

## UPP 560

### Urban Transportation Planning I: Introduction

Time: Tuesdays 6:00 -9:00 PM  
Class Room: A0052LCA

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

#### **Course Description**

This course introduces students to the issues, ideas, and techniques associated with urban transportation planning. Topics to be covered include: the role of transportation in society, land use-transportation relationship, domestic travel patterns and other transportation facts, transportation planning methods, environmental impacts, recent development in transportation policy, and current perspectives on 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.

#### **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 6 through 8, handouts will be given in the class to supplement the reading assignments.

#### **Requirements**

The course will be taught using a lecture/discussion format. Grades will be based on homework assignments (35%), quizzes (20%), final exam (35%), and class attendance and participation (10%). Quizzes will be based on the reading assignments and lectures.

#### **Academic Honesty**

Students are not permitted to discuss the contents of assignments with other students before the submittal unless otherwise noted. Any form of academic dishonesty, especially plagiarism, will be severely punished (at a minimum, "F" for the course). Please make sure to site a reference whenever you "borrow" ideas or quotes from existing sources including books, articles, web sties, etc.

## Schedule (subject to change)

Week	Date	Topics
1	8/25	Introduction, Over view of U.S. transportation system, History of US transportation planning: Early transportation planning
2	9/1	History of US transportation planning: Birth of modern transportation planning
3	9/8	Transportation planning today, trends and challenges
4	9/15	Transportation planning today (cont.),
5	9/22	Cost of travel, marginal cost pricing of travel
6	9/29	Techniques of transportation planning - Data needs and collection,
7	10/6	Techniques of transportation planning - supply analysis, simple demand analysis
8	10/13	Techniques of transportation planning Demand analysis - trip generation
9	10/20*	Techniques of transportation planning Demand analysis – trip distribution, mode choice
10	10/27	Techniques of transportation planning Demand analysis – trip assignment, validation and implementation
11	11/3	Transportation and land use - theory and empirical studies
12	11/10	Transportation and land use - analysis tools
13	11/17	Transportation system management, Environmental impacts
14	11/24	Environmental impacts (cont.), Public transit
15	12/1	Urban design issues: parking, traffic management, & street design

\*Guest lecture

## Reading assignments:

### Week 1

#### ▪ Required readings:

1. Khisty, C.J. & Lall, B.K. (1998). Transportation as a System. In Transportation Engineering: An Introduction (2<sup>nd</sup> 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 (5<sup>th</sup> 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. Chicago Area Transportation Study. (1997) 2020 Transportation Plan. Available at the course web site
- **Suggested reading:**
    1. Weiner, E. (1997). Urban Transportation Planning in the United States: An Historical Overview (5<sup>th</sup> 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 Available at the course web site
    3. Chicago Area Transportation Study. (1984) 2000 Transportation Plan. Available at the course web site

### Week 3

- **Required readings:**
  1. Meyer, M.D. & Miller, E.J. (2001). Urban Transportation Planning: Definition and Context. In Urban Transportation Planning (2<sup>nd</sup> 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
  3. CMAP Regional Snapshot (2007). Available at the course web site
  4. Transportation Research Board. (2006) *Critical Issues in Transportation*. Transportation Research Board. Washington, D.C. Available at the course web site
- **Suggested readings:**
  1. 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
  2. National Surface Transportation Policy and Revenue Study Commission. Final Report December 2007. Available at [http://transportationfortomorrow.org/final\\_report/](http://transportationfortomorrow.org/final_report/)

### Week 4

- **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. Transportation Costs Primer. Sacramento Transportation & Air Quality Collaborative. Available at the course web site
  3. Federal Highway Administration. (2006) *Congestion Pricing: A Primer*. U.S. DOT. Washington D.C. Available at the course web site

4. 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. Anderson & McCullough. Full Cost of Transportation in the Twin Cities Region. (read only the first 2 chapters) Available at the course web site

**Week 5**

▪ **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. Wisconsin Department of Transportation. (2008) *Facilities Development Manual*. Ch.11. 5.3. Madison, Wisconsin. 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.
4. Federal Highway Administration. (2004) *Traffic Analysis Toolbox Vol.1*. U.S. DOT. Washington D.C. Available at the course web site.

**Week 6**

▪ **Required readings:**

1. Myer, M.D. & Miller, E.J. (2001). Demand Analysis. In *Urban Transportation Planning* (2<sup>nd</sup> 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* (2<sup>nd</sup> ed.) (pp. 129-165). New York: The Guilford Press. 1996 Available at the course web site

**Week 7**

▪ **Required readings:**

1. Koppelman F. (2005) "Innovations in Traffic Modeling". *Access*. Vol 27. University of California Transportation Center. Available at the course web site

▪ **Suggested readings for advanced students:**

1. Bhat, C.R. & Koppelman, F.S. (1999). Activity-based Modeling of Travel Demand. In Hall, R.H. (Eds.), *Handbook of Transportation Science* (pp.35-61). Boston, Mass: Kluwer Academic Publishers.
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

**Week 8**

▪ **Required reading:**

1. 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 reading**

1. 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 9

- **Required readings:**

1. Button, K.J. (1993). Urban Transportation and Land Values (2.5), Transport and Urban Wage Rate (2.6), *Transport and Economics* (2<sup>nd</sup> 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 (3<sup>rd</sup> 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 (3<sup>rd</sup> ed.) (pp. 237-273). New York: The Guilford Press. Available at the course web site
4. 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

- **Suggested readings:**

1. 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
2. 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
3. Pradhan, A., and K. Kockelman . Uncertainty Propagation in an Integrated Land Use-Transportation Modeling Framework: Output Variation via UrbanSim. *Proceedings of Transportation Research Board Annual Meeting*. Washington, D.C. January 2002. Available at the course web site
4. 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
5. Lee. D. (1973) Requiem for Large Scale Models. *Journal of American Planning Association*. Available at the course web site

## Week 10

### ▪ **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. 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

### ▪ **Suggested readings:**

1. 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

## Week 11

### ▪ **Required readings:**

1. Downs, A. "Smart Growth". *Journal of the American Planning Association, Vol. 71, No. 4*, Autumn 2005. pp. 367-380 Available at the course web site
2. 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
3. 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

### ▪ **Suggested readings:**

1. Bochner, B.S. (2000). *Smart Growth Tools for Transportation*. *ITE Journal, 77* (11), 26-29. Available at the course web site. Available at the course web site
2. Skaburskis, A. (2006) "New Urbanism and Sprawl". *Journal of Planning Education and Research 25*: pp. 233-248 Available at the course web site
3. 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
4. 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
5. Bruegmann, R. "Sprawl and accessibility". Presented at the Access to Destinations Conference. University of Minnesota, August, 2007. Available at the course web site
6. 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

7. 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.

### Week 12

#### ▪ Required readings:

1. Wachs, M. (1993). Learning from Los Angeles: Transport, Urban Form, and Air Quality. Transportation, 20, 329-354. Available at the course web site.
2. Giuliano, G., and S. Hanson (2004). "Managing the Auto". In Hanson, S. (Eds.), The Geography of Urban Transportation (3<sup>rd</sup> ed.) (pp. 382-403). New York: The Guilford Press. Available at the course web site

### Week 13

#### ▪ Required readings:

1. Bae, C. C. (2004). "Transportation and the Environment". In Hanson, S. (Eds.), The Geography of Urban Transportation (3<sup>rd</sup> ed.) (pp. 356-381). New York: The Guilford Press. Available at the course web site
2. Deakin, E. (2002) "Sustainable Transportation: U.S. Dilemmas and European Experiences". Transportation Research Record 1792. TRB. Washington D.C. Available at the course web site
3. 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

#### • Suggested readings:

1. 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

### Week 14

#### ▪ Required readings:

1. Kain, J.F. (1999). The Urban Transportation Problem: A reexamination and Update. In Gomez-Ibanez, J.A., Tye, W.B. & Winston, C. (Eds.), Essays in Transportation Economics and Policy (pp. 359-401). Washington, D.C.: Brookings Institution Press Available at the course web site.
2. 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]
3. Hall, P. (2007) "Beyond the Automobile?" *Access*. Vol 30. University of California Transportation Center. Available at the course web site

▪ **Suggested readings:**

1. Kain, J.F. & Liu, Z. (1999). Secrets of Success: Assessing the Large Increases in Transit Ridership Achieved by Houston and San Diego Transit Providers. Transportation Research, Part A, 33 (7/8), 601-624. Available at the course web site.
2. Larwin, T.F. (1999). Urban Transit. In Edwards, J. (Eds.), Transportation Planning Handbook (pp. 427-498). Washington, D.C.: Institute of Transportation Engineers.
3. 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.

**Week 15**

▪ **Required readings:**

1. Smith, M, (1999). Parking. In Edwards, J. (Eds.), Transportation Planning Handbook (pp. 499-559). Washington, D.C.: Institute of Transportation Engineers. Available at the course web site.
2. Atkins, C. (1999). Traffic Calming. In Edwards, J. (Eds.), Transportation Planning Handbook (pp. 642-675). Washington, D.C.: Institute of Transportation Engineers. Available at the course web site.

▪ **Suggested readings:**

1. Federal Highway Administration, U.S. DOT. (2004). Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, Revision 1. Available at <http://mutcd.fhwa.dot.gov/pdfs/2003r1/pdf-index.htm>
2. Southworth, M. & Ben-Joseph, E. (1995). Street Standards and the Shaping of Suburbia. Journal of the American Planning Association, 61 (1), 65-81 Available at the course web site.

**Useful Reference Material**

- Meyer and Miller. *Urban Transportation Planning*, 2<sup>nd</sup> Ed. McGraw Hill, 2000
- The Geography of Urban Transportation, 3<sup>rd</sup> 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