

UPP 560

Urban Transportation Planning I: Introduction

Time: Mondays: noon - 2:50pm
Class Room: 2ADH2232

Instructor: Kazuya Kawamura
Office: 229 CUPPA HALL
E-mail: Kazuya@uic.edu
Phone: (312) 413-1269
Office Hour: By appointment

Learning Goals

This course introduces students to the issues, ideas, and techniques associated with urban transportation planning. This course is designed to expose students to a wide range of issues related to transportation planning. Students specializing in areas other than transportation should benefit as well as transportation specialists. Advanced students (e.g. doctoral), will be given additional readings for some of the topics covered.

Students will learn:

- Transportation terminologies
- Role of transportation in society,
- Past and existing domestic travel patterns and other transportation facts,
- Determinants of travel behavior
- Framework for Federal, state, and regional transportation planning including key milestones from the last 150 years
- Types of data used in transportation planning
- Transportation planning methods including basic understanding of travel demand forecasting
- Basic understanding of level of service concepts
- Land use-transportation relationship in both theoretical and empirical context
- Environmental impacts related to transportation
- Recent issues and prognosis

Reading assignments

Reading assignments constitute the central part of the learning experience in this course. Each student is expected to read all the material prior to the lecture. All the reading assignments can be either downloaded from the Courseinfo site or the URL addresses shown. Also, for week 8 through 11, handouts will be given in the class to supplement the reading assignments.

Outcome measurement

The course will be taught using a lecture/discussion format. Grades will be based on: short papers (30%), mid-term homework assignment (20%), final exam (30%), and class attendance and participation (10%).

Academic Honesty

Students are responsible for leaning and adhering to the academic integrity policy of UIC as stated in the AY2010-2011 MUPP Student Handbook.

Schedule (subject to change)

Week	Date	Topics
Background knowledge (weeks 1-6)		
1	8/23	Introduction, Over view of U.S. transportation system, History of US transportation planning: Early transportation planning
2	8/30	History of US transportation planning: Birth of modern transportation planning
3	9/6	Labor day - no class
4	9/13	Transportation planning today, trends and challenges
5	9/20	Transportation planning today (cont.),
6	9/27	Cost of travel, marginal cost pricing of travel. Paper no.1 due
Analysis techniques (weeks 7 -11)		
7	10/4	Techniques of transportation planning - Data needs and collection,
8	10/11	Techniques of transportation planning - supply analysis, simple demand analysis
9	10/18	Techniques of transportation planning Demand analysis
10	10/25	Techniques of transportation planning Demand analysis (cont.)
11	11/1	Techniques of transportation planning Demand analysis (cont.), validation and implementation, new approaches
Selected topics (weeks 12-15)		
12	11/8	Environmental impacts HW due
13	11/15	Transportation and land use - theory and empirical studies
14	11/22	Transportation and land use - strategies and policies
15	11/29	Transportation system management. Course summary Paper no.2 due
	12/6	Final exam (2 hours)

Reading assignments:

Week 1

▪ **Required readings:**

1. Khisty, C.J. & Lall, B.K. (1998). Transportation as a System. In Transportation Engineering: An Introduction (2nd ed.) (pp. 1-30). Upper Saddle River, NJ: Prentice Hall. Available at the course web site

▪ **Suggested readings:**

1. Transportation Mode, Available at <http://people.hofstra.edu/geotrans/eng/ch3en/ch3menu.html>
2. Weiner, E. (1997). Urban Transportation Planning in the United States: An Historical Overview (5th ed.). U.S. Department of Transportation, Federal Highway Administration. Available at <http://tmip.fhwa.dot.gov/clearinghouse/docs/utp/>

Week 2

• **Required reading**

1. Chicago Area Transportation Study. (1962) Final Report Volume III: Transportation Plan. Available at the course web site
2. Legacy 2035 Long Range Transportation plan (only scan the outline and planning process)
<http://www.ewgateway.org/trans/LongRgPlan/longrgplan.htm>

▪ **Suggested reading:**

1. Weiner, E. (1997). Urban Transportation Planning in the United States: An Historical Overview (5th ed.). U.S. Department of Transportation, Federal Highway Administration. Available at <http://ntl.bts.gov/DOCS/UTP.html>
2. Chicago Area Transportation Study. (1990) 2010 Transportation Plan http://www.cmap.illinois.gov/sp2030/historic_plans.aspx
3. Chicago Area Transportation Study. (1984) 2000 Transportation Plan. http://www.cmap.illinois.gov/sp2030/historic_plans.aspx

Week 4

▪ **Required readings:**

1. Meyer, M.D. & Miller, E.J. (2001). Urban Transportation Planning: Definition and Context. In Urban Transportation Planning (2nd Ed.) (pp. 1-40). New York: McGraw Hill. Available at the course web site
2. Polzin, S. The Case For Moderate Growth in Vehicle Miles of Travel: A Critical Juncture in U.S. Travel Behavior Trends. Center for Urban Transportation Research, University of South Florida. 2006 Available at the course web site

▪ **Suggested readings:**

1. Metropolitan Planning Section of SAFETEA-LU Available at the course web site
2. CMAP Regional Snapshot (2007). Available at the course web site

Week 5

▪ **Required readings**

1. Transportation Research Board. (2009) *Critical Issues in Transportation*. Transportation Research Board. Washington, D.C. Available at the course web site

▪ **Suggested readings:**

1. Matthew Barth and Kanok Boriboonsomsri. "Traffic Congestion and Greenhouse Gases". *Access*. Vol 35. Fall 2009. University of California Transportation Center. Available at the course web site
2. Rosenbloom, S. (2003). The Mobility Needs of Older Americans: Implications for Transportation Reauthorization. The Brookings Institution Series on Transportation Reform. Washington, D.C.: The Brookings Institution. Available at the course web site
3. National Surface Transportation Policy and Revenue Study Commission. Final Report December 2007. Available at http://transportationfortomorrow.org/final_report/

Week 6

▪ **Required readings**

1. Gomez-Ibanez, J. (1997). Estimating Whether Transport Users Pay Their Way: The State of the Art. In Greene, D.L., Jones, D.W., & Delucchi, M.A. (Eds.), The Full Costs and Benefits of Transportation (pp. 149-172). New York: Springer Verlag. Available at the course web site.
2. Federal Highway Administration. (2006) *Congestion Pricing: A Primer*. U.S. DOT. Washington D.C. Available at the course web site
3. King, D., Manville, M., and D. Shoup. (2007) "For Whom the Road Tolls?" *Access*. Vol 31. University of California Transportation Center. Available at the course web site

▪ **Suggested readings:**

1. Transportation Costs Primer. Sacramento Transportation & Air Quality Collaborative. Available at the course web site
2. Anderson & McCullough. Full Cost of Transportation in the Twin Cities Region. (only the first 2 chapters) Available at the course web site
3. Lisa Schweitzer and Brian D. Taylor. 2008. "Just Pricing: The Distributional Effects of Congestion Pricing and Sales Taxes," *Transportation*, 35(6): 797–812. Available at the course web site

Week 7

▪ **Required readings**

1. Levinson, H.S. & Jurasin, R. P. (1999). Transportation Planning Studies. In Desards, J. (Eds.), Transportation Planning Handbook (pp. 95-153). Washington, D.C.: Institute of Transportation Engineers. Available at the course web site.
2. Federal Highway Administration. (2004) *Traffic Analysis Toolbox Vol.1*. U.S. DOT. Washington D.C. Available at the course web site.

3. Transportation Research Board. (2000) *Highway Capacity Manual. Ch. 23 - Basic Freeway Segments*. Transportation Research Board. Washington, D.C. Available at the course web site.

▪ **Suggested readings:**

1. Wisconsin Department of Transportation. (2008) *Facilities Development Manual. Ch.11. 5.3*. Madison, Wisconsin. Available at the course web site.

Week 8

▪ **Required readings:**

1. Myer, M.D. & Miller, E.J. (2001). Demand Analysis. In Urban Transportation Planning (2nd Ed.) (pp. 247-331). New York: McGraw Hill. Available at the course web site

▪ **Suggested readings:**

1. Mitchelson, R.L. & Wheeler, J.O. Analysis of Aggregate Flows: The Atlanta Case. In Hanson, S. (Eds.), The Geography of Urban Transportation (2nd ed.) (pp. 129-165). New York: The Guilford Press. 1996 Available at the course web site

Week 11

▪ **Required readings:**

1. Koppelman F. (2005) "Innovations in Traffic Modeling". *Access*. Vol 27. University of California Transportation Center. Available at the course web site
2. Flyvbjerg, B., M. K. Skamris Holm, and S. L. Buhl. (2005) "How (In) accurate Are Demand Forecasts in Public Works Projects?" *Journal of the American Planning Association, Vol. 71. No. 2*, Spring 2005. Available at the course web site

▪ **Suggested readings for advanced students:**

1. TBA
2. Annas. A. (1983) Distrecte Choice Theory, Information Theory, and the Multinomial Logit and Gravity Models. *Transportation Research B. Vol 18:1*. Pergamon Press. Available at the course web site
3. Barton-Aschman Associates, Inc.& Cambridge Systematics, Inc. (1997). Model Validation and Reasonableness Checking Manual. Travel Model Improvement Program (TMIP), Federal Highway Administration (FHWA), U.S. DOT. Available at the course web site

Week 12

▪ **Required readings:**

1. Bae, C. C. (2004). "Transportation and the Environment". In Hanson, S. (Eds.), The Geography of Urban Transportation (3rd ed.) (pp. 356-381). New York: The Guilford Press. Available at the course web site

Week 13

▪ **Required readings:**

1. Button, K.J. (1993). Urban Transportation and Land Values (2.5), Transport and Urban Wage Rate (2.6), *Transport and Economics* (2nd ed.) (pp.30-38). Northampton, Mass: Edward Alger. Available at the course web site.
2. Muller, P.O. (2004). Transportation and Urban Form: Stages in The spatial Evolution of the American Metropolis. In Hanson, S. (Eds.), *The Geography of Urban Transportation* (3rd ed.) (pp. 59-85). New York: The Guilford Press. Available at the course web site.
3. Giuliano, G. (2004). "Land Use Impacts of Transportation Investments - Highway and Transit". In Hanson, S. (Eds.), *The Geography of Urban Transportation* (3rd ed.) (pp. 237-273). New York: The Guilford Press. Available at the course web site
4. Lee. D. (1973) Requiem for Large Scale Models. *Journal of American Planning Association*. Available at the course web site

▪ **Suggested readings:**

1. Torrens, P.M. (2000). How Land-Use-Transportation Models Work. Center for Advanced Spatial Analysis Working Paper Series #20. University College London, London, UK. Available at Available at the course web site
2. Nathaniel Baum-Snow, 2007. "Did Highways Cause Suburbanization?," *The Quarterly Journal of Economics*, MIT Press, vol. 122(2), pages 775-805. Available at the course web site
3. Levinson, D. "The Co-Evolution of Transport and Land Use in London". Presented at the Access to Destinations Conference. University of Minnesota, August, 2007. Available at the course web site
4. Waddell, P. UrbanSim: Modeling Urban Development for Land Use, Transportation and Environmental Planning. *Journal of American Planning Association*, Vol. 68 No. 3, Summer 2002, pp. 297-314. Available at the course web site
5. Ben-Akiva, M., and J. Bowman. Integration of an Activity-based Model System and a Residential Location Model. *Urban Studies*, Vol. 35, No. 7, pp. 1131-1153, 1998. Available at the course web site

Week 14

▪ **Required readings:**

1. Ewing, R., and R. Cervero. (2001) Travel and the Built Environment - Synthesis. *Transportation Research Record 1780*. Transportation Research Board. Washington D.C. Available at the course web site.
2. Handy, S. (2005). "Smart Growth and the Transportation-Land Use Connection: What Does the Research Tell Us?" *International Regional Science Review*, 28:2. SAGE. Available at the course web site

3. Cervero, R. and K. Kockelman. Travel Demand and the 3Ds: Density, Diversity, and Design. (1997). *Transportation Research D. Vol 2:3*. pp 199-219. Available at the course web site

▪ **Suggested readings:**

1. Skaburskis, A. (2006) "New Urbanism and Sprawl". *Journal of Planning Education and Research* 25: pp. 233-248 Available at the course web site
2. Rodriguez, D.A., A. J. Khattak, and K. R. Evenson (2006) "Can New Urbanism Encourage Physical Activity?", *Journal of the American Planning Association, Vol. 71. No. 1, Winter 2006*. pp. 43-54. Available at the course web site
3. Handy, S., X. Cao, and P. L. Mokhtarian. (2006) "Self-Selection in the Relationship between the Built Environment and Walking". *Journal of the American Planning Association, Vol. 71. No. 1, Winter 2006*. pp. 55-74. Available at the course web site
4. Bruegmann, R. "Sprawl and accessibility". Presented at the Access to Destinations Conference. University of Minnesota, August, 2007. Available at the course web site
5. Miller, J. (2008) "Potential Performance Measures to Assess Transportation and Land Use Coordination". *Proceedings of Transportation Research Board Annual Meeting*. Washington, D.C. Available at the course web site
6. Meyer, M.C. (1999). Demand Management as an Element of Transportation Policy: Using Carrots and Sticks to Influence Travel Behavior. *Transportation Research, Part A*, 33 (7/8), 579-599. Available at the course web site.
7. Pickrell, D. (1999). Transportation and Land Use. In Gomez-Ibanez, J.A., Tye, W.B. & Winston, C. (Eds.), *Essays in Transportation Economics and Policy* (pp. 403-435). Washington, D.C.: Brookings Institution Press. Available at the course web site
8. Joh, K., and M. Boarnet. "Accessibility, Travel Behavior, and New Urbanism: Case Study of Mixed-Use Centers and Auto-Oriented Corridors in the South Bay Region". Presented at the Access to Destinations Conference. University of Minnesota. August, 2007 Available at the course web site

Week 15

▪ **Required readings:**

1. Giuliano, G., and S. Hanson (2004). "Managing the Auto". In Hanson, S. (Eds.), *The Geography of Urban Transportation* (3rd ed.) (pp. 382-403). New York: The Guilford Press. Available at the course web site
2. Wachs, M. (1993). Learning from Los Angeles: Transport, Urban Form, and Air Quality. *Transportation*, 20, 329-354. Available at the course web site.
3. Transportation Research Board. (2001) *Making Transit Work: Insight from Western Europe, Canada, and the United States -- Special Report 257*. National Research Council. Committee for an International Comparison of National

- Policies and Expectations Affecting Public Transit. Transportation Research Board. Washington, D.C. Available at the course web site. [read the Executive Summary, skim the rest]
- Hall, P. (2007) "Beyond the Automobile?" *Access*. Vol 30. University of California Transportation Center. Available at the course web site

• **Suggested readings:**

- Schade, W. and W. Rothengatter. (2001) "Strategic Sustainability Analysis: Broadening Existing Assessment Approaches for Transport Policies". Transportation Research Record 1756. TRB. Washington D.C. Available at the course web site
- Kennedy, C. (2002) "A comparison of the sustainability of public and private transportation systems: Study of the Greater Toronto Area". Transportation 29: Kluwer Academic Publishers. pp. 459–493 Available at the course web site
- Hess, D. and P. Lombardi. (2005) "Governmental Subsidies for Public Transit: History, Current Issues, and Recent Evidence" Public Works Management & Policy, Vol. 10 No. 2. pp.138-156 Available at the course web site.

Useful Reference Material

- Meyer and Miller. *Urban Transportation Planning*, 2nd Ed. McGraw Hill, 2000
- The Geography of Urban Transportation, 3rd S. Hanson and G. Giuliano (ed.). Guilford, 2004
- *Transportation Planning Handbook*. John Edwards (ed.). Institute of Transportation Engineers, 1999
- Khisty and Lall. *Transportation Engineering: An Introduction*. Prentice Hall 1999
- Gomez-Ibanez, Tye, and Small. *Essays in Transportation Economics and Policy*. Brookings Institute Press. 1999
- John Dickey, *Metropolitan Transportation Planning*. Taylor & Francis, 1983
- Small, Kenneth. *Urban Transportation Economics*. Harwood Academic Publishers. 1992