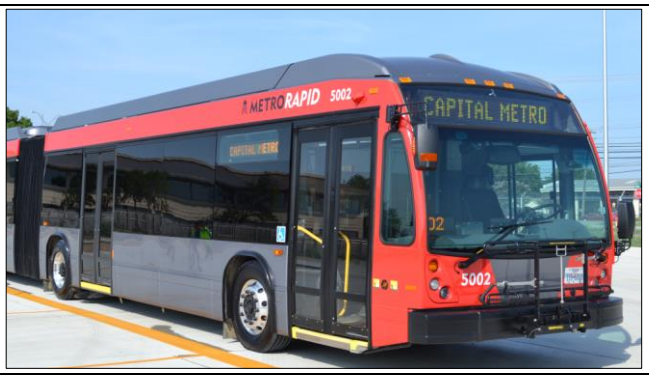
ARC 327R/URB 352/GRG 356T: Urban Transportation Policy and Planning

Fall 2018
Th 3:00 – 6:00pm
SUT 2.112



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Office hours[1]
SUT 3.134
Monday 3-5

Course overview

Transportation systems connect us to the people and things we need to lead a fulfilling life: school, work, food, medical care, friends, and family, to name just a few. But these connections do not come without costs—transportation systems produce profound environmental and social impacts. Greenhouse gas emissions from transportation activities constitute a third of the US total, urban air quality continues to be a problem in many areas of the country, and about 30,000 people die each year due in collisions involving motorized vehicles. Many of these impacts are associated with the automobile. Although automotive technology continues to improve, resulting in cleaner, safer cars, relying on them as our primary mode entails public health implications and the threat of crippling urban congestion.

This course is an introduction to urban passenger transportation policy and planning in the US with a sustainability focus. The course is structured around three components on which we will spend approximately four weeks each:

1) History, theory, and problem definition
2) The planning process, and
3) Solutions

Throughout the semester, we will come to understand how our current transportation systems came to be, what a sustainable system would look like, policies and planning approaches that will help is to achieve it, and challenges we're likely to face. Part of the difficulty arises from the fact that planning is inherently a *political* as well as technical activity. Determining what the "best" solution is in any given situation is likely to involve the varied needs and desires of elected officials, members of the public, and experts. As engineers and planners, ones who will interact with engineers and planners, or regular folks who care about transportation-related issues, you will need to navigate this sometimes-fraught landscape to make progress. We will examine the actual transportation planning process at all levels of government, hear from local and regional planners about their work, and learn about the (quantitative and qualitative) methods that planners use to both comply with the law and help inform decision makers.

[1] Schedule an office hours appointment here: https://alexkarner.youcanbook.me. Students who have booked an appointment will receive priority, but drop-ins are always fine.

Learning objectives

Upon completion of this course, students will have demonstrated mastery of the following concepts through in-class discussion and debate, detailed analysis and thoughtful reflection in assignments, and performance on examinations:

1. The relationship between transportation and land use, including how and why the current transportation system emerged, and why transportation planning is a vitally important endeavor.
2. The multifaceted and evolving nature of sustainability and how it is being applied to real-world transportation planning efforts across the United States.
3. The practice of transportation planning at federal, state, regional, and local levels, including the laws and regulations that planners follow regarding transportation plans, environmental review, air quality conformity, and environmental justice, among others.
4. The analytical methods employed by transportation planners to assess the performance of existing and future transportation systems (e.g. key concepts related to regional travel demand models, traffic impact assessments, level of service analysis, and parking demand analysis).
5. Public participation in planning, specifically how members of the public make their views known, formally and informally, in the transportation planning process and how that (sometimes) affects outcomes.
6. Concrete policies and planning strategies that facilitate sustainable urban transportation systems on both the infrastructure and land use sides. Legal and policy frameworks and initiatives that support the development of such systems.

How to succeed in this course

There is no secret to success in this course. If you attend all classes, complete required readings on time, pay attention, take notes, and participate actively, you will certainly be well-positioned to perform well. Importantly, I am not looking for students to espouse specific viewpoints. In fact, I welcome disagreement and debate as a key method by which we can all make our arguments sharper and more convincing. The last thing I want is for you to give me an answer you think I want to hear, rather than the one you believe to be true.

Note about office hours: I hold office hours for your benefit. They are a time for you to come and get more clarity on the course material or ask about assignments. They are also an opportunity to talk with me in a more informal setting about academic issues that are not directly related to class (e.g. graduate school, letters of recommendation, career advice, etc.). I've set up an appointment scheduler to make it easy to book time in 15-minute increments (https://alexkarner.youcanbook.me) but also feel free to drop in during the scheduled time.

Course expectations and policies

Attendance

Attendance during all class periods is mandatory; this is especially important because our class only meets once a week. Please arrive on-time and stay the entire class. I understand that occasional events may prevent you from attending class. In the event that you're missing class due to an approved absence, you will be allowed to make up missed graded work. If you miss class due to a major medical or family emergency, I will require additional documentation and make up work will be allowed at my discretion. Regardless of the reason for absence, students alone are responsible for any class material they miss.

Readings
There is no assigned textbook for this course. All readings are available either on Canvas or are linked to from this syllabus. For each week, all assigned readings must be completed by the beginning of class. These readings were selected carefully so that they are accessible and not overly burdensome. Reading and synthesizing them will be vitally important to facilitate good in-class discussions. The final slide of each lecture will include a "further reading" list that students can use to dive deeper into subjects of interest.

Guest speakers
Throughout the semester we will have an opportunity to hear from planning professionals working in the region on various issues. Please extend them the same courtesy that you would extend to me. It also helps to ask really good questions – use the time to get to know what real planners are doing in the world, what they love/hate about their jobs, the challenges they face, and successes they've won. This will make sure that they want to come back in the future!

Use of laptops, phones, and other devices
Use of technology in class is generally permitted *provided the use is for purposes related to the course.* Please turn all cell phones to silent (not vibrate) when in class. Do not text, email, or browse non-class websites during class time. These activities are distracting to you, your peers, and me. Violation of this policy may result in dismissal from class and the loss of credit for that day's in-class activities.

Disability accommodations

This class respects and welcomes students of all backgrounds, identities, and abilities. If there are circumstances that make our learning environment and activities difficult, if you have medical information that you need to share with me, or if you need specific arrangements in case the building needs to be evacuated, please let me know. I am committed to creating an effective learning environment for all students, but I can only do so if you discuss your needs with me as early as possible. I promise to maintain the confidentiality of these discussions. If appropriate, also contact Services for Students with Disabilities, 512-471-6259 (voice) or 1-866-329- 3986 (video phone). More information is available here: http://ddce.utexas.edu/disability/about/

Plagiarism and cheating
We will be completing writing assignments for this course. Plagiarism involves using the words or ideas of another person as your own. It is perfectly acceptable to borrow ideas from other scholars. Indeed, this is how scholarship advances. But those words and ideas must be appropriately referenced with a citation and page number, as appropriate. Please use APA format for work prepared for this class. If you are planning to continue in academia, it will be in your interest to learn to use one of the many pieces of available citation management software. Zotero is a great option that's free for everyone.[2]

If you are caught plagiarizing or cheating, you will be dealt with according to the University of Texas Honor Code. For any questions involving these or any other Academic Honor Code issues, please consult me or http://catalog.utexas.edu/general-information/appendices/appendix-c/student-discipline-and-conduct/. If you are not sure what constitutes cheating or plagiarizing, please come see me.

[2] https://www.zotero.org/

Student assessments

The student assessments for this course will involve a mix of participation, in-class presentations, quizzes, a midterm examination, written assignments, data analysis, and a final examination.

Some projects will be completed in groups, but unless specifically identified as group work, all assessments are to be completed by you alone. All group work will involve the completion of peer-evaluation forms by each group member. Details regarding each category of evaluation are included below.

Participation
Because of the technical and political nature of transportation planning and policy (not to mention the lived experience and frustration of congestion, long public transit wait times, and inadequate bicycle and pedestrian facilities), I'm sure that many of you have opinions to share about our current and future transportation systems! Please share these during class while being respectful of other students' opinions and time. We will also have structured in-class participation activities involving small group discussions. Students are expected to be active and engaged during these times; ideally they'll give students who are less comfortable with public speaking a low-stress opportunity to speak their minds. I will post midterm participation grades so you will have a sense of your standing and the ability to improve during the second half of the course. These will not be made final until the end of the semester.

Quizzes
At the end of most class meetings (as indicated on the syllabus), there will be a very short quiz on that week's reading and lecture material. These will consist of multiple choice, true/false, and short answer questions and are designed simply to assess whether you have completed the readings, attended lecture, and paid attention. They are not meant to be too difficult or to stretch your understanding of the material. I will drop your lowest quiz grade. If you miss a quiz due to an unexcused absence, you will receive a zero.

In-class activities
We will often have in-class activities that will be completed in small groups, discussed, and submitted for credit (as indicated on the syllabus). These will sometimes involve basic math, so having a scientific calculator on all class days will be helpful. I will drop your lowest in-class activity grade. If you do not attend class on the day that an in-class activity is conducted, you will receive a zero.

Assignment #1: Planning memo (due 10/2 by 11:55pm), addresses learning objectives 1 and 2
You will complete this assignment in groups of two that you choose. You can also work solo. As a practicing transportation planner, you will often be called upon to give your opinion or summarize your analysis about a particular project or policy. In this assignment, you will discuss one of four transportation-relevant projects in the Texas Triangle megaregion:

1. North Houston Highway Improvement Project: http://www.ih45northandmore.com/
2. Texas Bullet Train (Houston-Dallas high-speed rail): https://www.texascentral.com/
3. Dallas D2 subway: https://www.dart.org/about/expansion/downtowndallas.asp
4. Capital Metro "Remap": https://www.capmetro.org/remap/

You can also examine a project that you choose. It could be within or outside of the Texas Triangle. Please discuss it with me beforehand to make sure it's appropriate.

Imagine that you are a practicing planner and your boss (the planning director) has asked you to assess the potential for the project to advance the sustainability goals discussed in the first third of the course. Based on assigned course readings and at least two other sources (academic articles or agency reports)

that you will search for and cite appropriately, deliver your opinion on the project. Begin by summarizing what the project is and its stated goals using materials that you can find online. Follow up by describing the project's (likely or realized) sustainability impacts. The memo should be concise: no longer than two pages (12 point, Times New Roman font, 1" margins, single-spaced), not including your references. Further details about the assignment will be available on Canvas.

Assignment #2: Accessibility analysis (due 11/6 by 11:55pm), addresses learning objectives 3 and 4
The second third of the course will introduce you to some of the technical methods that planners use to evaluate transportation projects and plans. In this assignment you will work with actual data gleaned from regional travel demand models and US Census Bureau sources. You will work in groups of up to three that you choose. You can also work solo, but it is likely that the assignment will be very challenging if you work alone. The assignment's goal will be to analyze the effects of a particular planning effort on different demographic groups in terms of accessibility. The project can either be completed on your own or in groups of two that you choose. All of the required analyses can be completed using Microsoft Excel, but if you're familiar with another platform (e.g. R, Python, Matlab), you're welcome to use it.

To be successful, at least one group member should be reasonably familiar with Excel (or another platform). If you'd like to complete the work on your own and your Excel abilities are rusty, you'll want to give yourself plenty of lead time to complete the assignment. Please see Dr. Karner if you need additional help or guidance.

You will submit a final report that includes a mix of text, figures, and tables that will be four pages in length (12 point, Times New Roman font, 1" margins, single spaced), again not including references. Complete details about the project will be available on Canvas.

Midterm examination
A midterm examination will be given on 10/18 during the regular lecture period and will cover material up to and including the lecture on 10/4. The midterm will consist of multiple choice, true/false, and short answer questions. Make-up exams will be allowed only for excused absences. It is the student's responsibility to contact the instructor as soon as possible to schedule a make-up exam. Use of a scientific calculator will be permitted.

Final examination
A final examination will be given during the regular examination time and will be cumulative (i.e. will cover the entire course). The final will consist of multiple choice, true/false, short answer, calculations, and essay-style questions. Use of a scientific calculator will be permitted.

Policy on late work

All written work must be turned into Canvas at the date and time noted on the assignment prompt. Work submitted late will receive a five-point penalty (on a traditional 100-point grading scale) per day or portion of day late, unless prior arrangements have been made with the instructor.

Grading

Final percentage grades will be assigned based on the following seven components, weighted as shown:

Participation	5
In-class exercises	10
Quizzes	15
Assignment #1: Planning memo	15
Assignment #2: Accessibility analysis	15
Midterm examination	15
Final examination	25
Total	**100**

The results of any individual assessment may be weighted upward or downward (i.e. curved) at Dr. Karner's discretion. After any curve is applied, and to ensure fairness, all numbers are absolute and will not be rounded up or down. Your final percentage will be translated into a letter grade as follows:

A	94-100	B+	87-89	C+	77-79	D+	67-69	F	0-60
A-	90-93	B	84-86	C	74-76	D	64-66		
		B-	80-83	C-	70-73	D-	60-63		

Schedule (version 1.0, current as of 08/29/2018)

The following table outlines the course schedule including due dates, examinations, readings, and other important events. This schedule is subject to change, and the most current version can always be found on Canvas.

Week	Topic	Readings and Assignments Due
History, Theory, and Problem Definition		
8/30	Course overview, motivation, and key transportation concepts	*Readings (required)* None
9/6	Urban transportation history	Lecture/readings quiz #1 In-class activity #1 *Readings (required)* Muller (2004). "Transportation and urban form."
9/13	Travel behavior and land use-transportation interactions	Lecture/readings quiz #2 In-class activity #2 *Readings (required)* Washington DOT. (2012). "Tools for estimating VMT reductions from built environment changes." pp. 2-12. Giuliano (1995). "The weakening transportation-land use connection." Cervero and Landis (1995). "The transportation-land use connection still matters."
9/20	Sustainability, resilience, and equity	Lecture/readings quiz #3 In-class activity #3 *Readings (required)* Tumlin. (2012). "Sustainable Transportation Planning." Chapter 2. Chester and Horvath. (2010). "Life-cycle assessment of high-speed rail."
The Planning Process		
9/27	Transportation planning process 1: Governance	Lecture/readings quiz #4 *Readings (required)* Transportation for America (2011). "Transportation 101" pp. 23-57. USDOT. (2009). "A guide to transportation decisionmaking." Federal Highway Administration. (2015). "The Transportation Planning Process Briefing Book." Part 1. http://www.fhwa.dot.gov/planning/publications/briefing_book/part01.cfm
PLANNING MEMO DUE 10/2 BY 11:55pm		
10/4	Transportation planning process 2: Regional transportation planning	Lecture/readings quiz #5 In-class activity #4 *Readings (required)* Sciara (2017). "Metropolitan transportation planning." Federal Highway Administration. (2015). "The Transportation Planning Process Briefing Book." Part 2 (only read the sections on "Air quality," "Transportation equity," and "Performance-based planning", and "Planning data and tools").

		http://www.fhwa.dot.gov/planning/publications/briefing_book/part02.cfm
10/11	Performance-based planning: accessibility analysis	Assignment 2 preparation. Bring a laptop with Microsoft Excel installed for this class if you can. *Readings (required)* TBD
10/18	**MIDTERM EXAMINATION**	
10/25	*Dr. Karner away at ACSP (no class)*	
	Transportation planning process 3: Public participation and advocacy	Lecture/readings quiz #6 *Readings (required)* Bullard (2004). "Introduction." (From *Highway Robbery.*) Marcantonio and Karner (2014). "Disadvantaged communities teach regional planners a lesson in equitable and sustainable development."
ACCESSIBILITY ANALYSIS DUE 11/6 BY 11:55PM		
Solutions and strategies		
11/8	Full cost pricing, tolling, HOT lanes, parking	Lecture/readings quiz #7 In-class activity #5 *Readings (required)* Litman. (2014). "Economically Optimal Transport Prices and Markets."
11/15	Land use policies and strategies: Jobs-housing balance, affordable housing	Lecture/readings quiz #8 In-class activity #6 *Readings (required)* Benner and Karner (2016). "Low-wage jobs housing fit."
11/22	*Thanksgiving (no class)*	
11/29	Alternative modes: Bicycling, walking, and public transit	Lecture/readings quiz #9 In-class activity #7 *Readings (required)* Pucher, J. and R. Buehler. (2008) "Making cycling irresistible." Walker, J. (2012). "Why we should stop talking about 'bus stigma.'" (Atlantic CityLab post.)
12/6	Future of transportation	Lecture/readings quiz #10 In-class activity #8 *Readings (required)* Walker, J. (2012). "Will driverless cars abolish buses?" (Blog post.) Agyeman, J. and D. McLaren (2016). "Apps Don't Make a City Smart." https://www.bostonglobe.com/ideas/2016/08/13/apps-don-make-city-smart/YrEuTHcHAFArq5piut1nrN/story.html *Watch these:* Prof. Chandra Bhat on automated vehicles: https://www.youtube.com/watch?v=85kzWIFuwXg Matt George on Bridj: https://www.youtube.com/watch?v=cDzimeOpQfM
FINAL EXAMINATION 12/13 7:00-10:00pm		