IEOR 151 – Service Operations Design and Analysis
Fall 2020

Instructor:

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Lectures:

MW 12-1P, on Zoom

Labs:

F 12-1P, on Zoom

Website:

http://courses.ieor.berkeley.edu/ieor151

Optional Textbook:

Service Science, by Mark Daskin

Prerequisites:
Grading:

Homeworks (30%); midterm (30%); final exam (40%)

Grades will be determined using a fixed scale. A raw percentage will be computed using the above breakdown, and the raw percentage will be rounded down. The letter grade will be determined using the rounded down percentage and the below given scale.

Grade Scale: A 94-100, A- 90-93, B+ 87-89, B 83-86, B- 80-82, C+ 77-79, C 73-76, C- 70-72, F 0-69

Midterm:

Wednesday, October 28, 2020, using Gradescope

Final Exam:

Friday, December 18, 2020, using Gradescope

Description:

This course is concerned with improving processes and designing facilities for service businesses such as banks, health care organizations, telephone call centers, restaurants, and transportation providers. Major topics in the course include design of service processes, layout and location of service facilities, demand forecasting, demand management, employee scheduling, service quality management, and capacity planning.

Outline:

Specific topics that will be covered include:

- Service Quality Management – Review of probability; hypothesis testing; risk in hypothesis testing; newsvendor model; data-driven newsvendor (about 3 weeks)
- Resource Allocation and Game Theory – Review of optimization; matching markets (e.g., kidney exchanges); adverse selection models; moral hazard models (about 3 weeks)
- Location Planning and Routing – p-median problem; p-center problem; set covering location model; traveling salesman problem; vehicle routing (about 3 weeks)
- Workforce Scheduling – Service queueing models; Little's law; square-root staffing law; long-term planning (about 3 weeks)