
IEOR 151 – Service Operations Design and Analysis

Fall 2015

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- Lectures:** MW 12-1P, in 3108 Etcheverry
- Labs:** F 12-1P, in 3108 Etcheverry
- Website:** <http://ieor.berkeley.edu/~ieor151/>
- Textbook:** *Service Science*, by Mark Daskin
<http://onlinelibrary.wiley.com/book/10.1002/9780470877876>
- Prerequisites:** IEOR 161, IEOR 162, and a course in statistics
- Grading:** Homeworks (20%); computer labs attendance (3 unexcused absences are allowed) and participation (10%); midterm (30%); final exam (40%)
- Midterm:** Wednesday, October 21, 2015 12-1P
- Final Exam:** Friday, December 18, 2015 11:30-2:30P
- 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)
- Scheduling and Inventory – Service queueing models; Little’s law; square-root staffing law; long-term planning (about 3 weeks)