

# ISyE 8813 Dynamic Pricing and Revenue Management

## Syllabus

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### Schedule:

There will be an organizational meeting in Groseclose room 403 on Tuesday January 11, 2005, at 5pm. At the meeting we will decide at what times to schedule the class.

### Description:

A course for people who want to do research in pricing optimization and revenue management, and/or who want to get a job that requires knowledge of pricing optimization and revenue management. The course is for people who already have a knowledge of optimization and some probability, at the level of ISyE6661 and ISyE6664. At the end of the course you will have gained a knowledge of the state of the art in pricing optimization and revenue management research, so that you should be able to do research in this area yourself.

Topics that will be covered include

- classical topics in revenue management, such as revenue-based inventory control methods;
- demand estimation and forecasting;
- dynamic pricing;
- an introduction to game theory;
- auctions.

### Objectives:

The objectives are

- to develop a familiarity with the models and techniques that have been used in revenue management research;
- to develop an understanding of the most important current research topics in revenue management;

- by the end of the course, you should be prepared to embark on your own research in revenue management.

### **How Shall We Pursue These Objectives?**

In this course, we will do a lot of reading. The revenue management literature has boomed in the past 10 years, and we will cover this literature as thoroughly as possible in the time that we have. Readings will be assigned for the classes, and during the classes we will do the following: (1) students will be asked to give an overview of the assigned reading, and (2) I will cover some of the details that may not be clear from the assigned reading without additional background.

### **Textbook:**

K. Talluri and G. Van Ryzin, *The Theory and Practice of Revenue Management*, Kluwer Academic Publishers, 2004. (The price of the book is \$140 online, for example at springeronline.com, bn.com, or amazon.com. If we place a group order for the course for 6 or more books, the price is \$90 per book.)

### **Other Readings:**

Quite a large number of papers, both classical and contemporary, will be assigned for reading.

### **Prerequisites:**

Knowledge of optimization and some probability, at the level of ISyE6661 and ISyE6664.

### **Grading:**

Grades will be assigned as follows:

- Homework Exercises: 50%
- Class Presentations and Participation: 50%

### **Homework:**

Homework will be assigned approximately once every two weeks. You should start working on each homework early, that way you will have time to ask questions in class before the homework is due. Late homework will be accepted only in case of unavoidable occurrences, such as illness or death in the family. You are encouraged to discuss homework and learn from each other, but each person must submit his/her own work, unless the homework specifically indicates that you should work in groups.

### **Academic Honor Code:**

It is your responsibility to familiarize yourself with the Georgia Tech Honor Code. Specifically, you must do your own work in all homework and exams; when homework is specifically assigned as group homework you may and should work with the other members of your group.