PLAN 636: Urban Transportation Planning
Fall 2014

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317 New East
919-962-4781
noreen@unc.edu

Office Hours: Tuesday & Thursday 3:30-4:30 (drop-in or email me)

TA: Mary Wolfe
mkwolfe@live.unc.edu

Course Meetings: Tuesday & Thursday 2:00-3:15pm, New East 102

Course Description
This course in transportation planning provides a broad overview of the field and is intended for students intending to concentrate in transportation planning or those who want a broad overview of the field. The course is divided into 3 sections.

- **Key Issues**: The first section analyzes past, present, and future travel patterns in the United States with a special emphasis on understanding how demographics and land use influence travel behavior and identifying the key challenges for transportation planners.
- **Institutions**: This section provides a broad introduction to the institutional structure of transportation planning, particularly the interaction between federal, state, and regional decision makers and policy.
- **Analytic Tools**: Transportation planning relies heavily on the rational planning model. This section will introduce you to the common analysis techniques used in transportation and consider their effectiveness. This section provides a strong skill basis for any students interested in pursuing careers in transportation consulting firms or municipalities (or anyone who plans to be involved with the development process).

Course Objectives
At the end of this course, you will be able to perform analyses common in the practice of transportation planning, including parking and travel demand analysis, traffic impact assessment. Furthermore, you will be able to discuss authoritatively the key policy issues in current transportation planning debates.

Course Requirements:
**Projects**: Students will complete projects that require the use of analytical techniques common in transportation planning.
- Travel Patterns
- Public Meeting Analysis
Final Exam: A synthetic final exam covering lecture materials and readings will be held during exam period. There will be no make-up exams. If you miss the exam due to an excused absence (illness, family emergency), there will be no make-up. When the exam is missed for an excused absence, the other course requirements will be re-weighted and the final exam will not be considered in your course grade. If you miss the final for an unexcused absence, you will receive a grade of 0 for the final exam.

With the instructor’s permission, graduate students may write a 25 page research paper on a topic related to the class rather than taking the final exam. Any graduate students interested in doing this must submit a proposal by the Tuesday before Fall Break.

Participation: Participation in the class and effective collaboration with your classmates is essential in this course.

Grading

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Due (dates subject to change)</th>
<th>Points</th>
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<tbody>
<tr>
<td>1. Travel Patterns Analysis</td>
<td>September 9, 5pm</td>
<td>12</td>
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<td>2. MPO Plan Analysis</td>
<td>October 2, 5pm</td>
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<td>3. Public Meeting Analysis</td>
<td>October 30, 5pm</td>
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<td>4. Finance Analysis</td>
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<td>5. Parking Analysis</td>
<td>November 11, 5pm</td>
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<td>6. Traffic Impact Analysis</td>
<td>November 20, 5pm</td>
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<td>7. Travel Demand Models</td>
<td>December 2, 5pm</td>
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<td>8. Final Exam</td>
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<td>9. Attendance/Participation</td>
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Late Assignments
Each student has 5 ‘late days’ to use at their own discretion. If an assignment is turned in after the due date but before 24 hours have passed, that would be one day late and a student could opt to use a ‘late day’ to avoid grade penalties. Late days are not subdividable. A paper that is 2 hours late is the same as a paper that is 23 hours late.

Any assignments turned in late (i.e. after allowances for the 5 late days) will incur a penalty of a half-grade (letter graded assignments) or half the standard deviation (numeric graded assignments). For example if a paper is a day late, the grade would change from a B to a B-. If the paper were two days late, the grade would change from a B to a C+.

Readings
Readings for each session are detailed in the remainder of the syllabus. Many of them will be available on Sakai. Several books are on reserve at the House Undergraduate Library including:
• Guiliano & Hanson, Geography of Urban Transportation
• Meyer, M. Urban Transportation Planning: A Decision-Oriented Approach
• Ortuzar & Willumsem, Modeling Transport
• Southworth & Ben-Joseph, Streets and the shaping of towns and cities
• Boarnet & Crane, Travel by Design: The Influence of Urban Form on Travel

**Honor Code**
The UNC Honor Code states: “It shall be the responsibility of every student at The University of North Carolina at Chapel Hill to obey and to support the enforcement of the honor code, which prohibits lying, cheating, or stealing when these actions involve academic processes or University, student or academic personnel acting in an official capacity.”

This standard does not preclude discussions of assignments with other students. However, I expect that each person turns in their own work. You must also provide citations for any ideas that are not your own.
## Course Schedule

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
<th>Assignments Due</th>
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<tr>
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<td>8-19</td>
<td>Course Overview &amp; Major Themes</td>
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<td>2</td>
<td>8-21</td>
<td>Travel Patterns</td>
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<td>3</td>
<td>8-26</td>
<td>Travel Patterns</td>
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<td>4</td>
<td>8-28</td>
<td>Transportation History</td>
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<td>9-2</td>
<td>Transportation History</td>
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<td>6</td>
<td>9-4</td>
<td>Urban Economics</td>
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<td>7</td>
<td>9-9</td>
<td>Transportation and Land Use: Modern Connections</td>
<td>Travel Patterns</td>
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<td>8</td>
<td>9-11</td>
<td>Accessibility</td>
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<td>9-16</td>
<td>Congestion</td>
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<td>Transportation Planning Process</td>
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<td>Transportation Planning Process</td>
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<td>Environmental Impacts</td>
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<td>Environmental Impacts</td>
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<td>14</td>
<td>10-2</td>
<td>Transportation Finance: Current Status</td>
<td>MPO Plan</td>
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<td>15</td>
<td>10-7</td>
<td>Transportation Finance: Future Alternatives</td>
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<td>Public Transit Finance</td>
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<td>Full Costs of Transportation</td>
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<td>Fall Break</td>
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<td>10-21</td>
<td>Goods Movement</td>
<td>Finance</td>
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<td>Safety &amp; Security</td>
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<td>Equity &amp; Environmental Justice</td>
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<td>Street Design</td>
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<td>Traffic Impact</td>
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<td>25</td>
<td>11-11</td>
<td>New Approaches to Traffic Impact</td>
<td>Parking</td>
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<td>11-13</td>
<td>Site Review</td>
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<td>27</td>
<td>11-18</td>
<td>Introduction to 4-Step Modeling</td>
<td>Traffic Impact</td>
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<td>28</td>
<td>11-20</td>
<td>Four-Step Details &amp; Critiques</td>
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<td>11-25</td>
<td>Catch-up</td>
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<td>30</td>
<td>11-27</td>
<td>Thanksgiving</td>
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<td>31</td>
<td>12-2</td>
<td>The Future &amp; Exam Review</td>
<td>Travel Demand</td>
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<tr>
<td>TBA</td>
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<td>Final Exam</td>
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Readings
** Indicates required reading.

Overview & Major Themes
TRB’s Critical Issues in Transportation 2013

Travel Patterns

Transportation History
**Day 1: Walking City and the Rise and Fall of Transit**

America on the Move, Smithsonian. [http://americanhistory.si.edu/onthemove/index.html](http://americanhistory.si.edu/onthemove/index.html)


**Day 2: The Rise of the Auto**


**Urban Economics**

**O’Sullivan, A. Introduction to Land Rent and Land Use and Land Use in a Monocentric City. *Urban Economics*.


Alonso. *Location and Land Use*.

Transportation and Land Use: Modern Connections


http://environmentalresearchweb.org/blog/2012/05/does-urban-form-really-matter.html

http://www.theatlanticcities.com/design/2012/07/new-research-finds-urban-form-plays-little-role-sustainability/2680/

http://blog.metrotrends.org/2012/08/simulating-sprawl-reduction-england/

http://www.newgeography.com/content/002934-questioning-messianic-conception-smart-growth


Guiliano, G. Land Use Impact of Transportation. The Geography of Urban Transportation, 3rd Ed.


**Accessibility**

TBA

**Congestion**


Varaiya. “What We’ve Learned About Highway Congestion” Access 27.  
http://www.uctc.net/access/27/Access%2027%20-%2002%20-%20What%20We%20Learned.pdf

Cervero. “Are Induced-Travel Studies Inducing Bad Investments?” Access 22.  


http://www.uctc.net/access/38/access38_congestion_pricing_sweden.pdf

**Transportation Planning Process**

**Wachs, M.** Geography of Urban Transportation, Ch. 6


A Citizen’s Guide to Transportation Decision Making
http://www.fhwa.dot.gov/planning/decisionmaking/index.htm


MAP-21 Summaries and Reports http://www.transportationissuesdaily.com/new-map-21-reports-and-summaries/


Environmental Impacts

**Transportation Conformity: A Basic Guide for State and Local Officials
http://www.ampo.org/assets/25_bguide05.pdf

**FHWA Environmental Guidebook.

** (Skim) DOT Report to Congress


Practitioners Handbook. Using the transportation planning process to support the NEPA process. AASHTO.

CDOT. Chapter 2: National Environmental Policy Act and Implementing Regulations. CDOT NEPA Manual


AASHTO’s – The NEPA Process.
http://environment.transportation.org/environmental_issues/nepa_process/


Goods Movement


Transportation Finance: Current Status and Challenges

(Skim) National Surface Transportation Policy and Revenue Study Commission Report
http://www.transportationfortomorrow.org/final_report/


http://uctc.net/access/41/access-41-pork.pdf

Transportation Finance: Future Alternatives


http://www.uctc.net/access/22/Access%2022%20-%20Local%20Option%20Transportation%20Taxes.pdf


http://www.uctc.net/access/26/Access%2026%20-%20New%20Technology%20for%20an%20Old%20Dilemma.pdf


Kahn & Levinson.
http://www.brookings.edu/~media/Research/Files/Papers/2011/2/highway%20infrastructure%20kahn%20levinson/02_highway_infrastructure_kahn_levinson_paper.PDF


Public Transit Finance


**Full Costs of Transportation**


David Levinson’s High Speed Rail Page http://nexus.umn.edu/projects/hsr/hsr-factsheet.html


Safety & Security


http://dx.doi.org/10.1016/j.aap.2010.12.007


Equity, Environmental Justice, and Travel of Disadvantaged Groups


**Bullard, Robert and Glenn Johnson. 1997. Just Transportation, Chapter 1.**


Street Design


**Parking**


[http://www.uctc.net/access/38/access38_free_parking_markets.pdf](http://www.uctc.net/access/38/access38_free_parking_markets.pdf)


*Effect of TODs on Housing, Parking, and Travel*  


**Traffic Impact**


**Institute of Transportation Engineers. *Transportation Impact Analyses for Site Development.***

NCHRP 08-51 *Enhancing Internal Trip Capture Estimation for Mixed Use Developments*  

Effect of TODs on Housing, Parking, and Travel  

**New Approaches to Traffic Impact**

**(Skim) City of Charlotte, Planning and Designing Signalized Intersections using Multi-Modal Level-of-Service Standards**  
[http://charmec.org/city/charlotte/Transportation/PlansProjects/Documents/ALOSStandardsAppendixApril05.pdf](http://charmec.org/city/charlotte/Transportation/PlansProjects/Documents/ALOSStandardsAppendixApril05.pdf)


Transportation Modeling Introduction

**Johnston. Geography of Urban Transportation, Ch. 5**

**Beimborn, Kennedy, and Schaefer. Inside the Black Box: Making Transportation Models Work for Livable communities.**

Ortuzar & Willumsen, *Modeling Transport*, Ch. 1

Bhat, C. and F. Koppelman. Activity Based Modeling of Travel Demand, Chapter 3 in ??


Trip Generation, Trip Distribution

**Meyer, Michael. 2001. Urban Transportation Planning: a Decision Oriented Approach 2nd Edition, Ch. 5, especially Sections 5.4 and 5.5, pp. 270-303.**

Ortuzar & Willumsen, *Modeling Transport*, Ch. 4 & 5


Mode Choice, Traffic Assignment


Ortuzar & Willumsen, *Modeling Transport* Ch. 6-11

McFadden Nobel Lecture

http://www.uctc.net/access/39/access39_demand_models.pdf

Critiques of Transportation Forecasting and Alternate Approaches


The Accuracy of Transit System Ridership Forecasts and Capital Cost Estimates

Bartholomew and Ewing. Integrated Transportation Scenario Planning. Summary Report
http://faculty.arch.utah.edu/bartholomew/Integrated_Transp_Scenario_Planning.html


Madanat et al report on CA High Speed Rail


**The Future**


