IEOR 151 – Service Operations Design and Analysis  
Fall 2016

Instructor: Anil Aswani  
4119 Etcheverry  
Office hours – MW 10-11A  
aaswani@berkeley.edu

GSI: Kevin Li  
4176-B Etcheverry  
Office hours – WF 9-10A  
kbl4ew@berkeley.edu

Lectures: MW 12-1P, in 3106 Etcheverry

Labs: F 12-1P, in 3106 Etcheverry

Website: http://ieor.berkeley.edu/~ieor151/

Textbook: Service Science, by Mark Daskin

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 19, 2016  12-1P

Final Exam: Friday, December 16, 2016  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)