PLAN 636: Urban Transportation Planning
Spring 2017

Instructor: Noreen McDonald
108 & 317 New East
919-962-4781
noreen@unc.edu

Office Hours: Monday, Wednesday, Friday 11-12 in 108 New East
(sign up at noreenmcdonald.youcanbook.me)

TA: Gwen Kash
gwenkash@email.unc.edu

Course Meetings: Tuesday & Thursday 11:00-12:15, Philips 381

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. This is a particularly exciting time in transport where our options for travel are shifting rapidly with unclear impacts on infrastructure needs and the practice of transport planning.

This course prepares students to be effective practitioners or informed citizens in this uncertain environment. We’ll focus on three aspects:

- **Key Issues:** What are the key issues in the transport field? The section focuses on understanding current travel patterns (and their links to demographics and land use) as well as identifying key challenges and opportunities for the transport field (congestions, air quality, shared mobility).
- **Institutions:** This section provides a broad introduction to the institutional structure of transportation planning in the US, 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:**

**Analysis:** Students must complete 1 analytic assignment; options include:
- Parking Analysis
- Traffic Impact Analysis

**Essays:** Students must complete 3 essays; options include:
- MPO Plan Analysis
- Finance Analysis
- Triangle Transport History
- Triangle Light Rail
- Freight & Local Planning
- Complete Streets
- Equity

**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 Spring 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>% of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analysis</td>
<td>18</td>
</tr>
<tr>
<td>2. Essay #1</td>
<td>18</td>
</tr>
<tr>
<td>3. Essay #2</td>
<td>18</td>
</tr>
<tr>
<td>4. Essay #3</td>
<td>18</td>
</tr>
<tr>
<td>5. Final Exam</td>
<td>24</td>
</tr>
<tr>
<td>6. Attendance/Participation</td>
<td>4</td>
</tr>
</tbody>
</table>

**Late Assignments**

Each student has 3 ‘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.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-12</td>
<td>Course Overview &amp; Transport History</td>
<td></td>
</tr>
<tr>
<td>1-17</td>
<td>Transportation History</td>
<td></td>
</tr>
<tr>
<td>1-19</td>
<td>Urban Economics</td>
<td></td>
</tr>
<tr>
<td>1-24</td>
<td>Transportation and Land Use: Modern Connections</td>
<td></td>
</tr>
<tr>
<td>1-26</td>
<td>Transit-Oriented Development &amp; Value Capture (Bishop)</td>
<td>Essay: Triangle Transport History</td>
</tr>
<tr>
<td>1-31</td>
<td>Travel Patterns</td>
<td></td>
</tr>
<tr>
<td>2-2</td>
<td>New Mobility: Shared Mobility</td>
<td></td>
</tr>
<tr>
<td>2-7</td>
<td>New Mobility: Automated Vehicles (Clamman)</td>
<td></td>
</tr>
<tr>
<td>2-9</td>
<td>Future of Travel Demand</td>
<td>Essay: Triangle Light Rail</td>
</tr>
<tr>
<td>2-14</td>
<td>Transportation Planning Process</td>
<td></td>
</tr>
<tr>
<td>2-16</td>
<td>Transportation Planning Process</td>
<td>Essay: Shared Mobility</td>
</tr>
<tr>
<td>2-21</td>
<td>Travel Demand Modeling</td>
<td>Essay: Automated Vehicles</td>
</tr>
<tr>
<td>2-23</td>
<td>Congestion</td>
<td></td>
</tr>
<tr>
<td>2-28</td>
<td>Equity &amp; Environmental Justice</td>
<td>Essay: Long Range Plans</td>
</tr>
<tr>
<td>3-2</td>
<td>Environmental Impacts</td>
<td>Analytic: Travel Demand</td>
</tr>
<tr>
<td>3-7</td>
<td>Goods Movement</td>
<td></td>
</tr>
<tr>
<td>3-9</td>
<td>Gender &amp; Travel (Kash)</td>
<td></td>
</tr>
<tr>
<td>3-14 &amp;</td>
<td><strong>Spring Break</strong></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-21</td>
<td>Transportation Finance: Current Status</td>
<td></td>
</tr>
<tr>
<td>3-23</td>
<td>Transportation Finance: Future Alternatives</td>
<td></td>
</tr>
<tr>
<td>3-28</td>
<td>The Multi-modal City (Pucher)</td>
<td>Essay: Freight &amp; Local Planning</td>
</tr>
<tr>
<td>3-30</td>
<td>The Multi-modal City (Pucher)</td>
<td>Essay: Equity</td>
</tr>
<tr>
<td>4-4</td>
<td>Parking</td>
<td></td>
</tr>
<tr>
<td>4-6</td>
<td>Street Design</td>
<td>Essay: Finance</td>
</tr>
<tr>
<td>4-11</td>
<td>Designing for Safety</td>
<td></td>
</tr>
<tr>
<td>4-13</td>
<td>Traffic Impact</td>
<td>Analytic: Parking</td>
</tr>
<tr>
<td>4-18</td>
<td>New Approaches to Traffic Impact</td>
<td></td>
</tr>
<tr>
<td>4-20</td>
<td>Catch-up &amp; Putting It All together</td>
<td>Essay: Complete Streets Chapel Hill</td>
</tr>
<tr>
<td>4-25</td>
<td>Practitioner Visit: Dean Ledbetter, NCDOT</td>
<td></td>
</tr>
<tr>
<td>4-27</td>
<td>Planning the Uncertain Future &amp; Exam Review</td>
<td>Analytic: Traffic Impact</td>
</tr>
<tr>
<td>5-1</td>
<td><strong>Final Exam, Noon</strong></td>
<td></td>
</tr>
</tbody>
</table>
Readings
** Indicates required reading.

1. Overview & Major Themes

**TRB’s Critical Issues in Transportation 2013


1. Transportation History

Day 1: Walking City and the Rise and Fall of Transit


http://www.uctc.net/access/30/Access%2030/Access%2030/Horse%20Power.pdf


Day 2: The Rise of the Auto


http://uctc.net/access/35/access35_Paved_with_Good_Intentions_Fiscal_Politics.pdf


**2. 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.*


**3. Transportation and Land Use: Modern Connections**


4. Transit Oriented Development & Value Capture


5. Travel Patterns


Socioeconomics of Urban Travel: Evidence from the 2009 National Household Travel Survey with Implications for Sustainability John L. Renne and Peter Bennett

6. Shared Mobility


**What is Shared-Use Mobility? http://sharedusemobilitycenter.org/what-is-shared-mobility/


Shaheen, S. Mobility and the Sharing Economy. Transport Policy 51 (special issue)


7. Automated Vehicles


8. Future of Travel Demand


9. Transportation Planning Process

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


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

10. Travel Demand Modeling

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


**Hartgen, D. 2013. Hubris or humility? Accuracy issues for the next 50 years of travel demand modeling. Transportation 40(6).**

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


How Costs Soared at the $4 Billion Train Station for the World Trade Center.

11. 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

12. Equity and Environmental Justice

http://www.escholarship.org/uc/item/66t4n94b#page-1

**Blumenburg. 2003. Transportation Costs and Economic Opportunity Among the Poor, 
Access 23 40-41. 


http://www.vtpi.org/equity.pdf


13. Environmental Impacts

**AASHTOs – The NEPA Process. 
http://environment.transportation.org/environmental_issues/nepa_process/

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

(Skim) DOT Report to Congress

http://uctc.net/access/41/access41_fueleconomy.pdf


14. Goods Movement


NCFRP 23.


15. Gender and Travel

TBA

16. Transportation Finance: Current Status and Challenges


**Delucchi 2000. Should we try to get the prices right? Access 16:10-14.**

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


17. 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

TR News Special Issue on Public Private Partnerships, May-June 2011.


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


18. The Multi Modal City

TBA

19. Parking


http://www.uctc.net/access/30/Access%2030%20-%20Cruising%20for%20Parking.pdf


http://www.uctc.net/access/access20.shtml

http://uctc.net/access/42/access42_parkingwoutpaying.shtml

http://www.uctc.net/access/38/access38_free_parking_markets.pdf

http://www.uctc.net/access/39/access39_parking.pdf


http://dx.doi.org/10.1016/S0965-8564(99)00007-5


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


http://search.lib.unc.edu/search?R=UNCb7214702 (Full access available through UNC libraries).

**LaPlante & McCann. Complete Streets: We can get here from there. ITE Journal May 2008.  

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


http://www.uctc.net/access/24/Access%2024%20-%2006%20-%20Reconsidering%20the%20Cul-de-sac.pdf

21. Designing for Safety


22. 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

23. New Approaches to Traffic Impact

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


24. Planning the Uncertain Future

**(Grow, peak or plateau - the outlook for car travel. http://eprints.uwe.ac.uk/23277/


**Detailed Readings on Related Topics**

**Public Transit Finance**


Iseki, Hiroyuki, Michael Smart, Brian D. Taylor, and Allison Yoh. 2012. Thinking Outside the Bus *Access* 40. [http://www.uctc.net/access/40/access40_outsidethebus.pdf](http://www.uctc.net/access/40/access40_outsidethebus.pdf)


**Full Costs of Transportation**


Chester, Mikhail and Arpad Horvath. 2010. Life-cycle Environmental Assessment of California High Speed Rail. *Access 37* [http://www.uctc.net/access/37/access37_assessing_hsr.pdf](http://www.uctc.net/access/37/access37_assessing_hsr.pdf)