ECON 4555 Transportation Economics SPRING 2011 MWF 9:00-9:50, ECONOMICS 117

COURSE SYLLABUS

Overview:

This is a course in transportation economics and policy for *advanced* undergraduates. Students will learn how to use economic theory and empirical tools to analyze transportation markets and policies. The course combines topics from environmental economics and industrial organization including: aggregate demand for transportation; disaggregate demand and mode choice; externalities and the costs of driving; and policy instruments such as fuel taxes, the corporate average fuel economy program (CAFE), low carbon fuel standards and congestion pricing. Instruction will emphasize the current literature and examples from recent policies.

Office Hours and Contact Information:

Professor:	Jonathan Hughes
Office location:	Economics 4B
Office hours:	Mondays and Wednesdays from 12:00 pm to 1:00 pm (or by appointment)
Phone:	(303) 735-0220
Email:	jonathan.e.hughes@colorado.edu
Class web site:	CULearn

Recommended Texts:

There is no required textbook for this course. However, much of the material for the course will drawn from the text below. Readings from the text are denoted as "Essays" in the course syllabus.

Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer, by Gomez-Ibanez, Tye, and Winston, 1999, The Brookings Institution.

Copies are available at the CU bookstore, and are on reserve at Norlin Library. The text is also available as an ebook from the CU NetLibrary (see Chinook catalog) and for purchase online.

Reading/Class Participation:

Throughout the course I will assign readings to supplement the lecture material. Readings will be posted on the course web site several days in advance. Please come to class each day ready to discuss the assigned reading. Please **prepare a ½ page executive summary** of each paper that

discusses: the key findings of the paper; major assumptions or limitations of the analysis; issues of relevance for policymaking. I will randomly select several of these summaries during the semester to evaluate as part of your class participation grade.

* Denote readings in the course schedule for which you are to turn in an executive summary.

Grading:

15% Class participation25% Problem sets30% Midterm exam30% Final exam

Problem Sets and Empirical Exercises:

Throughout the course students will be assigned problem sets that represent a mix of theory and empirical work. For empirical exercises, we will be using data from recent studies and published government reports. The class will meet in a campus computer cluster to begin these exercises, though students may be expected to complete these assignments outside of class. An important goal of this course is to expose students to the data sources used to analyze transportation markets and policies. Due dates are listed on the course syllabus.

Examinations:

There will be an in class mid-term exam on Wednesday March 9, 2011 and a final exam on Tuesday May 3, 2011 from 1:30 – 4:00 pm.

Late Assignments and Missed Examinations:

Problem sets and other assignments are due before the start of class on the date due. No late assignments will be accepted except in the case of documented medical or family emergency. No make-up exams will be given. If you foresee a conflict, contact me as soon as possible in order to make alternate arrangements for you to complete the requirements of this course.

Lecture Notes: My lectures will make use of both the chalkboard and Powerpoint. The lecture slides and graphs can be downloaded from the class web site, available through CULearn. Please visit this class website often.

Disabilities: If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, and <u>http://www.Colorado.EDU/disabilityservices</u>

If you have a temporary medical condition or injury, see guidelines at http://www.colorado.edu/disabilityservices/go.cgi?select=temporary.html

Disability Services' letters for students with disabilities indicate legally mandated reasonable accommodations. The syllabus statements and answers to Frequently Asked Questions can be found at <u>http://www.colorado.edu/disabilityservices</u>

Religious Observances: Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, students with conflicts due to religious observances should contact me during the first week of class or as soon as possible if an unforeseen situation arises. Once a conflict is identified, we will work together to find an alternative arrangement for you to complete the requirements of the course. Missed assignments shall be due at the start of the first class following the conflict. Missed examinations shall be scheduled for the first business day following the conflict. See full details at http://www.colorado.edu/policies/fac_relig.html

Appropriate Behavior: Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. See policies at http://www.colorado.edu/policies/classbehavior.html and at http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

Discrimination and Harassment: The University of Colorado at Boulder policy on Discrimination and Harassment, the University of Colorado policy on Sexual Harassment and the University of Colorado policy on Amorous Relationships apply to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of sexual harassment or discrimination or harassment based upon race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs at 303-492-5550. Information about the ODH, the above referenced policies and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at <u>http://www.colorado.edu/odh</u>

Academic Conduct: All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at http://www.colorado.edu/academics/honorcode/

Tentative Course Outline:

Week 1: Overview: transportation markets, energy and the environment January 10. Lecture 1. Introduction - course goals, thinking like an economist January 12. Lecture 2. Market for driving January 14. Lecture 3. Computer Lab. Introduction to empirical analysis *Reading: "What is econometrics" Problem Set 1 Distributed*

Week 2: Aggregate demand for transportation January 17. MLK Holiday – No class January 19. Lecture 4. Gasoline demand *Reading:* *Hughes, Knittel and Sperling (2008) January 21. Lecture 5. Gas prices, fuel economy and vehicle choice *Reading:* *Busse, Knittel and Zettelmeyer (2010) *Problem Set 1 Due*

Week 3: Environmental economics review
 January 24. Lecture 6. Measures of value, measures of waste, efficiency
 January 26. Lecture 7. Externalities, marginal private and marginal social cost
 January 28. Lecture 8. Policies for addressing externalities

Problem Set 2 Distributed

Week 4: Costs of driving

January 31. Lecture 9. Driving-related externalities *Reading*: *Parry, Walls and Harrington (2007) February 2. Lecture 10. Finding the "Right Gasoline Tax" *Reading*: *Parry and Small (2005) February 4. Lecture 11. Air pollution *Reading*: "Essays" Chapter 7 *Problem Set 2 Due*

Week 5: Costs of driving

February 7. Lecture 12. Air pollution cont. *Reading*: *Kellogg and Auffhammer (2010)
February 9. Lecture 13. Unintended consequences of clean fuel regulation *Reading*: *Brown et. al. (2008)
February 11. Lecture 14. Computer Lab. Climate change *Reading*: IPCC 4th AR Summary for Policymakers

Week 6: Costs of driving – continued

February 14. Lecture 15. Carbon trading *Reading*: TBD
February 16. Lecture 16. Low Carbon Fuel Standards *Reading*: *Holland et. al. (2010) Problem Set 3 Due Week 7: Costs of driving – continued February 21. Lecture 18. Biofuels *Reading*: *Anderson (2010) February 23. Lecture 19. Fuel economy standards *Reading*: "Essays" Chapter 8, Jacobson (2010) February 25. Lecture 20. **Computer Lab.** Highway fatalities *Reading*: *Grabowski and Morrisey (2005) **Problem Set 4 Distributed**

February 18. Lecture 17. Renewable fuel standards

Week 8: Costs of driving – continued
February 28. Lecture 21. Highway fatalities revisited *Reading*: *Anderson and Auffhammer (2010)
March 2. Lecture 22. Congestion and value of time *Reading:* "Essays" Chapter 6
March 4. Lecture 23. Congestion and value of time *Reading:* *Parry (2008) *Problem Set 4 Due*

Week 9: Costs of driving - continued March 7. Lecture 24. Catch-up and review

March 9. Mid-Term Exam

March 11. Lecture 25. Computer Lab. Congestion. *Reading:* "Essays" Chapter 2 *Problem Set 5 Distributed*

Week 10: Disaggregate demand for transportation March 14. Lecture 26. Mode choice *Reading:* "Essays" Chapter 2
March 16. Lecture 27. Vehicle choice *Reading:* *Goldberg (1995)
March 18. Lecture 28. Vehicle choice *Problem Set 5 Due*

Spring Break March 21, 2010 – March 25, 2010

Week 12: Public transportation March 28. Lecture 29. Public transportation *Reading:* "Essays" Chapter 11
March 30. Lecture 30. Should transit be subsidized? *Reading:* *Parry and Small (2009)
April 1. Lecture 31. Week 13: The firm and market power review

April 4. Lecture 32. Monopoly (inc. price discrimination) April 6. Lecture 33. Oligopoly and firm interaction April 8. Lecture 34. Oligopoly and firm interaction

Week 14: Freight transport

April 11. Lecture 35. Economies of density and network size *Reading:* "Essays" Chapter 3

April 13. Lecture 36. *Reading:* Bitzen and Keeler (2007)

April 15. Lecture 37. Computer Lab. Network industries. Homework 6 Distributed

Week 15: Air travel

April 18. Lecture 38. Market power in air travel *Reading:* *Borenstein (1989)
April 20. Lecture 39. Entry and competition in air travel *Reading:* *Goolsbee and Syverson (2008)
April 22. Lecture 40. Price discrimination *Reading:* *Stavins (2001)
Homework 6 Due

Week 16: Deregulation

April 25. Lecture 41. Trucking deregulation *Reading:* *Rose (1985)

April 27. Lecture 42. Railroad deregulation *Reading:* *Wilson (1994)

April 29. Lecture 43. Catch-up and review