

THE UNIVERSITY OF HONG KONG
FACULTY OF BUSINESS AND ECONOMICS
School of Economics and Finance

ECON0504 / ECON2234 - Transportation Economics
1st Semester, 2016-17

GENERAL INFORMATION	
Instructor:	Dr. Timothy Hau
Email:	timhau@hku.hk
Office:	Room 905 K K Leung Building
Phone:	2859 1060
Lecture:	Tuesday 3:30 - 4:20 p.m. in LE 2, Friday 3:30 - 5:20 p.m. in LE 3
Consultation times:	Tuesday 4:30 - 6:00 p.m., Friday 5:30 - 6:00 p.m. and by appointment
Personal website:	http://www.sef.hku.hk/people/faculty/timothy_hau.html
Teaching Assistant:	Mr. Tony SO Lok Pui's office is in KKL 1026, E-mail: tonyslp@hku.hk Tel: 2241 5381
Pre-requisites:	ECON1001 / ECON1210 Introduction to Economics I (Introductory Microeconomics) or equivalent. Basic calculus is used to enhance the exposition but will <i>not</i> be examined. While calculus is not required, students with some exposure to mathematics would learn more from the course.
Co-requisites:	None
Course Website:	http://www.sef.hku.hk/~timhau/2016/econ0504_2234
COURSE DESCRIPTION	
<p>This course explores the underpinnings of modern transport economics from a neoclassical microeconomics perspective. It applies micro principles to transportation issues and problems of interest. The course relies on the seminal ideas of the late Herbert Mohring and the late Nobel Laureate William Vickrey – the pioneers of modern transportation economics – which bring transport economics into the mainstream realm of microeconomics.</p> <p>Selected issues and contemporary problems in transport are analyzed from a welfare economics approach (or a benefit-cost approach if you like). Topics to be covered include contemporary urban transport issues such as road building and the Central-Wanchai Bypass, Eastern Harbour Tunnel and Western Harbour Crossing toll increases and the Cross Harbour Tunnel traffic congestion, electronic road pricing and sustainable transportation, fare increases and the public transport fare adjustment mechanism, and the economic evaluation of the Mass Transit Railway Corporation's West Island Line and South Island Line as well as the Hong Kong International Airport's third runway expansion, time permitting.</p>	
COURSE OBJECTIVES	
<ol style="list-style-type: none"> 1. To learn the underpinnings of transportation economics using microeconomic principles and tools; 2. To study selected issues and contemporary problems in transport from a welfare economics approach; 3. To hone one's economic intuition and reasoning by giving an in-class group presentation on a transportation issue. 	
COURSE LEARNING OUTCOMES	
Course Learning Outcomes	Aligned with Faculty's 5 Overall Goals*
CLO1 Should have learnt the underpinnings of transportation economics using microeconomic principles and tools;	G1, G2
CLO2 Should have learnt selected issues and contemporary problems in transport from a welfare economics approach;	G1, G2
CLO3 Should be able to hone one's economic intuition and reasoning by having given an in-class group presentation on a transportation issue.	G1, G2, G3, G4 and G5
<p>* The Faculty of Business and Economics' 5 Overall Goals are: 1) Acquisition and internalization of knowledge of the program discipline; 2) Application and integration of knowledge; 3) Inculcating professionalism and leadership; 4) Developing global outlook; and 5) Mastering communication skills.</p>	

COURSE TEACHING AND LEARNING ACTIVITIES			
Course Teaching and Learning Activities		Expected contact hour	Study Load (% of study)
T&L1. Lectures		33 hours	27.5%
T&L2. In-class group presentations and discussions		10 hours	8.3%
T&L2. Tutorials		5 hours	4.2%
T&L3. Self study		72 hours	60%
Total		120 hours	100%
Assessment Methods	Brief Description	Weight	Aligned Course Learning Outcomes
A1. Final examination	2-hour comprehensive, closed-book exam	42%	CLO1, CLO2
A2. Term test	1-hour term test shall be held on Friday, October 28 th , 2016 during the first hour. There shall be no make-up test. Feedback shall be given in class.	23%	CLO1, CLO2
A3. Synopsis of presentation	Synopsis is due on Tuesday, November 1 st , 2016 at the beginning of class	7%	CLO1, CLO2, CLO3
A4. In-class group presentation and discussion.	Presentations are scheduled in the last couple of weeks of the semester.	18%	CLO1, CLO2, CLO3
A5. A couple of problem set exercises	Problem set exercises help one grasp the analytics and learn how to apply microeconomic principles to transportation	10%	CLO1, CLO2
Total		100%	
STANDARDS FOR ASSESSMENT			
Course Grade Descriptors			
A+, A, A-	Strong evidence of superb ability to fulfill the intended learning outcomes of the course at all levels of learning: describe, apply, evaluate, and synthesize.		
B+, B, B-	Strong evidence of the ability to fulfill the intended learning outcomes of the course.		
C+, C, C-	Evidence of adequate ability to fulfill the intended learning outcomes of the course.		
D+, D	Evidence of basic familiarity with the subject.		
F	Little evidence of basic familiarity with the subject.		
Assessment Rubrics for Each Assessment			
Standards	Assessment Rubrics for all Assessment Methods		
Excellent A+, A, A-	Excellent ability to analyze and answer the question posed. Answer is exceptionally well organized and the principles, working, results, applications and/or examples put forth are all correct and relevant. Answer reflects an excellent grasp of transportation economics and economic intuition.		
Very Good B+, B, B-	Very good ability to analyze and answer the question posed. Answer is very well organized and the principles, working, results, applications and/or examples put forth are largely correct and relevant. Answer reflects a very good grasp of transportation economics and economic intuition.		
Good C+, C, C-	Good ability to analyze and answer the question posed. Answer is reasonably well organized and the principles, working, results, applications and/or examples put forth are partly correct and relevant. Answer reflects a good grasp of transportation economics and economic intuition.		

Adequate D+, D	Adequate ability to analyze and answer the question posed. Answer is disorganized and the principles, working, results, applications and/or examples put forth are mostly incorrect and irrelevant. Answer reflects an adequate grasp of transportation economics and economic intuition.
Poor F	Poor ability to analyze and answer the question posed. Answer is very disorganized and the principles, working, results, applications and/or examples put forth are largely incorrect and irrelevant. Answer reflects a poor grasp of transportation economics and economic intuition.

REQUIRED/RECOMMENDED READINGS & ONLINE MATERIALS

Compulsory (*):

*Hau, Timothy D. (1992a), "[Economic Fundamentals of Road Pricing: A Diagrammatic Analysis](#)," *World Bank Policy Research Working Paper Series*, WPS 1070, December, The World Bank, Washington, D.C., pp. 1-96. (Also published in: "...[Part I - Fundamentals](#)", *Transportmetrica*, Vol. 1, No. 2, 2005a, May, pp. 81-117, and "...[Part II - Relaxation of Assumptions](#)", *Transportmetrica*, Vol. 1, No. 2, 2005b, May, pp. 119-149.)

Recommended (+):

+Mohring, Herbert D. (1976), [Transportation Economics](#), Ballinger Press, Cambridge, Massachusetts. (An intermediate-level text that casts transportation within the standard microeconomic framework. This short 175-page book is out of print but permission to copy was obtained from the late Professor Mohring.)

COURSE CONTENT AND TENTATIVE TEACHING SCHEDULE

N.B. Compulsory (*), Recommended (+)

I. INTRODUCTION AND BASIC CONCEPTS

+Mohring's text, Ch. 1. Introduction: Is Transportation Different? Yes & No.

+Mohring's text, Ch. 2. Competitive Equilibrium

*Mohring, Herbert (1994), "[Introduction](#)," in Herbert Mohring (1994), ed., *The Economics of Transport*, Vol. I, The International Library of Critical Writings in Economics 34, An Elgar Reference Collection, Aldershot, pp. ix - xlii.

Hensher, David A. (2012), "Introduction" in David A. Hensher (2012), ed., [Transport Economics: Critical Concepts in Economics](#), Vol. I, Routledge, Oxford, United Kingdom, pp. 1-48.

II. TRANSPORT COSTS (INTERNAL AND EXTERNAL)

+Mohring's text, Ch. 3. Congestion and the Optimization of Transportation Activities

+Mohring's text, Ch. 3 Appendix. The Relationships Among Congestion Tolls, Capacity Costs, and the Value of the Marginal Product of Capacity

+Mohring's text, Ch. 6. The Peak Load and Related Cost Allocation Problems

Walters, Alan A. (1961), "[The Theory and Measurement of Private and Social Cost of Highway Congestion](#)," *Econometrica*, Vol. 29, No. 4, October, pp. 676-699.

*Mohring, Herbert, and Mitchell Harwitz (1962), *Highway Benefits: An Analytical Framework*, [Chapter 2](#), only pp. 70-90, Northwestern University Press, Evanston, Illinois.

+Keeler, Theodore E., and Kenneth A. Small (1977), "[Optimal Peak-Load Pricing, Investment, and Service Levels on Urban Expressways](#)," *Journal of Political Economy*, Vol. 85, No. 1, January, pp. 1-25. (Reprinted in Mohring (1994), Vol. I, Chapter 21, pp. 503-527.) (This paper extends the Mohring-Harwitz theoretical framework, found in *Mohring, Herbert D., and Mitchell Harwitz (1962), *Highway Benefits: An Analytical Framework*, Northwestern University Press, Evanston, Illinois, * [Chapter 2](#), pp. 70-90 only.)

+Mohring, Herbert, "[Congestion](#)," in Gómez-Ibáñez, José, William B. Tye and Clifford Winston (1999), eds., [Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer](#), Brookings Institution, Washington D.C., Chapter 6, pp. 181-220, * "[Appendix: Proofs of Propositions about Traveler Behavior and the Optimal Design and Pricing of Roads](#)", pp. 215-220 only.

*Verhoef, Erik T., and Herbert Mohring (2009), "[Self-financing Roads](#)," *International Journal of Sustainable Transportation*, Vol. 3, Nos. 5-6, pp. 293-311.

A. *Efficient Pricing, Investment and Compensation - Theory and Practice*

*Transport and Housing Bureau (2015), "[Electronic Road Pricing Pilot Scheme in Central and its Adjacent Areas Public Engagement Document](#)", HKSAR Government, December 11, 2015, 3-month Public Consultation ended on March 18, 2016, 66 pages plus 9 pages of appendices.

- +Hau, Timothy D. (1992b), "[Congestion Charging Mechanisms for Roads: An Evaluation of Current Practice](#)", *World Bank Policy Research Working Paper Series WPS 1071*, WPS 1071, December, The World Bank, Washington D.C., December 1992, pp. 1-99. (Also published in Hau, Timothy D. (2006a) "[...Part I - Conceptual Framework](#)", *Transportmetrica*, Vol. 2, No. 2, 2006a, May, pp. 87-116, and "[...Part II – Case Studies](#)", *Transportmetrica*, Vol. 2, No. 2, 2006, May, pp. 117-152.)
- +Hau, Timothy D., Becky P.Y. Loo, K.I. Wong and S.C. Wong (2011), "[An Estimation of Efficient Time-Varying Tolls for Cross Harbor Tunnels in Hong Kong](#)", *The Singapore Economic Review*, Vol. 56, No. 4, December, pp. 467-488.
- Parry, Ian W.H. (2009), "[Pricing Urban Congestion](#)," *Annual Review of Resource Economics*, Vol. 1, June, pp. 461-484.)

B. *Fundamental Law of Traffic Congestion, Pigou-Knight Paradox & Downs-Thomson Paradox*

- Mogridge, Martin J. H. (1990), "[Road Pricing and the Edgeworth Paradox](#)," *Economic Affairs*, June/July, pp. 11-22.
- +Arnott, Richard, and Kenneth A. Small (1994), "The Economics of Traffic Congestion," *American Scientist*, Vol. 82, September/October, pp. 446-455. (* Section 4.1.B on the "Law of Highway Congestion and the Shifting Peak" is contained in Kenneth A. Small (1992), *Urban Transportation Economics*, Fundamentals of Pure and Applied Economics 51, Harwood Academic Publishers, Chur, Switzerland, pp. 112-116. Also appeared in Kenneth A. Small and Erik Verhoef (2007), *The Economics of Urban Transportation*, 2nd edition, Routledge, New York.)
- Duranton, Gilles, & Matthew A. Turner (2011), "[The Fundamental Law of Road Congestion: Evidence from US Cities](#)," *American Economic Review*, 101(6): 2616-52.
- *Hau, Timothy (2012), "[Sustainable Public Transportation](#)", paper presented at The 87th Annual Conference of the Western Economic Association International, June 29 - July 3, 2012, San Francisco, USA. pp. 1-26.

III. WHAT LIES BEHIND THE TRANSPORT DEMAND SCHEDULE & THE VALUE OF TIME

- +Mohring's text, Ch. 4. Difference in Travel Time Values and the Optimization of Transportation Facilities
- +Mohring's text, Ch. 4 Appendix. The Role of Value of Time in the Optimization & Pricing of Transport Services
- +Mohring's text, Ch. 5 The Value of Travel Time
- +Layard, Richard, and Stephen Glaister (1994), "[Introduction](#)", in Richard Layard and Stephen Glaister (1994), *Cost-Benefit Analysis*, Cambridge, England: Cambridge University Press, pp. 1-56.
- *Small, Kenneth A., "[Project Evaluation](#)," in Gómez-Ibáñez, José, William B. Tye and Clifford Winston (1999), eds., *Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer*, Brookings Institution, Washington D.C., Chapter 5, pp. 137-177.

IV. THE BENEFITS OF TRANSPORTATION PROJECTS

- +Mohring's text, Ch. 8. Measuring the Benefits of Transport System Investment Projects
- +Mohring's text, Ch. 9. Consumer's Surplus versus National Income Change Benefit Measures
- +Mohring's text, Ch. 12. Economies and Diseconomies of Scale in Transportation Activities
- +Mohring's text, Ch. 10. Transportation Improvements and Land Values
- *Mohring, Herbert (1993), "[Maximizing, Measuring, and Not Double Counting Transportation-Improvement Benefits: A Primer on Closed- and Open-Economy Cost-Benefit Analysis](#)," *Transportation Research B*, Vol. 27B, No. 6, December, pp. 413-424. (This is an update of materials covered in Herbert Mohring (1976), *Transportation Economics*, Chapters 3-4 and 8-9.)
- +McFadden, Daniel (1978), "[The Theory and Practice of Disaggregate Demand Forecasting for Various Modes of Urban Transportation](#)", in U.S. Department of Transportation (1978), *Emerging Transportation Planning Methods*, U.S. Department of Transportation DOT-RSPA-DPB-50-78-2, August. (Reprinted in Tae Hoon Oum, John S. Dodgson, David A. Hensher, Steven A. Morrison, Christopher A. Nash, Kenneth A. Small and William G. Waters II (1995), eds., *Transport Economics: Selected Readings*, Transportation Series 103, The Korea Research Foundation for the 21st Century, published by Seoul Press, Korea, Chapter 3, pp. 51-80.)
- Train, Kenneth, and Daniel McFadden (1978), "[The Goods/Leisure Tradeoff and Disaggregate Work Trip Mode Choice Models](#)," *Transportation Research*, Vol. 12, Issue 5, October, pp. 349-353.
- McFadden, Daniel (2001), "[Disaggregate Behavioral Travel Demand's RUM Side: A 30-Year Retrospective](#)," in David A. Hensher (ed.), *Travel Behaviour Research: The Leading Edge*, Pergamon Press, Oxford.
- +Vickrey, William (1994), "[Reaching an Economic Balance Between Mass Transit and Provision for Individual Automobile Traffic](#)," *Logistics and Transportation Review*, Vol. 30, No. 1, March, pp. 3-19.
- Vickrey, William (1980), "[Optimal Transit Subsidy Policy](#)", *Transportation*, Vol. 9, No. 4, December, pp. 389-409.
- +Small, Kenneth A. (2005), "[Unnoticed Lessons from London: Road Pricing and Public Transit](#)," *Access*, No. 26, Spring, pp. 10-14.