

University of Massachusetts Amherst  
Department of Civil and Environmental Engineering

## CEE611 Transportation Investment and Pricing Analysis

Fall 2008

<b>Class Information</b>	Lecture:	Tu Th 2:30-3:45pm, Lederle Grad Res Tower 1322
	Credits:	3
	Prerequisite:	ECON 103, CEE 310 or equivalents
	Website:	<a href="http://spark.oit.umass.edu/">http://spark.oit.umass.edu/</a>
<b>Instructor</b>	Song Gao	
	Office:	214C Marston Hall
	Tel:	413-545-2688
	Email:	<a href="mailto:songgao@ecs.umass.edu">songgao@ecs.umass.edu</a>
<b>Office Hours</b>	Tue, Wed, Thu 12:45pm to 2:30 PM	
	By Appointment, Email	

### Catalog Description

The application of economic principles to transportation investment and pricing analyses; emphasis on highway and public transportation in urban settings.

### Course Objectives

1. Enhance the students' awareness of the role microeconomic theory and practice can play in guiding transportation investment and pricing decisions.
2. Apply microeconomic theory to formulate and evaluate alternative transportation pricing strategies and investments designed to address selected problems.
3. Assist in the enhancement of students' process skills including their ability to think conceptually and analytically and their ability to communicate orally and in writing.

### Textbook

Wohl, Martin and Hendrickson, Chris. *Transportation Investment and Pricing Principles*. John Wiley & Sons, 1984. Available in Xerox copies at the University Textbook Annex.

### Required Reading

Gomez-Ibanez, Jose, William B. Tye, and Clifford Winston (editors). *Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer*, Brookings Institution Press, 1999. Free Ebook available from the UMass library website.

## Course Outline

No	Date		Topic	Reading	Exam/Project
1	Sep	2	Orientation and Introduction	Ch. 1	
2		4	Demand and User Cost Functions I	Ch. 2	
3		9	Demand and User Cost Functions II	Ch. 3	
4		11	Demand and User Cost Functions III	Ch. 3	
5		16	Cost Functions I	Ch. 4	
6		18	Cost Functions II	Ch. 4	Exam 1 Out
		23	<b>Exam 1</b> (Lectures 1~6) No Class		
7		25	Cost Functions III	Ch. 4	Exam 1 In
8		30	User Benefit Functions I	Ch. 5	
9	Oct	2	User Benefit Functions II	Ch. 5	
10		7	Pricing and Short-Term Efficiency I	Ch. 6	
11		9	Pricing and Short-Term Efficiency II	Ch. 6	Exam 2 Out
		14	No Class (Monday Schedule)		
		16	<b>Exam 2</b> (Lectures 8~11) No Class		
12		21	Pricing and Short-Term Efficiency III	Ch. 6	Exam 2 In
13		23	Investment and Long-Run Efficiency I	Ch. 7	Project Out
14		28	Investment and Long-Run Efficiency II	Ch. 7	
15		30	Benefit-Cost Analysis I	Ch. 8	
16	Nov	4	Benefit-Cost Analysis II	Ch. 8	
17		6	Multi-Objective Project Evaluation	Ch. 10	Prospectus In
		11	No Class (Veteran's Day)		
		12	Practical Considerations in Pricing and Investment Analysis (Tuesday Schedule)	Ch. 13, 14	
18		13	Financial Implications	Ch. 9	Exam 3 Out
		18	<b>Exam 3</b> (All lectures) No Class		
19		20	Estimation of Demand & Cost Functions	Ch. 11,12	Exam 3 In
		25	Term Project Preparation		
		27	No Class (Thanksgiving Day)		
	Dec	2	Term Project Preparation		Draft In
20		4	Term Project Presentations		
21		9	Term Project Presentations		
		11	Term Project Final Report		Final Report In

## Grading

Class Participation: 30%  
 Oral and Written Reports: 35%  
 Exam 1, 2 and 3: 10%, 10% and 15% (Take-home; no collaboration; due in two lectures; you are expected to discuss your answers in class)

### **Course Outcomes**

- (1) Ability to apply knowledge of mathematics, microeconomics, urban planning and engineering
- (2) Ability to define a problem, analyze and interpret data
- (3) Ability to function on multi-disciplinary teams
- (4) Ability to communicate ideas effectively
- (5) Understanding of transportation planning and engineering decisions on society
- (6) Understanding of professional and ethical responsibility
- (7) Recognition of the need for and an ability to engage in life-long learning
- (8) Knowledge of contemporary issues

### **Class Attendance Policy**

Students are expected to attend each class and **arrive on time**. Each student is responsible for the material covered and for all assignments made in class whether or not he or she attends the class. ***Attendance will be considered in assigning final grades.***

Students are responsible for taking exams at the scheduled times, to know the location that the exam will be given, and to make alternative arrangements in advance if a legitimate reason exists for not being able to take an exam. In considering whether to grant an excuse for an absence caused by illness or other extenuating non-academic reasons, faculty have the right to require formal, written documentation, within the limits of the health care provider's policy. (See Excuses for Health Reasons, under Administrative Policies & Procedures). **No make-up exams** will be given for un-excused absences.

State law requires that the University excuse any student who is unable to attend classes or participate in any examination or study because of religious observance. Students have the right to make up examinations or study that they miss because of religious observance without any adverse or prejudicial effects. Therefore, students have an obligation to inform their instructor, in advance, of the days on which they may be absent for religious reasons. Students should inform their instructor in writing of the days they will be absent as early in the semester as possible and always prior to the day(s) on which they will be absent for religious reasons.

### **Statement on Plagiarism**

The student will be required to use published and unpublished literature in preparing class assignments and laboratory reports. Literature includes books, reports, papers, articles, speeches/oral presentations, interviews, and Internet Web Sites. **Plagiarism in**

**any form will not be tolerated and will result in a grade of zero.** Plagiarism includes, but is not limited to, the following:

- Using thoughts or words of others and representing them as your own, including copying text from other sources without attribution. Direct quotation of other source material may be used if it is highlighted by quotation marks and/or italic font, and the source is acknowledged. Plagiarism also includes the description of concepts or ideas which you have taken from other sources, not copied word for word, but for which you do not attribute the source.
- Copying of papers prepared by other students, regardless of the source.
- Submitting a paper, and representing it as your own work, which was prepared by another.
- Downloading text and figures from an Internet Web Site which you do not attribute the source.

The student will be instructed on methods for proper referencing of cited literature using Transportation Research Board (TRB) format (see TRB Web Site).