COURSE INFORMATION

Course title:	Topics in Industrial Engineering (Revenue Management and Pricing)		
Course keywords:	Pricing, revenue management, optimization		
Course number:	406.559	Credits:	3.0
Semester:	Winter 2020	Class location:	Virtual (Online)
Section(s):		Class times:	MWF 12:00-14:30 KST
Course duration:	Dec 21, 2020 – Jan 22, 2021		
Class homepage:	SNU eTL <https://etl.snu.ac.kr/login.php>		

INSTRUCTOR AND TA INFORMATION

Instructor:	Tim Huh (허웅희)
Primary affiliation:	Sauder School of Business, University of British Columbia
Email:	Tim.huh@sauder.ubc.ca
TA:	Jongwook Lim (PhD student, Industrial Engineering)
Email:	jook0506@snu.ac.kr

COURSE OVERVIEW

Revenue management is an emerging area dealing with applying analytics tools to make decisions regarding product availability and pricing. Its goal is "selling the right product to the right customer at the right time for the right price." Many industries use revenue management tools to maximize the return on their limited supply of products. Airlines use revenue management to decide what fare classes should remain open and what fare classes should be closed. Hotels use revenue management to choose the room rates and to determine how much to overbook. Rental car agencies use revenue management to choose which cars to use for which requests. Restaurants use revenue management to decide what portion of their tables should be reserved for walk-ins. This course focuses on analytical tools related to capacity allocation and pricing.

TEXTBOOK AND READING MATERIAL

Recommended: R.L. Phillips, *Pricing and Revenue Optimization*, Stanford University Press, 2005, ISBN 0-8047-4698-2. (Note: A second edition will be released in March 2021.)

WEEKLY TOPICS (SUBJECT TO CHANGE)

Week 1	Introduction; dynamic booking control; two-fare capacity allocation
Week 2	Multi-fare capacity allocation; dynamic programming; heuristics for multi-fare capacity allocation; network revenue management
Week 3	Network revenue management (continued); Linear programming formulations
Week 4	Pricing; pricing optimization; consumer choice model
Week 5	Demand learning; Presentations

PRE-REQUISITES

Students are expected to have a working knowledge of probability, optimization, and stochastic processes at the level typically covered in the second-year or third-year undergraduate courses. The

students should have mathematical maturity since students will need to read and understand proofs.

GRADING POLICY

Summary

Component	Weight
Homework	25%
Quizzes	50%
Presentation	35%
Class participation	15%
Total	100%

Assessment Schedule

Homework #1	Thurs Dec 24 @ noon KST
Homework #2	Thurs Dec 31 @ noon KST
Quiz #1	Wed Jan 6 in class
Homework #3	Sat Jan 9 @ noon KST
Homework #4	Sat Jan 16 @ noon KST
Quiz #2	Mon Jan 18 in class
Presentation	Week of Jan 18 in class

Presentation

Students may work individually or as a group of 2 or 3. The students will make a presentation in-class and submit a PDF version of the slides.

- Option 1 (Paper presentation). Choose a published paper after consulting with the instructor, and prepare a presentation for your class. It should be accessible to the students in the class. The contribution and model should be presented, along with sufficient details regarding methodological approaches and technical analysis.

- Option 2 (Research proposal). Choose a topic of interest related to the course topic, and prepare a research proposal. It must include motivation, literature review, methodological approach, and intended contribution.

Doctoral students are strongly encouraged to choose Option 2.

ACADEMIC INTEGRITY

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply.

COPYRIGHT