UP 430/CEE 417: Urban Transportation Planning

University of Illinois at Urbana-Champaign    Department of Urban and Regional Planning

Spring 2016

CLASS MEETINGS:    Mondays, 5:00-7:50 pm
ROOM:    225 Temple Buell Hall (Lab: 227 TBH)
INSTRUCTORS:    Rita Morocoima-Black, rmorocoi@illinois.edu
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TEACHING ASSISTANTS:    Shuake Wuzhati, wuzhati2@illinois.edu
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COURSE OVERVIEW

Our transportation systems influence virtually every aspect of community life. They are the means for moving people, goods and services throughout our communities, the region, and, increasingly, to destinations around the world. Of equal importance, these systems have played a significant role in shaping patterns of growth, facilitating economic prosperity, and influencing the character and livability of our communities.

As a result, transportation planning is a particularly important component in the overall planning for what we want our communities to be. Past decisions about transportation system development were not always based on a comprehensive review of the diverse needs and interrelationships that influence whether we achieve both effective transportation systems and livable communities. Decisions were not necessarily based on a clear vision about a community's future. Instead, much of our current inventory of transportation facilities was built on a project-by-project basis, often in reaction to traffic congestion or other problems. Planning, development and operational responsibility for various pieces of the transportation network has been divided among federal, state, and local government agencies, regional transit agencies, port districts, and the private sector. The efforts of these various agencies have not always been coordinated to create an efficient, seamless transportation system.

This course will examine a number of the more important issues, descriptive and analytical, dealing with urban transportation. We begin by taking a close look at the historical development of urban transportation and the fundamental question of the role of transportation in urban development. We will continue by examining the characteristics of the urban transportation system and the different modes of transportation and their planning processes while emphasizing the use of analytical tools.

TEXTBOOKS

There are two required textbooks:


Modelling Transport, 4th edition, Juan de Dios Ortuzar and Luis G. Willumsen (2011, Wiley). They will be available for purchase at the Illini Bookstore and on Amazon.
Readings not included in the two required textbooks will be available on the course website.

**HOMEWORK ASSIGNMENTS AND GROUP FINAL PROJECT**

A number of assignments will be required for the course. The purpose of the homework assignments is to provide opportunities to integrate the principles of the course by analyzing selected problems in urban transportation. Four written assignments will be required: two analytical memoranda and a small group project including data collection and analysis. These assignments have staggered due dates timed to correspond with the subject areas covered in class.

The written assignments are going to be distributed during class. All written assignments (hardcopy only) should be placed on my desk at the beginning of the class on the due date of the assignment. Late assignments will not be accepted except under unusual circumstances.

**Homework 1 (Due Date - February 1): 5%**
**Homework 2 (Due Date – February 8): 5%**
**Homework 3: (Due Date – February 22): 10%**
**Homework 4: (Due Date – March 7): 10%**

A group final project will also be assigned. Detailed instructions about the final group project will follow.

**GRADING**

The final grade for the course will be made up of the following components:
- Homework: 30%
- Quizzes: 20%
- Final Project and Presentation: 40%
- Attendance: 10%

Laptops should be used only for note taking. **No web surfing! No texting!**
Phones are expected to be turned off during class time.

**DURP CODE OF CONDUCT: INCLUSIVENESS & PROFESSIONALISM**

**CLASS CLIMATE**

The Department of Urban and Regional Planning (DURP) is committed to creating an environment of inclusion and opportunity that is rooted in the very goals and responsibilities of practicing planners. This responsibility requires planners to adhere to the highest standards of professionalism and integrity in the workplace, with coworkers, and with the public. As a result, the development of responsible, ethical, professional behavior is a critical component of professional planning education. DURP expects all students to meet and exceed the standards outlined in the University of Illinois Student Code. See Student Code Article 1—Student Rights and Responsibilities, Part 1. Student Rights: §1-102 In the Classroom.
ACADEMIC INTEGRITY

This course follows the guidelines set forth by the University student code. See http://www.admin.uiuc.edu/policy/code/article_1/a1_1-401.html for specific guidelines, examples, and punishment associated with academic dishonesty.

COURSE SCHEDULE

- **Week 1 (January 25)** - Course overview. Introduction and key concepts. History of the urban transportation systems and its relationship with the urban environment
- **Week 2 (February 1)** - History of the Transportation Planning Process: Changes. Impacts of Transportation Policies in Land Use
- **Week 3 (February 8)** - Transportation planning at the federal level, regional and local level
- **Week 4 (February 15)** - Planning for automobiles and transit
- **Week 5 (February 22)** - Planning for walking and biking: Changes in mode choices
- **Week 6 (February 29)** - Transportation and the built environment. Health Implications
- **Week 7 (March 7)** - The role of models in transportation planning
- **Week 8 (March 14)** - Introduction to Travel Demand Forecasting
- **Week 9 (March 21)** - Spring Break
- **Week 10 (March 28)** - Methods and issues with modeling and forecasting
- **Week 11 (April 4)** - Trip Generation Modeling
- **Week 12 (April 11)** - Trip Distribution Modeling
- **Week 13 (April 18)** - Mode Choice Modeling
- **Week 14 (April 25)** - Model Aggregation and Transferability
- **Week 15 (May 2)** - Traffic Assignment Modeling
- **Week 16 (May 9)** - Final Project Presentation

INTRODUCTION TO TRANSPORTATION PLANNING AND COURSE OVERVIEW

* indicates optional readings.

**Week 1: January 25**

Course overview. Introduction and key concepts. History of the urban transportation systems and its relationship with the urban environment.


Week 2: February 1

*History of the Transportation Planning Process: Changes. Impacts of Transportation Policies in Land Use*


Week 3: February 8

*Transportation planning at the federal level, regional and local level*


Susan Handy and Gian-Claudia Sciara. 2014. “Chapter 6: Regional Transportation Planning.”


Week 4: February 15
Planning for automobiles and transit


Damien Newton and Melanie Curry. 2014. “California Has Officially Ditched Car-Centric ‘Level of Service’.”


Week 5: February 22
Planning for walking and biking: Changes in mode choices


Active Living Research. 2013. “How to Increase Bicycling for Daily Travel.”


Week 6: February 29
Transportation and the built environment. Health Implications.


Week 7: March 7
The role of models in transportation planning (Guest lecture on CUUATS Modeling Suite)


Week 8: March 14
Introduction to Travel Demand Forecasting

Beimborn, E. A. 2006. A Transportation Modeling Primer, Center for Urban Studies, University of Wisconsin-Milwaukee

Week 9: March 21
Spring Break

Week 10: March 28
Methods and issues with modeling and forecasting, Trip Generation Modeling


Week 11: April 4
Trip Distribution Modeling


Week 12: April 11
External Travel Estimation and Mode Choice Modeling

Ortuzar, J, Modeling Transport, 4th Edition, Chapter 6 (Course Text Book)

Week 13: April 18
Model Aggregation and Transferability


Week 14: April 25
Traffic Assignment Modeling


Week 15: May 2
Freight Demand Model and Activity Based Modeling

NCHRP Report 716: Travel Demand Forecasting: Parameters and Techniques, Chapter 6
Week 16: May 9

Final Project Submission and Group Presentation