TRANSPORTATION & THE ENVIRONMENT (FALL 2016)

Bloustein School of Planning and Public Policy

Professor: Kelcie Ralph, PhD

Course: Graduate: 970:553 and 762:483
            3 credits

Class: Monday 9:50 am to 12:30 pm
          Room 369
          Civic Square Building

Office Hours: Tuesdays and Thursdays 2-4 pm
            Room 369
            Civic Square Building

Email: Kelcie.ralph@ejb.rutgers.edu

COURSE DESCRIPTION AND LEARNING OBJECTIVES

To provide an understanding of the complex interrelationships between transportation and the environment, to discuss the various environmental impacts caused by the provision and use of transportation, to analyze causes and to discuss technology and policy solutions to environmental problems. The course will focus on the economics of environmental, land use and transportation policy and how these affect environmental outcomes.

At the conclusion of this course, students will understand:

- The environmental impacts associated with all modes of transportation;
- How individual behavior affects the environmental impacts of transportation;
- Technical and policy solutions to mitigate environmental impacts of transportation;
- Social and economic impacts associated with environmental effects of transportation and the mitigation of those effects;
- The sources of climate change, the consequences of climate change, and links to transportation policy; and,
- Energy and resource issues associated with transportation, including issues associated with alternative fuels.
COURSE REQUIREMENTS

CLASS CONDUCT

I find that students are more engaged when they are not distracted by their computers or cell phones. As such, laptops and mobile phones are not allowed in class. While I understand that many students prefer to take notes on their electronic devices, you will not be allowed to do so on this class for two reasons. First, the literature on learning indicates that students retain more information when they take notes by hand.\(^1\) Second, electronic devices provide an incredible strong temptation to multi-task and understanding falters when we multi-task.\(^2\)

Taking notes and organizing material into your own words fosters learning. As such, I will not share lecture notes or slides. I recommend taking notes in class. If you miss class for any reason, make sure to get the materials you missed from a classmate.

TEXTS:

There is no textbook for the course. I will provide course materials on Sakai.

ABSENCES:

Students must be in class to take notes (see above), participate in discussions/activities. As such, attendance is required. Students who miss class will receive a zero for participation that day.

ACADEMIC INTEGRITY:

Academic honesty and intellectual integrity are fundamental to the process of learning and to evaluating academic performance. This is the responsibility of all members of the university, and students share the responsibility for creating and maintaining an atmosphere of honesty and integrity. If you have any doubt about what constitutes academic integrity, consult: [http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers](http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers).

I have a zero tolerance policy on plagiarism. If you plagiarize work you will receive an F on the assignment and I will report you to the administration. To avoid plagiarism, I highly recommend taking notes on the readings in your own words. When you write a paper or exam answer, consult your notes, not the original text. This way you will not accidentally reproduce someone else’s work.

The book *They Say, I Say* has excellent advice on summarizing and quoting materials properly (Chapter 2 “Her point is”: The art of summarizing and Chapter 3 “As he himself puts it” The art of quoting). I highly recommend reading those chapters before your first written assignment.

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\(^1\) [http://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/](http://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/)

ASSIGNMENTS

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Number of points</th>
<th>Share of final grade</th>
<th>Due date</th>
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<tbody>
<tr>
<td>Reflection pieces</td>
<td>60 points</td>
<td>≈ 34%</td>
<td>Each Friday before class at noon</td>
</tr>
<tr>
<td>Midterm</td>
<td>50 points</td>
<td>≈ 29%</td>
<td>Nov 7th at 12:30</td>
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<tr>
<td>Policy paper (TDM or CAP)</td>
<td>25 points</td>
<td>≈ 14%</td>
<td>Nov. 4th at 5pm</td>
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<tr>
<td>NEPA assignment</td>
<td>15 points</td>
<td>≈ 9%</td>
<td>Nov. 21st in class</td>
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<tr>
<td>Career preparation</td>
<td>10 points</td>
<td>≈ 6%</td>
<td>Dec. 12th in class</td>
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<tr>
<td>Class participation</td>
<td>15 points</td>
<td>≈ 9%</td>
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<tr>
<td><strong>Total Points</strong></td>
<td><strong>175 points</strong></td>
<td><strong>100%</strong></td>
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**REFLECTION PIECES (60 POINTS)**

Reflection pieces are short write-ups of 500-600 words. The aim of these assignments is to have you practice identifying the main points of a piece of writing and to practice summarizing those points in your own words. You will also be asked to critically reflect on what you have read. Specific topics and reflection questions will be distributed in class.

Over the course of the semester I will distribute nine reflection prompts (A-I). Of these, you must complete six reflection pieces. In other words, you can skip three of the reflection prompts. If you choose to complete more than six reflection pieces, your lowest score will be dropped.

All reflection pieces are due at noon on Friday. Late submissions will not be accepted. A digital copy must be submitted to Sakai and a paper copy must be submitted to my office. If I am not in my office, slide your paper under the door.

**MID-TERM EXAMINATION (50 POINTS)**

I will distribute a take-home mid-term electronically on November 7th, 2016 at 9:50 am. You will have two hours and 40 minutes (the class period) to prepare your answers and submit your materials electronically on Sakai. Late submissions will receive a 10% penalty in the first hour and an additional 10% penalty for each day thereafter. The exam will cover all of the course material (including material not discussed in class). The exam will include a mix of multiple choice, short answer, and essay questions. Students may not collaborate on the exam. Full formatting requirements will be distributed in class.

**POLICY PAPER WITH A PARTNER (25 POINTS)**

You and a partner will complete a policy paper on one of the topics listed below. The body of the paper should be 2,000 to 3,000 words long. You should also include a title page, an executive summary, a bibliography, and an appendix. These “extra” materials are not include in the word count. The title page should clearly indicate both
authors, the submission date, and the paper topic. The executive summary is not an introduction. It is a summary of your paper, including the key findings and recommendations. Number the pages and include your name in the top right corner of each page. Papers should be double-spaced in Calibri, size 11 font.

Make sure to draw on the readings and resources we have discussed in class. Feel free to draw on other sources to further your critique. In all cases, be sure to cite your sources clearly and accurately. Any reference style is fine, as long as you are consistent. Be sure to edit your work for spelling, grammar, and clarity.

**TOPIC #1: RUTGERS TRAVEL DEMAND MANAGEMENT**

Many universities seek to reduce travel to campus by automobile in an effort to mitigate their environmental impacts and to smooth relations with neighbors. Rutgers is no exception. Review the university’s TDM efforts and any other documents to get a sense of the transportation issues at Rutgers and especially the environmental issues associated with transportation.

Based on your research and what you know about travel demand management strategies, propose a travel demand management plan for Rutgers.

- Be sure to clearly define your targets/goals and justify your choices.
- What strategies do you recommend?
- How effective do you expect each strategy to be? Based on what evidence?
- Finally, how would you suggest Rutgers prioritize your suggestions?

For examples of TDM plans from other schools see:


**TOPIC #2: REVIEW OF CLIMATE ACTION PLANS:**

Many cities, towns, and Metropolitan Planning Organization have developed plans to reduce greenhouse gases and other emissions. Select any two plans to summarize and critique. In preparing your paper, consider the following questions:

- What is the overall target reduction in greenhouse gas emissions?
- How much of the reduction will come from the transportation sector? Does this seem appropriate?
- Are the goals realistic? Specific? Binding?
- What are the proposed strategies for reducing greenhouse gases from transportation?
- Compare the two plans. How are the plans different? How are they alike? What can you learn from these comparisons?
- What progress has been made since the plan was implemented?
- Based on your analysis, would you recommend any changes to the plans?
NEPA ASSIGNMENT (15 POINTS)

The National Environmental Policy Act of 1970 requires an extensive environmental review process for transportation projects (among others). You will review documents from one environmental review process. In a group of three to four, you will prepare a written comment and an oral comment to be presented in class. Further details about the specific project and comment guidelines will be provided in class.

CAREER PREPARATION (10 POINTS)

The career opportunities available in transportation planning are so numerous and wide-ranging as to be somewhat overwhelming. To jumpstart your career search, you should begin researching careers as soon as possible. Krystyn Kitto is the director of Career Services here at Bloustein. She has assembled a number of resources on the careers website and offers a number of events to help you identify a career path.

Draw on these and other resources to write an essay of 1,500 to 2,000 words addressing the following questions:

- What are your long-term career goals?
- What do you hope to be doing in 5 years? In 15 years?
- Be as specific as possible in terms of:
  - the industry
  - the sector (private, non-profit, government, etc.)
  - the role (technical, management, etc.)
  - the region where you would like to live
- How do you plan to achieve those goals?
- Identify three firms, government agencies, non-profits, or advocacy organizations that you would like to work for. What types of positions could you reasonably fill upon graduating? What skills will you need? Which of those skills do you already have? Which do you need?

In preparing your career plan, I strongly recommend conducting an informational interview. This is an excellent chance to draw on our alumni network. Resources and advice about informational interviews:


CLASS PARTICIPATION (15 POINTS)

You are expected to participate in class discussions and activities.
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<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Deliverables</th>
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<tbody>
<tr>
<td>W1</td>
<td>9/12 Overview/History</td>
<td></td>
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<tr>
<td>W2</td>
<td>9/19 Defining the problem: Local air pollution and climate change</td>
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<td>W3</td>
<td>9/26 Clean Air Act and Transportation Planning</td>
<td>Reflection paper A&lt;br&gt;Due: Sept. 23rd at noon</td>
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<td>W4</td>
<td>10/3 Alternative fuels and fuel economy</td>
<td>Reflection paper B&lt;br&gt;Due: Sept. 30th at noon</td>
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<td>W5</td>
<td>10/10 Travel demand management</td>
<td>Reflection paper C&lt;br&gt;Due: Oct. 7th at noon</td>
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<td>W6</td>
<td>10/17 Land use approaches</td>
<td>Reflection paper D&lt;br&gt;Due: Oct. 14th at noon</td>
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<tr>
<td>W7</td>
<td>10/24 Climate action plans</td>
<td>Reflection paper E&lt;br&gt;Due: Oct. 21st at noon</td>
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<tr>
<td>W8</td>
<td>10/31 Review</td>
<td>Climate action plan review&lt;br&gt;-or- TDM Plan for Rutgers&lt;br&gt;Due: Nov. 4th at 5pm</td>
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<tr>
<td>W9</td>
<td>11/7 (no class)</td>
<td>Mid-term exam&lt;br&gt;Due: Nov. 7th at 12:30</td>
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<tr>
<td>W10</td>
<td>11/14 Water, Noise, and Ecosystems and introduction to NEPA</td>
<td>Reflection paper F&lt;br&gt;Due: Nov. 11th at noon</td>
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<tr>
<td>W11</td>
<td>11/21 NEPA</td>
<td>NEPA exercise&lt;br&gt;Due Nov. 21st in class</td>
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<tr>
<td>W12</td>
<td>11/28 Resilience&lt;br&gt;Guest lecture: Jeanne Herb</td>
<td>Reflection paper G&lt;br&gt;Due: Nov 25th at noon</td>
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<td>W13</td>
<td>12/5 Freight and Air</td>
<td>Reflection paper H&lt;br&gt;Due: Dec. 2nd at noon</td>
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<td>W14</td>
<td>12/12 Environmental justice</td>
<td>Reflection paper I&lt;br&gt;Due: Dec. 9th at noon&lt;br&gt;Career preparation&lt;br&gt;Due: Dec 12th in class</td>
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READES

WEEK 1: OVERVIEW/HISTORY

Wachs, Martin (2010) “Transportation Policy, Poverty, and Sustainability: History and Future” Transportation Research Record No. 2163, pp. 5-12.

Morris, Eric (2007) “From Horse Power to Horsepower” ACCESS No. 30, V. Spring, pp. 2-9


WEEK 2: DEFINING THE PROBLEM


Giles, et al., 2011, From good intentions to proven interventions: Effectiveness of actions to reduce the health impacts of air pollution, Environmental Health Perspectives, 119(1): 29-36.

WEEK 3: CLEAN AIR ACT AND TRANSPORTATION PLANNING

“What is the Transportation Planning Process” (pp. 3-13) and “Air Quality” (pp. 15-20) in The Transportation Planning Process: Key Issues US Department of Transportation, Available at https://www.planning.dot.gov/documents/briefingbook/bbook_07.pdf


WEEK 4: ALTERNATIVE FUELS AND FUEL ECONOMY


Small, Kenneth and Kurt Van Dender (2007) “If cars were more efficient would we use less fuel?” Access 31(Fall).


SUPPLEMENTARY MATERIALS


Browse: Alternative Fuels Data Center http://www.afdc.energy.gov/

WEEK 5: TRAVEL DEMAND MANAGEMENT


WEEK 6: LAND USE APPROACHES


TRB Special report 298, Driving and the Built Environment: The Effects of Compact Development on Motorized Travel, Energy Use, and CO2 Emissions, National Research Council: Washington, DC


WEEK 7: CLIMATE ACTION PLANS


WEEK 8: REVIEW

No readings
WEEK 9: MIDTERM
No readings

WEEK 10: WATER, NOISE, AND ECOSYSTEMS


SUPPLEMENTARY MATERIALS
Browse: Noise from AASTO http://environment.transportation.org/environmental_topics/noise/

WEEK 11: NEPA


Mullin, Elizabeth () “Chapter 3: Reviewing the Document”; “Chapter 4: Defining Your Objectives”; “Chapter 5: Writing the Comments” The Art of Commenting: How to influence Environmental Decisionmaking with Effective Comments

SUPPLEMENTARY MATERIALS:


Browse: NEPA.gov (https://ceq.doe.gov/)

WEEK 12: RESILIENCE


NJ Climate Adaptation Alliance (2014) “A Summary of Climate Change Impacts and Preparedness Opportunities for the Transportation Sector in New Jersey” [link]

SUPPLEMENTARY MATERIALS:

Browse videos: [link]

WEEK 13: FREIGHT AND AIR


WEEK 14: ENVIRONMENTAL JUSTICE

“Title VI/Environmental Justice” (pp. 54-56) in The Transportation Planning Process: Key Issues US Department of Transportation, Available at [link]