

**ECON 4555**  
**Transportation Economics**  
**FALL 2012**  
**MWF 9:00-9:50, MUEN E431**

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**COURSE SYLLABUS**

**Overview:**

This is a course in transportation economics and policy for 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: Wednesdays from 11:30-1:30 pm (or by appointment)  
Phone: (303) 735-0220  
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Class web site: D2Learn

**Recommended Texts:**

There is no required textbook for this course. However, much of the material for the course will be 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 on reserve at Norlin Library E-reserves (see instructions on D2Learn). 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 participation

25% Problem sets

30% Midterm exam

30% 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 October 24, 2012** and a final exam on **Monday December 17, 2012 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 D2Learn. Please visit this class website often.

**Campus Policies:** I will adhere to all campus policies with respect to disabilities, religious observances, appropriate behavior, discrimination and harassment, and academic conduct. See <http://www.colorado.edu/policies/>

## Tentative Course Outline:

Week 1: Overview: transportation markets, energy and the environment

August 27. Lecture 1. Introduction - course goals, thinking like an economist

August 29. Lecture 2. Market for driving

August 31. Lecture 3. **Computer Lab KTCH 117**. Introduction to empirical analysis

*Reading: "What is econometrics"*

**Problem Set 1 Distributed**

Week 2: Aggregate demand for transportation

September 3. Labor Day Holiday – **No class**

September 5. Lecture 4. Gasoline demand

*Reading: \*Hughes, Knittel and Sperling. "Evidence of a Shift in the Short-Run Price Elasticity of Gasoline Demand." *Energy Journal* (2008).*

September 7. Lecture 5. Gas prices, fuel economy and vehicle choice

*Reading: \*Busse, Knittel and Zettelmeyer. "Are Consumers Myopic? Evidence from New and Used Car Purchases" *American Economic Review* (2012).*

**Problem Set 1 Due**

Week 3: Environmental economics review

September 10. Lecture 6. Measures of value, measures of waste, efficiency

September 12. Lecture 7. Externalities, marginal private and marginal social cost

September 14. Lecture 8. Policies for addressing externalities

**Problem Set 2 Distributed**

Week 4: Costs of driving

September 17. Lecture 9. Driving-related externalities

*Reading: \*Parry, Walls and Harrington. "Automobile Externalities and Policies" *Resources for the Future* (2007).*

September 19. Lecture 10. Finding the "Right Gasoline Tax"

*Reading: \*Parry and Small. "Does Britain or the U.S. have the right gasoline tax?" *American Economic Review* (2005).*

September 21. Lecture 11. Air pollution

*Reading: "Essays" Chapter 7*

**Problem Set 2 Due**

Week 5: Costs of driving

September 24. Lecture 12. Air pollution cont.

*Reading: \*Kellogg and Auffhammer. "Clearing the Air: Effect of Gasoline Content Regulations on Air Quality" *American Economic Review* (2011).*

September 26. Lecture 13. Unintended consequences of clean fuel regulation

*Reading: \*Brown et. al. "Reformulating Competition" *Journal of Environmental Economics and Management* (2008).*

September 28. Lecture 14. **Computer Lab KTCH 117**. Climate change

*Reading: IPCC 4<sup>th</sup> AR Summary for Policymakers*

**Problem Set 3 Distributed**

Week 6: Costs of driving – continued

October 1. Lecture 15. Carbon trading

*Reading:* TBD

October 3. Lecture 16. Low Carbon Fuel Standards

*Reading:* \*Holland et. al. “Some Inconvenient Truths About Climate Change Policy: The Distributional Impacts of Transportation Policies” *National Bureau of Economic Research* (2011).

October 5. Lecture 17. Renewable fuel standards

***Problem Set 3 Due***

Week 7: Costs of driving – continued

October 8. Lecture 18. Biofuels

*Reading:* \*Anderson. “The Demand for Ethanol as a Gasoline Substitute” *Journal of Environmental Economics and Management* (2011).

October 10. Lecture 19. Fuel economy standards

*Reading:* “Essays” Chapter 8, \*Jacobson. “Fuel Economy and Safety: The Influences of Vehicle Class and Driver Behavior” *American Economic Journal: Applied Economics* (2012).

October 12. Lecture 20. **Computer Lab KTCH 117.** Highway fatalities

*Reading:* \*Grabowski and Morrissey. “Do higher gasoline taxes save lives?” *Economics Letters* (2006).

***Problem Set 4 Distributed***

Week 8: Costs of driving – continued

October 15. Lecture 21. Highway fatalities revisited

*Reading:* TBD

October 17. Lecture 22. Congestion and value of time

*Reading:* “Essays” Chapter 6

October 19. Lecture 23. Congestion and value of time

*Reading:* \*Parry. “Pricing Urban Congestion” *Resources for the Future* (2008).

***Problem Set 4 Due***

Week 9: Costs of driving - continued

October 22. Lecture 24. Catch-up and review

### **October 24. Mid-Term Exam**

October 26. Lecture 25. **Computer Lab KTCH 117.** Congestion.

*Reading:* “Essays” Chapter 2

***Problem Set 5 Distributed***

Week 10: Disaggregate demand for transportation

October 29. Lecture 26. Mode choice

*Reading:* “Essays” Chapter 2

October 31. Lecture 27. Vehicle choice

*Reading: TBD*

November 2. Lecture 28. Vehicle choice

***Problem Set 5 Due***

Week 12: Public transportation

November 5. Lecture 29. Public transportation

*Reading: "Essays" Chapter 11*

November 7. Lecture 30. Should transit be subsidized?

*Reading: \*Parry and Small. "Should Urban Transit Subsidies be Reduced?"  
American Economic Review (2009).*

November 9. Lecture 31. Public transportation cont.

Week 13: The firm and market power review

November 12. Lecture 32. Monopoly (inc. price discrimination)

November 14. Lecture 33. Oligopoly and firm interaction

November 16. Lecture 34. Oligopoly and firm interaction

**Fall Break November 19 – November 23**

Week 14: Freight transport

November 26. Lecture 35. Economies of density and network size

*Reading: "Essays" Chapter 3*

November 28. Lecture 36.

*Reading: \*Bitzen and Keeler. "Economies of Density and Regulatory  
Change in the U.S. Railroad Freight Industry" Journal of Law and Economics  
(2007).*

November 30. Lecture 37. **Computer Lab KTCH 117.** Network industries.

**Homework 6 Distributed**

Week 15: Air travel

December 3. Lecture 38. Market power in air travel

*Reading: \*Borenstein. "Hubs and High Fares" RAND Journal of Economics  
(1989).*

December 5. Lecture 39. Entry and competition in air travel

*Reading: \*Goolsbee and Syverson. "Do Incumbents Respond to Threat of  
Entry?" Quarterly Journal of Economics (2008).*

December 7. Lecture 40. Price discrimination

*Reading: \*Stavins. "Price Discrimination in the Airline Market" The Review of  
Economics and Statistics (2001).*

**Homework 6 Due**

Week 16: Deregulation

December 10. Lecture 41. Trucking deregulation

*Reading:* \*Rose “The Incidence of Regulatory Rents in the Motor Carrier Industry” *RAND Journal of Economics* (1985).

December 12. Lecture 42. Railroad deregulation

*Reading:* \*Wilson. “Market-Specific Effects of Rail Deregulation” *Journal of Industrial Economics* (1994).

December 14. Lecture 43. Catch-up and review

**December 17. Final Exam 1:30 – 4:00**