B9801-01: Seminar in Operations Management

In this class we will review some papers from the operations management literature with specific emphasis on revenue management, dynamic pricing and auctions, with the dual aims of gaining a perspective of the literature and identifying promising research areas. Most of the papers are very recent, but I have also included several foundational papers. The focus of the class will be on the modeling aspects of these papers, as opposed to the mathematical details.

In each class, we will discuss one (or two closely related) papers: 75 min. (or 45 min. per paper) will be devoted to a student presentation of one paper, and an additional hour (or 30 min. per paper) will be available for discussion. To encourage student participation, one student will be designated discussant per paper.

The class was scheduled to meet on Thursdays, 10:00am-1:00pm in Uris 306 but will change to Wednesdays 11:45am-2:15pm (Uris 329).

(First class, which is a short organizational meeting, will be held on Wedn. 1/17 and Thurs. 1/18. Starting next week we will meet on Wednesdays.)

There are no formal prerequisites for the class, although basic courses in stochastic processes and mathematical programming will be helpful.

If there are any questions, please call or send email.
Pricing

(1/24) Class 1: Single server, single class models


(1/31) Class 2: Single server, multi-class models


(2/7) Class 3: Multi-class network


Revenue management

(2/14) Class 4: Single leg models


We will discuss [7,8] — these are typical revenue management papers for the single class model. [9] formulates the problem in the spirit of [10,11,12] that we cover next week.
(2/21) **Class 5**: No class – should attend Professor Avi Mandelbaum’s short course.

The week 2/19-2/23 Prof. Avi Mandelbaum (Technion) will give a short course on service engineering. Professor Mandelbaum is a world expert in these areas and an excellent teacher. You should all attend these lectures!! As of now the schedule for his visit is:

- Fri 2/16 10:30am-noon (Uris 329): a self contained seminar
- Tue 2/20 1:30pm-4:30pm (Uris 306): Lectures 1 and 2 of his course.
- Fri 2/23 10am-1pm (Uris 329): Lectures 3 and 4 of his course.

(2/28) **Class 6**: Network models


We will review the results in [10,11]; [12] is closely related to [10,11]. Finally, some RM applications. [13] studies congestion pricing for network resources, and [14] gives an MDP formulation for a related problem where the service provider for an M/M/1 queue dynamically adjusts the service rate of the system.


(3/7) **Class 7**: Choice demand models


(3/21) **Class 8**: Competition


   We will discuss [18].

Auctions

(3/28) Class 9: Introduction to auctions


(4/4) Class 10: Procurement auctions


(4/11) Class 11: Smart markets for network pricing and control

