Transportation and Environmental Issues  
Urban Planning 258 / Public Policy 223  
Winter 2022 Syllabus

Instructor  
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Office hours: Weds 10-12  
Sign up here: https://goo.gl/X7vFOD

Schedule and Location  
Tues/Thurs 9.30-10.45am  
Public Affairs 2343

Course Description
Transportation is the largest contributor to California’s greenhouse gas emissions, and the fastest growing source of emissions worldwide. In this course, we will critically analyze a range of policies to improve fuel economy, promote electric vehicles, and reduce vehicle travel. We will examine the history and legal frameworks of environmental regulation, and consider analytical methods to quantify carbon emissions and estimate emission reductions. We will focus on climate change, but also consider other environmental consequences of transportation, from air pollution to stormwater runoff.

I acknowledge our presence on the traditional, ancestral and unceded territory of the Gabrielino/Tongva peoples.

Course Goals
After completing this course, you should be able to:

• Identify and critically analyze ways in which policymakers and planners can manage the environmental impacts of transportation  
• Conceptualize, analyze, and quantify the net impacts of a transportation project, particularly for carbon  
• Critically analyze how racial and other societal injustices are affected by the design of environmental and transportation policies  
• Understand the legal and policy frameworks for mitigating transportation emissions, at scales from local to global

Course Tools
All the readings, recordings, and assignments will be posted on Bruin Learn (Canvas).

We will primarily use Slack to maintain communication outside of scheduled class times. In particular, it provides a space for discussion of the readings. You’ll receive an email invitation from me to join our Slack workspace. If you are not familiar with Slack, please familiarize yourself with the tool using the resources here: https://www.it.ucla.edu/support-training/tutorials/how-use-slack.
**Class Participation**

Class sessions will usually include a mixture of lecture and discussion, and your active participation is essential to making this course successful and enjoyable.

To help seed the discussion, all students should post to Slack 1-3 brief discussion questions and/or comments on the readings for that class. These are due at 9AM the day of class. Your post might include a question that was sparked by one of the readings, a broad comment on or reaction to the readings, or an example that further illustrates a concept from the readings. These posts have three purposes: (i) encouraging you to engage actively with the readings, (ii) helping us all appreciate different perspectives on the course material; and (iii) helping me shape the structure of each class. Please engage with the posts of others as well as writing your own – this is a discussion board, not a repository of essays.

**Graded Assignments**

Detailed instructions and grading criteria will be distributed early in the quarter.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
<th>Due</th>
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<tbody>
<tr>
<td>Carbon analysis (draft)</td>
<td>5%</td>
<td>Feb 16, 5PM</td>
</tr>
<tr>
<td>Carbon analysis (final)</td>
<td>20%</td>
<td>Mar 4, 5PM</td>
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<tr>
<td>Case study</td>
<td>15%</td>
<td>Sign up for a slot</td>
</tr>
<tr>
<td>Take-home final exam</td>
<td>35%</td>
<td>Finals week</td>
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<tr>
<td>Homework problems</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Class participation (on Slack and in class)</td>
<td>15%</td>
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**Carbon analysis**

In the course, we will introduce a range of tools to quantify the environmental impacts (principally carbon) of transportation projects. Working in pairs, you will apply these methods to a project of your choosing, and produce an analysis of its climate change benefits (or harms). For example, how can you estimate the greenhouse gas impacts of a scooter program, or a Bus Rapid Transit project? You’ll submit a complete draft of your analysis for peer review, as well as a final version.

**Case study**

Working in pairs, you will develop a case study of policy development and implementation in a particular city or other place. The aim is to take some of the general, possibly abstract, policies that we discuss in the class, and analyze them in a specific context. For example, how has a particular city planned for vehicle electrification or transportation justice?

This is an oral assignment – there is no written deliverable (except for any slides, if you use them). You will give a 5-minute presentation in class (plus some time for questions), which can be live or pre-recorded. Your presentation should discuss the specific practices, policies or projects that other places can learn from and emulate, and analyze the important lessons learned.

Choose a case study from the approved list, or suggest your own to the instructor. Sign up during the first week of the class for a case study and presentation slot.


**Take-Home Final**
The final exam will be distributed on Monday of finals week, and be due one week later. It should take you about 2 hours if you have studied extensively beforehand.

**Homework Problems**
There will be 2-3 quantitative problem sets, distributed as we cover the relevant material. The problems will involve simple spreadsheet analysis of fuel economy, carbon accounting, and similar issues.

**Class Participation**
Your class participation grade will consider active participation in class, the quality of your written comments on the readings for each class, and the peer review that you give on the Carbon Analysis assignment. Attendance will not directly count towards your grade – please stay home if you are sick! However, I ask you to commit to attending all the classes that you physically can.

**Course Policies**

**Accessibility and Disabilities**
If you require any accommodations because of a disability, please talk to me within the first two weeks of the quarter if possible. The sooner that I am aware of any accessibility needs, the quicker I can try and accommodate them.

**Late Submission of Assignments**
Students can make a formal request to the instructor for special consideration for an extension to an assignment due date. This request should be received at least 48 hours in advance. Otherwise, one partial grade will be deducted for every 24-hour period an assignment is late. For example, an A- will go to a B+.

**Academic Integrity**
UCLA’s policy about plagiarism is clear: the sources of all ideas, text, pictures, or graphics that are not your (or your team’s) own must be fully cited, all passages copied from other sources must be in quotation marks with the source cited, and you absolutely cannot submit materials that have previously been submitted by other students in previous iterations of this course, even if you have re-worked this material for your submission. Being in this class constitutes an acknowledgment and willingness to abide by UCLA’s academic integrity policies.¹ Should you have any questions about these policies, go to:
http://www.studentgroups.ucla.edu/dos/students/integrity/.

¹ Thank you to Prof. Michael Manville for permission to use this text.
Course Schedule and Readings

The schedule is preliminary and subject to change, depending on how quickly or slowly we move through the material, which is not always easy to predict. I will attach specific dates to each reading in Bruin Learn, closer to the time. While not required, please try and skim some of the optional readings, which provide more extensive context, analytical tools, or different perspectives.

For most of the readings, I provide guiding questions on Bruin Learn. I realize that it’s not always clear why I am assigning a particular reading, nor what I want you to focus on or get out of it. The guiding questions are not intended to be exhaustive, but rather to help you in the reading process.

January 4, 6: Introduction

We will introduce some of the key environmental challenges posed by transportation, and consider different ways in which the problems have been conceptualized and framed.

Required Readings


Optional Readings


PART 1: LAWS AND POLICIES

January 13, 18: From manure to smog to climate
We’ll examine the history and roots of transportation's environmental impacts, and how they have evolved over the years—from horse manure, to smog, to climate change. The first class will focus on the national level, and the second class on California’s climate policies.

Note: Class on January 11 will be asynchronous (a pre-recorded lecture)

Required Readings


Optional Readings


January 20, 25: Efficient vehicles
We’ll briefly discuss what technologies are available to improve fuel efficiency, but focus on the regulations and policies, particularly fuel economy standards, that promote their uptake.

Required Readings


Optional Readings

January 27, February 1: Zero-emission vehicles
Are electric vehicles and other zero-emission vehicles the solution? We'll discuss technologies and policy options at the federal, state, and local levels.

Required Readings


Optional Readings

PART 2: TOOLS

February 3, 8, 10, 15: Counting Carbon
How can transportation’s climate impacts best be quantified? We'll discuss some of the overall approaches and key concepts. We'll then focus on three specific issues: analyzing public transit’s contribution towards greenhouse gas reduction; estimating the contribution of a specific project, whether a bike share program or streetcar, to greenhouse gas emission reductions; and Life Cycle Analysis (LCA).

Required Readings


Skim the Nahlik and Chester technical analysis: https://www.sciencedirect.com/science/article/abs/pii/S0967070X14001036


**Optional Readings**


**February 17: CEQA and transportation**

Is the California Environmental Quality Act a help or hindrance for sustainable transportation? We’ll focus particularly on recent changes, such as the move from Level of Service to vehicle travel metrics.

**Required Readings**


Barbour, Elisa; Chatman, Daniel; Doggett, Sarah; Yip, Stella; and Santana, Manuel. 2019. SB 743 Implementation: Challenges and Opportunities. UC Berkeley ITS report. https://escholarship.org/uc/item/4gj3n2n3

**Optional Readings**


**PART 3: THEMES**

**February 22, 24: Environmental injustices**

Environmental justice is a continuous theme throughout the course, but here we will focus on questions of inequity and environmental racism more explicitly. We’ll look at both tools to quantify environmental justice, and policy approaches.
**Required Readings**


**Optional Readings**


TCRP 2020, Equity Analysis in Regional Transportation Planning Processes. TCRP Report 214.

**March 1: Air travel**

Cars, buses, and trains can (relatively) easily shift to electric propulsion. Aircraft are a different story. We’ll examine the climate change impacts of aviation, and policy options to reduce emissions from this fast-growing source.

**Required Readings**


**March 3, 8: A global perspective**

How is transportation considered in global climate and energy models, and in international climate negotiations? We’ll discuss the global policy framework, particularly in terms of individual countries’ proposals under the Paris Agreement.

**Required Readings**


**Optional Readings**

March 10: The future
We’ll discuss what the future might hold, with particular reference to the Biden administration’s unfolding plans for transportation, environmental justice, and the Green New Deal.

Required Readings
TBD