities

Students who experience difficulties due to their disabilities and wish to obtain academic adjustments and/or auxiliary aids must contact ODTU Disability Support Office and/or course instructor and the advisor of students with disabilities at academic departments (for the list: <http://engelsiz.metu.edu.tr/en/advisor-students-disabilities>) as soon as possible.

For detailed information, please visit the website of Disability Support Office: <https://engelsiz.metu.edu.tr/en/>

*This syllabus is subject to change. Changes (revisions), if any, will be announced in the online sessions and/or the updated syllabus will be uploaded to the course web page on ODTU-Class. Students will be held responsible for all the changes.

Tentative Weekly Course Outline and Schedule

Week	Topic	Relevant Reading and Activity
1	Introduction to Revenue Management (RM)	Chapter 1 (Lecture Notes 1)
2	Control Mechanisms for Single-Resource Control	Section 2.1 (Lecture Notes 2-1)
3	Single-Resource Control Static Models Assumptions for Static Models Intuitive Discussion for Opt. Dec. Rule (Littlewood's Rule for Two Classes)	Section 2.2.1 (Lecture Notes 2-2)
4	Single-Resource Control Static Models (cont'd) Single-Period Seat Inventory Control EMSR Heuristics	Section 2.2.4 (Lecture Notes 2-2)
5	Single-Resource Control Static Models (cont'd) DP Formulation Structure of Optimal Control	Section 2.2.2 (Lecture Notes 2-3)
6	Single-Resource Control Static Models (cont'd) Structure of Optimal Control	Section 2.2.2 (Lecture Notes 2-3)
7	Single-Resource Control Dynamic Models Assumptions for Dynamic Models DP formulation Structure of Optimal Control	Section 2.5 (Lecture Notes 2-4)
8	Multiple-Resource (Network) Control Exact (DP) Model	Section 3.2 (Lecture Notes 3-1)
9	Multiple-Resource (Network) Control Structure of Optimal Control	Section 3.2 (Lecture Notes 3-1)
10	Multiple-Resource (Network) Control Approximations based on Network Models DMP, DLP, PNLP models	Section 3.3 (Lecture Notes 3-2)
11	Multiple-Resource (Network) Control Approximations based on Network Models EMR, RLP models	Section 3.3 (Lecture Notes 3-2)
12	Single-Resource Control Customer-Choice Models Customer-Choice Behaviour Modified Littlewood's rule Extension of EMSR-b Heuristic	Section 2.6 (Lecture Notes 2-5)
13	Single-Resource Control Customer-Choice Models (cont'd) DP formulation Structure of Optimal Control	Section 2.6 (Lecture Notes 2-5)
14	Single-Resource Control Customer-Choice Models (cont'd) Generalization of Nested Policy Comparison of class-based (independent-demand) models and choice-based models	Section 2.6 (Lecture Notes 2-5)