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Daniel P. Piatkowski

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CRPL 495/895: Introduction to Transportation Planning (CRPL 463/863: Land Use and Transportation)

A peer-review of teaching benchmark portfolio

Daniel P. Piatkowski
Assistant Professor
Community and Regional Planning
College of Architecture
University of Nebraska Lincoln
Dpiatkowski2@unl.edu
402-472-9239

Abstract

This portfolio presents the results of the first year, peer review of teaching process for CRPL 495/895, Introduction to Transportation Planning. The course is split-level course for advanced undergraduates and graduate students, and has been offered at the University of Nebraska Lincoln since 2016. The course is an elective in the Masters of Community and Regional Planning graduate program. The course introduces students to the connections between Transportation and Land Use planning, and their impacts on urban form, health, sustainability, and social justice, and the planning tools available to influence this process. The course also addresses planning for multiple modes of transportation (car, bus, bike, walk) and the implications of transportation planning for health, equity, and sustainability. This portfolio includes the results of two data collection efforts: (i) the student course evaluation administered by the University, and (ii) a survey I created and administered online at the end of the semester. Analysis indicates students are generally happy with the course content, structure, and assessment. However, over the course of the peer review process, I have decided to revise the course learning outcomes and change the focus of the final project. Additionally, the course will transition from an asynchronous online course (offered in this format due to the pandemic) back to an in-person course the next time it is taught. Since the start of the peer review of teaching process, the course now has a new number and name: CRPL 463/863, Land Use and Transportation.

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Objectives of Peer Review Course Portfolio

This portfolio presents the efforts undertaken during the 2020/2021 academic year to improve my course, CRPL 495/895: Introduction to Transportation Planning, and develop pedagogical skills that I can then apply to all of my teaching. The portfolio includes detailed course descriptions, pedagogical goals, activities and assessment techniques, and the results of two surveys: (i) the standard UNL student evaluation form, and (ii) a survey I developed and administered to assess course goals during the Spring 2021 semester.

While transportation is a course taught in most all Planning Master's programs, there are few textbooks that capture the complexity and changing landscape of the issue. Recently, new technologies (e.g., driverless vehicles and micro-mobility) and equity concerns have drastically altered the transportation-planning discourse, and teaching should reflect that. It is my hope that through the activities detailed in this portfolio, I am able to bolster my teaching on this subject, and better develop and delivery courses that clearly link subject matter, course materials, and assessment to learning outcomes while simultaneously maximizing student engagement with the subject.

Course Description

CRPL 495/895: Introduction to Transportation Planning introduces students to the connections between Transportation and Land Use planning, and their impacts on urban form, health, sustainability, and social justice, and the planning tools available to influence this process. The course also addresses planning for multiple modes of transportation (car, bus, bike, walk) and the implications of transportation planning for health, equity, and sustainability.

There are no prerequisites for the course and is currently an elective course. The course is presented in a seminar format: each class is a combination of lectures and guided discussion. Ideally the class is 20-30 students and populated by Master's students in either Community and Regional Planning, Civil Engineering, and Architecture, as well as some junior and senior-level undergraduates from a range of disciplines (including environmental studies, civil engineering, and geography). Over the course of this semester students are given short assignments in addition to any in-class activities and weekly readings. The assignments are designed to introduce metrics for success in transportation and land use planning, and provide real-world experience in evaluating the transportation system. Some assignments are individual and others group-based. There is also an individual final project requirement for the class. Whenever possible, the final project is based on a local/regional transportation issue, and completed in consultation with local stakeholders.

It is planned that by next fall the Master's in Community and Regional Planning program will revise its core curriculum to include this course so that it is required for MCRP students. Historically, the course has been offered infrequently and primarily populated by undergraduates in environmental studies and civil engineering, meaning the content is often tailored to undergraduates rather than graduate students.

Goals for the Course

Upon completing this course, I want students to understand the connections between transportation, land use, and urban development; that is, how do planning decisions result in cities that look and function the way they do. I also want them to understand the impacts of transportation planning on public health, the environment, and social equity, with the end goal of preparing students for an introductory position in transportation planning (in either private or public sector planning). The learning outcomes as specified in the syllabus ([Appendix A](#)) are as follows:

1. Understand the connection between transportation, land use, and urban development
2. Understand the impacts of transportation planning on public health, the environment, and social equity
3. Be able to fully articulate the history, theory, and application of transportation planning in the United States
4. Be intelligent consumers and producers of literature relating to transportation, land use, and urban development
5. Possess the necessary foundation for an introductory position in transportation planning

The field (urban planning) has been changing dramatically in recent years, and one of the things I want to prepare students for is to push-back on policies and processes that have been in place since at least the 1950s that are hampering the progress of cities in the US. In specific terms, this means transitioning from auto-oriented land use and transportation planning to more sustainable, equitable, and human-centered planning. To do this, the course should provide needed substantive information, as well as practical experience in evidence-based decision-making (including from primary data collection and analysis).

Why this Course?

I have selected this course for three reasons: (i) as stated in the goals paragraph, this is an overlooked sector that has the potential to dramatically enhance people's daily lives when

practiced by skilled and well-trained practitioners. (ii) Also stated above, the course is likely to become part of the MCRP core curriculum in the coming year, and I want to improve the overall quality of the course. (iii) My research specialization is transportation, and I want to improve my own ability to connect my teaching and research activities.

Some aspects of the course that I think are particularly noteworthy are the assignments. I require students to do a number of mini-field experiments and observations in the community and report back to the class. For example, in one of my assignments I require students to use at least two different modes of transportation for the same trip, and compare and contrast the differences (this is used to then inform how to think about changing travel behavior in a population). In another assignment, I have the students count available parking spaces at different times of day and in different locations, to decide if current parking policies and zoning codes are appropriate or if too much city space is dedicated to parking. Students consistently rate these activities as their favorite parts of the class.

Another noteworthy aspect of the course is that, because of its applied nature, we often have local guest speakers and students frequently select final projects that help local practitioners (and have in the past led-up to internships or other career opportunities).

COVID-19 Impacts on the Course

Due to the pandemic, the course switched from in-person to online delivery for Spring 2021. This has impacted the course in a number of ways, and those impacts are detailed, where appropriate, throughout this report. It is hoped that the course will return to in-person delivery in Spring 2022.

Teaching Methods

Typically, the teaching consists of a combination of lectures, large-and-small group discussions, and student presentations/student-guided discussions. Due to COVID and the transition to online delivery, each week students watch a short lecture that I prepare (5-10 min), have 2-3 readings to complete, then either an assignment or discussion board questions. Students are also required to review one another's assignments and comment/discuss on the discussion board.

The short lectures and discussion board assignments constitute the bulk of what I would consider "contact time" with students when teaching in an asynchronous, online format. The short lectures are typically no more than about 10 minutes long. They are used to update students

on the overall progression of the course and any upcoming assignments (2-3 minutes), and the remaining time is dedicated to the weekly topic and readings/movies in the weekly module. The lecture use powerpoint and are recorded with Vidgrid software. In these lectures I draw any connections between course materials and weekly learning outcomes, and explain how the current week's topic fits into the overall topical-structure of the course.

The discussion boards are a way for students to present assignments to the class, and for students to demonstrate their understanding of any readings in a given week. A typical discussion board assignment centered on weekly readings asks students to write 300-500 word responses to 2-5 questions I have created (see [Appendix B](#) for screengrabs of weekly discussion questions). Students must post these to the discussion board by Wednesday of a given week, and then write substantive responses to at least two other students posts by Friday at noon. Students are required to explicitly cite course materials in their responses. Each week, I respond to between 50-80% of student responses to moderate the discussion boards and to model appropriate responses.

The discussion boards are also useful for students to post presentations and comment on each other's work. For example, if an assignment asks students to go out into their community, take pictures and record responses to a transportation issue (e.g., parking, traffic congestion, or bike/ped infrastructure), the will then present their findings in a powerpoint recorded using vidgrid, and post the link to their presentation in the discussion board. In the same way as standard discussions, students must post these to the discussion board by Wednesday of a given week, and then write substantive responses to at least two other students posts by Friday at noon. Correspondingly, I also comment and moderate the presentation discussions on the discussion board each week. See below for a list of specific out-of-class assignments that students report back on via the discussion board.

What course activities outside of class are you using?

Because of the practical nature of the class, I often have the students go out into the community to find examples of class topics (e.g., bicycle and pedestrian infrastructure, parking and traffic levels, safe/dangerous intersections). I generally try to include data collection, data analysis, and discussion of results in my rubrics. I also require students to include course readings/videos from that week in their discussion/conclusions. These assignments typically include a powerpoint presentation (recorded on vidgrid and posted to the discussion board) and (depending on the project) may include a written component. The final project includes an extensive written report in addition to the presentation.

Class Assignments

The below list is all of the assignments students completed (in addition to other weekly work). In a typical semester, there would be 5-6 assignments, but because of the switch to a

virtual format and a slightly-truncated semester schedule, this semester only included 4 assignments:

- Week 1: Introduction presentation and 2 slides on urban challenges and jaywalking.
- Week 4 and 5: Selecting a topic within the subject area of “transportation and health” and “transportation and sustainability” and reporting back to the class
- Week 11: Identifying examples of different theoretical approaches to street design in one’s own community
- Week 14: Bicycle and pedestrian infrastructure audit

Screengrabs of specific assignment details are included in [Appendix C](#).

Final Projects

Each semester I also work to have the students do final projects in partnership with local community groups, governments, or planning firms. When the class is larger, the final project is a group project, but due to low enrollment, this semester was individual projects. The final project is meant to mimic a real-world professional situation in which a planning consultant (the student) is working with a client to address a transportation issue. For example, last year the students created a ‘transportation master plan’ for the UNL campus, and this year the class partnered with the City of Omaha to do projects that address challenges for the transit planners working on the new Bus Rapid Transit system there. Departing from the asynchronous format for one week, we had a meeting and presentation with Omaha Metro representatives to discuss their Bus Rapid Transit System and final project details. Students were then required to write a final project proposal that I graded and commented on before completing the final project (final project details can be found in [Appendix D](#)).

Out-of-class Readings

I use a combination of academic articles/book chapters, popular press, and videos (e.g., Ted talks, etc.) depending on the subject matter. For example, when we talk about autonomous vehicles or COVID impacts on transportation I rely more heavily on popular press sources because the academic literature hasn’t ‘caught-up’ to current events. But for more established topics, like the economic impacts of transportation investments, or the fundamentals of transportation and land use, I favor more academic sources.

Most weeks, I assign 1-3 readings. I combine academic and non-academic readings to accommodate students who may have varying levels of understanding of scientific methods (or scientific literature in general). The goal is to ensure a given topic is covered in at least two different formats. When teaching this course in-person, I use more scholarly literature because I

can review it in detail with the class during in-class discussions. But because of the online format, I have reduced the number of readings and the overall sophistication of the readings. In this way I am trying to increase the likelihood that students will read and understand all of the readings. Further, I hope that this gives the students more time to engage weekly on the discussion board or through weekly assignments.

Rationale for the methods, materials, and activities

I recognize that my students are coming from a range of backgrounds and may learn better using different approaches and materials, so I do my best to use a variety of methods (e.g., discussion questions, assignments) and materials (e.g., scholarly readings, popular press, videos). While all students must complete a final paper, I allow for flexibility in the subject matter and methods so that the project can be applicable to students from a range of disciplines. For example, an architecture student may choose a design-oriented project with visualizations while a geography student may rely on mapping and spatial analysis for their project.

Because of the switch to online, asynchronous engagement, I made every effort to give students the flexibility to work at their own pace, while also maintaining standing weekly deadlines. I would frequently post weekly readings up-to two weeks in advance so that students could read ahead. I would then post weekly lectures and assignment details every Monday before noon. Assignments and/or discussion board deadlines were always Wednesday at midnight and Friday at noon. I also made sure to use Thursdays to comment/moderate the discussion board. In this way, students could work at their own pace throughout the week and spend less effort trying to remember multiple shifting deadlines throughout the semester.

Course linkages to the broader curriculum

This course is part of an accredited professional master's program, so I emphasize applied work that (when possible) engages with the community. That said, I also try to balance that with exposure to academic research, and I work to include the scientific method in their applied assignments to illustrate the importance of evidence-based policy and planning. This semester has included less community engagement and less discussion than in any previous semester, and I hope that the course will return to an in-person format in the future.

Illustration of changes from previous years/sections

I have taught this course annually at UNL since 2016, and prior to that I have taught variations on this course since I was a doctoral student lecturer in 2012. In that time I have made numerous changes to the subjects covered, experimented with two different textbooks, and adapted out-of-class activities to whatever city I was teaching the course in (Savannah, GA;

Denver, CO; Lincoln, NE). This has always been primarily a course for graduate students, but it began as a once-weekly night class, and only since 2016 has the course been taught during the day as a twice-weekly course. Of course, due to COVID, the course transitioned to online mid-semester in Spring, 2020, and was again taught online this Spring, 2021.

Over the years, the most significant transitions I have made include reducing the amount of traditional lectures and including a wider-range of course materials and readings. When I first began teaching, I relied heavily on powerpoint presentations and lectures with very little discussion. As I gained more confidence as a lecturer, I began incorporating discussion prompts into my presentations. Today, I only rarely use powerpoint presentations (and formal lectures). In a typical in-person semester, I lecture about 4-6 times over the entire semester, and use very little powerpoint. The other times, I focus on discussion, use the chalkboard/white-board extensively, or use class time for student presentations.

When I first developed this course I relied almost exclusively on academic literature, assigning 2-4 papers per week. I quickly realized students were not reading most of what I assigned, so I then initiated reading quizzes. I then realized (through student feedback) that even when students read, they frequently did not grasp much of the material. This has led me in recent years to use academic/empirical research papers sparingly, and when I do, I make sure to discuss the reading in detail with the students to ensure comprehension. I also use fewer readings, finding that students are more likely to read and engage in class if I do this.

Analysis of Student Learning

Analysis of student learning has proven challenging this semester for a few reasons. First, the MCRP program has seen a significant drop in enrollment in the last year, and while the course would typically have as many as 20 students, this semester 8 students enrolled in the course. That said, only 6 students remained enrolled for the entire semester (and received grades). Additionally, as a graduate student class, there is frequently minimal variation in grading, assuming students complete the work. Typically most students receive an A or a B if they engage throughout the semester, or they fail. This means that analyzing grading trends is of limited value for my purposes.

I am primarily interested in ensuring engagement and crafting a course made up of materials and assignments that the students find valuable. To this end, I am reporting the results of student course evaluations and open-ended responses to a survey I conducted at the end of the course. The purpose of analyzing these two student-centered assessment tools is to provide

insights into specific components of the course that worked, those that did not, and how to move forward – either through online or in-person delivery – in the future.

Student Course Evaluations

Below I present the results of the student course evaluations administered by UNL. These findings offer some insight into strengths and weaknesses of the course. Unfortunately the evaluation results are very limited and thus of limited value. Only 2 students completed the course evaluations. This is despite my sending multiple email reminders to students to complete the evaluations, and also mentioning evaluations in my last two recorded lectures.

Findings indicate that of those students who completed the student course evaluations, they were very happy with the course. All responses were “5” (i.e., strongly agree) to the following statements:

- Course activities effectively promote my learning and interest in the subject.
- The learning tools (e.g. course texts, notes, slides, videos, exams, projects, etc.) support my learning.
- I am invited to be an active participant in my learning (either face to face or online).
- I have opportunities to learn with and from other students in this course.
- The feedback I receive on my work is useful to me for making changes and improvements.
- I know where to go for help in this course if, and when, I need it.
- I find communication with the instructor (e.g. office hours, email, Canvas, etc.) effectively supports my learning.

Furthermore, when asked what specific aspects of the course students found beneficial to their learning, one student identified “quality interactions with students,” and the other identified “instructor communication.” These responses suggest that the students who responded to the student evaluation form were apparently very happy with the class, and particularly with engagement and communication. I found this surprising as I am consistently concerned about the lack of traditional venues for interaction and communication due to asynchronous online delivery.

Student comments further elucidate the findings regarding communication and interaction. Specifically, one student stated “being able to read and get feedback from other students each week was a nice change from my other classes.” The other student said “I appreciate the lectures and the quick feedback with questions. I also feel like the instructor is flexible allowing students to adapt assignments to something that meets their goals/interests.”

These comments indicate to me that the discussion board format, in which students are required to respond to one another, is valuable to this student. This also suggests that providing feedback and allowing for flexibility in the assignments was valued by the other student who completed the evaluation form.

Obviously, these findings should be taken with a grain of salt, but it is safe to say that the students who completed the evaluation clearly enjoyed the course, and I am happy to retain elements of the course that were clearly valuable to the few students who provided feedback.

Instructor's Student Survey

Below I present the results from a short survey I created to assess student experience in the course. The survey was administered during the last two weeks of the Spring semester. It consisted of 5 open-ended questions. The survey responses are anonymous and students were given 5 extra credit points (half of the points given for participation in a typical week) if they completed the survey. 5 students completed the survey. Because the survey, and responses, were brief, they are presented in their entirety below (rather than referenced in an appendix).

Question 1: What was your favorite part of the course?

"Reading discussion posts"

"Discussion board"

"I like the format of the course. Having a consistency on the work required and due dates helped me plan my week"

"I enjoyed many of the readings/videos, and I thought the format of the weekly assignments of writing 300-500 words answering a couple questions about the topics was helpful in inspiring more thought about the topics"

"The course was formatted in a way that I wasn't overloaded with work to do, but the material was still fulfilling and got straight to the point"

Question 2: What was your least favorite part of the course? Please let me know how it could have been done differently if you have any suggestions.

"The length of the final paper- it felt impossible to write so many words about a topic we didn't have information about besides a brief and one lecture"

"None"

“I would have liked to have access to modules sooner. The bulk of the work was needed between Monday and Wednesday. Having the weekend would have been helpful”

“My least favorite part was responding to other peoples' posts each week. For some reason I found it challenging to remember to do that, and it didn't feel very fulfilling, but I understand the need to foster engagement among participants in the class”

“The only thing I didn't like was having the discussion post due on a Wednesday and Friday. It was easy to slip my mind that I had to have that done.”

Question 3: Because the course is online and during a pandemic, I tried to balance giving you assignments/lectures/readings against the fact that you all have busy lives. That is, I tried to strike a balance between providing necessary course content without overwhelming you with lectures, readings, and assignments. Do you think this was successful, or would you have preferred more (or less) from the class?

“Discussion posts were fine, but the final paper was too much”

“It was a success”

“Yes, the lectures were meaningful and concise. I felt like it was well balanced”

“I think it was just the right amount”

“I think it was a great idea to balance the two out instead of having a long video lecture to watch on top of doing the readings and discussion posts. Though, It would've been nice to have a week or two of a longer and more in-depth video lecture that would have given us the same content as a reading and base the discussion post or assignment on that”

Question 4: If you could sum-up in one sentence, what did you learn from the course?

“About the effects of transportation”

“Transportation issues in the USA”

“We need to stop building cities the way we have been”

“I learned that there is a lot of research out there that shows ways we can design our cities to provide more equitable and sustainable forms of transportation, and how to find that research in order to apply it someday”

“I learned that the use of vehicles and land use has expanded so much since the inception of vehicles, though kinks are still needing to be worked out in order to better and more efficiently serve the users”

Question 5: Please let me know anything else you think would be helpful to me to improve the course in the future.

“More information and lectures about the final paper topic would be helpful”

“Have interactions with students”

“The final paper required half the length for undergrads as grads but the number of sources was the same. I felt like that could have been adjusted”

“In an online format, maybe videos of lectures or presentations of course materials would be helpful in facilitating more understanding in addition to the reading assignments”

“One last suggestion would be to have a list of precise due dates, especially for bigger projects like the final project. It got somewhat confusing at times when it wasn't a typical week of turning in discussion posts.”

Responses offer a range of insights, some more pertinent than others. From question 1, it seems clear that students appreciated the overall course format and the use of discussion boards. From question 2 responses, I find the most useful to be concerning opening the modules sooner. I typically provide readings for the upcoming weeks well in advance, but not assignments. In the future I will be sure to provide assignment details on the Friday before they are due to give students the weekend to work on them. Question 3 is helpful in critiquing the online, asynchronous format, and it appears to have been successful (despite one student's repeated frustrations with the final paper assignment). Responses to question 4 do not offer a great deal of insight. If anything, I think it is likely that most of the students wrote something quick to make sure they would get credit for the assignment. However, one student did provide a substantive response, demonstrating an understanding of equity and sustainability as key concepts in transportation. This was an important part of the course and I am glad to see it reflected in the response. Finally, question 5 offers a few key takeaways, specifically to provide more clarity on due dates for larger projects, and also to potentially add additional lectures occasionally. The other response in question 5 are less useful. Clearly two students were unhappy with the amount

of effort required for a final paper, but for a graduate course my standards are in line with the MCRP program and I will not change that.

Reflections on the Course

Through the peer review of teaching process, I have had the opportunity to closely examine all aspects of the course and workshop concerns with other faculty. Reflecting on this process now I am first pleasantly surprised that the student feedback suggests the course is generally successful and requires only minor tweaks. That said, the student feedback reflects a unique environment: an asynchronous online version of the course, offered during a pandemic, and to a much smaller number of students than is typical. What this indicates to me is that I can take certain lessons from this process, but I should also maintain a process of evaluation to ensure that moving forward the course continues to evolve in positive ways.

Future plans for the course

Future plans for the course include returning to in-person delivery, but carrying-over certain lessons from the peer review process (as well the experience of asynchronous, online teaching). The first element of this process that I will retain is the survey that I created and administered to students. This was the first time I have tried this in a course, and I plan to do this in the future. It was very simple to do, and I think that I have a better understanding of how to tailor the questions to get at any specific concerns I may have during a given semester. Second, the student feedback suggests I can work to build consistency into the course (e.g., students know that each week something is due Wednesday and Friday, and that can be tailored to the in-person environment as well). Student feedback also indicates that students enjoyed a range of activities, particularly those that took them out into the community. This was already something I hoped to build on, and I will continue this in the future.

One element of the course that I did not cover in the above portfolio is the way in which I will assess student learning around the course learning outcomes. This has been difficult because the course is essentially a substantive elective; there are not necessarily easily-measurable learning outcomes like you might have in a methods course. Through consultations with the peer-review team, I have decided on a few ways to improve assessment of course learning outcomes. First, and related to my above comment about using student-surveys during the course, I plan to institute pre/post quizzes at the start and end of the semester. My hope is that this quiz (likely a brief, open-ended survey, will serve as a diagnostic assessment tool at the start of the semester to provide a baseline for comparison at the end of the semester.

Planned changes to the course

The next change I am making to the course is revising the learning outcomes to better reflect specific, demonstrable skills. Through the peer-review of teaching process it has become clear that my existing learning outcomes are difficult to measure. The existing learning outcomes are as follows:

1. Understand the connection between transportation, land use, and urban development
2. Understand the impacts of transportation planning on public health, the environment, and social equity
3. Be able to fully articulate the history, theory, and application of transportation planning in the United States
4. Be intelligent consumers and producers of literature relating to transportation, land use, and urban development
5. Possess the necessary foundation for an introductory position in transportation planning

In the above learning outcomes, I have underlined the parts of each outcome that are currently too vague to easily measure. To that end, below is a revised list of learning outcomes, focusing on more easily-measurable “action” verbs:

1. Describe the connection between transportation, land use, and urban development
2. Explain the impacts of transportation planning on public health, the environment, and social equity
3. Describe the history, theory, and application of transportation planning in the United States
4. Demonstrate the ability to synthesize arguments using empirical literature relating to transportation, land use, and urban development
5. Produce professional, evidence-based written course assignments and presentations at a quality level expected of an entry-level transportation planning professional

Using these revised learning outcomes as a guide, I plan to develop rubrics for individual assignments to quantify applicable learning outcomes.

Another element of the course that I plan to change is the final project. I initially intended the final project to be an opportunity for students to work with a local agency or organization on an engaged project that would approximate professional practice. In the Spring of 2020, the course began working with the Lincoln bikeshare program, but that project was abandoned due to the onset of the pandemic. This Spring, working with Omaha metro proved extremely

challenging in an online format, and I don't believe the student's final projects substantially forwarded any specific learning outcomes for the course.

In the future, I plan to instead use weekly assignments as opportunities to work with local organizations, but only when it is appropriate and does not compromise other learning outcomes. I will then make the final project a scientific research paper, with the subject decided by the student (and approved by me). If the project aligns with a local issue that is fine, but requiring students to develop a research question, conduct a literature review, collect and analyze data, and draw relevant conclusions will be a chance for students to demonstrate mastery of all of the course learning outcomes, and ensure a more consistent course from semester-to-semester.

Finally, over the course of the last year, the course now has a dedicated course number and a new title: CPRL 463/863: Land Use and Transportation. We (the MCRP program faculty) are now discussing curriculum changes to integrate the course into core curriculum. I think that the peer review of teaching program has been invaluable in improving the course, as well as my approach to pedagogy overall.

Appendices

Appendix A: Course Syllabus

UNIVERSITY OF NEBRASKA LINCOLN

Community and Regional Planning

CRPL 463/863 – Land Use and Transportation

Spring 2021

T/R 12:30 pm -1:45 PM

Classroom: 115 Architecture Hall

Instructor: Daniel Piatkowski, PhD

Office: 238 Architecture Hall

Office hours: By appointment

E-mail : dpiatkowski2@unl.edu

Phone : (402) 472-9239

This course explores the connection between transportation planning, land use, and urban form. Students will learn the history and policies that have shaped current transportation systems, and the planning tools available to influence this process. We will also address planning for multiple modes of transportation (car, bus, bike, walk) and the implications of transportation planning for health, equity, and sustainability.

Transportation planning is a broad field that is rapidly-evolving. Transportation planning in the US has historically been focused primarily on auto mobility. Today, transportation planners are tasked with not only managing the auto-focused transportation system they have inherited, but also to provide for multiple modes of transportation. Rapidly-evolving technologies in turn offer new opportunities and challenges for the field. One thing is clear: there is an increasing understanding that transportation policy and planning has wide-ranging implications for health, safety, social justice, the environment, and livability. This class will provide a survey of past and present context the field.

Course Structure

The course is presented in a seminar format: Each class will be a combination of lectures and guided discussion. It is imperative that every student completes weekly readings and assignments on time so that they are prepared to be active participants in the weekly discussions.

Learning Outcomes

By the end of the course, students should be able to:

1. Understand the connection between transportation, land use, and urban development
2. Understand the impacts of transportation planning on public health, the environment, and social equity
3. Be able to fully articulate the history, theory, and application of transportation planning in the United States
4. Be intelligent consumers and producers of literature relating to transportation, land use, and urban development
5. Possess the necessary foundation for an introductory position in transportation planning

Required Course Texts:

There are no required texts for this course. All readings will be posted on canvas in the module for the week that they are due.

Course Requirements

Participation is a required element of this course. Students are expected to have completed readings and assignments prior to class so that the material can be discussed in a thoughtful manner. Participation will be evaluated throughout the semester and can include attendance, class participation, and reading quizzes.

Assignments

Over the course of this semester there will be short assignments in addition to in-class activities and weekly readings. The assignments are designed to introduce metrics for success in transportation and land use planning, and provide real-world experience in evaluating the transportation system. Some assignments will be individual and others will require you to work in a group. Complete assignment details will be posted on Canvas. 2

Semester Project

The semester project is a collaborative effort with UNL Campus Planning, Lincoln B-Cycle, and the City of Lincoln. Details will be posted online and discussed in class.

Grading and Assessment

Undergraduate and graduate students are eligible to enroll in the course. Undergraduate students are expected to contact me via email as course expectations and requirements are different. For example, the final project report will be shorter than that required for graduate students: 5,000 words for undergraduates and 10,000 words for graduate students (specific assignment details will be posted on Canvas).

Additionally, graduate students will be expected to lead weekly discussions, demonstrating advanced engagement with course materials, and to model successful class participation for undergraduates. What this means is that graduate students are expected to create discussion threads (rather than simply respond to existing threads), and to integrate specific citations from at least two readings per assignment (as opposed to a single citation per post for undergraduates). Furthermore, assignment rubrics will further specify additional differences in expectations for undergraduates versus graduate students. For example, in the “parking utilization” and “counting traffic” assignments, all students will be required to collect primary data, but graduate students will be expected to demonstrate basic proficiency in statistical analysis in the assignments, whereas undergraduates may simply present descriptive statistics of the data presented. While the points breakdown is the same for all students (see below), graduate students will be graded on a more challenging rubric for each assignment.

Participation (25 points possible)

Assignments and Activities (50 points possible)

Final Project (25 points possible)

Where: A = 90+ points; B = 80-90 points; C = 70-80 points; D = 60-70 points; F = <60 points

Academic Honesty Policy: Intellectual dishonesty (i.e., cheating, plagiarism) will not be tolerated. Cheating during an exam will result in a zero for that exam; copying all or part of a homework assignment from another student in the class will result in a zero for all students involved; copying all or part of an assignment off the Internet or other external source will result in an F for the course.

Accommodations for Students with Disabilities: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can discuss options privately. To establish reasonable accommodations, I may request that you register with Services for Students with Disabilities (SSD). If you are eligible for services and register with their office, make arrangements with me as soon as possible to discuss your accommodations so they can be implemented in a timely manner. SSD contact information: 117 Louise Pound Hall.; 402-472-3787

Resources for Students Seeking Mental Help: UNL offers a variety of options for students to aid them in dealing with stress and adversity. Counseling and Psychological Services (CAPS) is a multidisciplinary team of psychologists and counselors that work collaboratively with Nebraska students to help them explore their feelings and thoughts and learn helpful ways to improve their mental, psychological, and emotional well-being when issues arise. CAPS can be reached by calling 402-472-7450.

Course Schedule (subject to change)

Week	Dates	Weekly Topic	Activities and Assignments
1	1/14	NO CLASS	
	1/16	Course introduction and overview	
2	1/21	History and key concepts	A1 Counting traffic (assigned)
	1/23		
3	1/28	History and key concepts II	A1 (due); A2 Case studies (assigned)
	1/30	NO CLASS	
4	2/4	NO CLASS	
	2/6	Transportation and sustainability/health/justice	
5	2/11	NO CLASS	
	2/13	Transportation and health	
6	2/18	Case study presentations	A2 (due)
	2/20	Case study presentations	
7	2/25	Transportation and social justice	
	2/27	Case study presentations	A2 (due)
8	3/3	Streets and roads: design paradigm	Assignment 3: Parking utilization (assigned)
	3/5		
9	3/10	Parking	A3 (due)
	3/12		
10	3/17	Multimodal UNL Campus	Introduce Final Project (Campus Plan)
	3/19		
11	3/24	NO CLASS (spring break)	
	3/26	NO CLASS (spring break)	
12	3/31	Transit	A4 Mode choice (assigned)
	4/2		
13	4/7	Bicycling	
	4/9		
14	4/14	Walking	
	4/16		
15	4/21	Travel behavior and mode choice	
	4/23		A4 (due)
16	4/28	The future of transport	
	4/30		
17	5/5	Final presentations	Final reports due
	5/7	Final presentations	


Appendix B: Weekly Discussion Question Screengrabs

Published

Edit

This is a graded discussion: 10 points possible

due Feb 5 at 12pm



Week 2 Discussion Board

Dan Piatkowski

Jan 25 at 9:51am

12 / 27

Instructions and Discussion Questions

Once you have completed the readings and watched the videos for this week, answer the following questions and post your answers as a single response to the discussion board.

- 1) Define both "accessibility" and "mobility" (one sentence each). Then describe how accessibility requires planners to account for both transportation and land use in the planning process.
- 2) Define the "growth Ponzi scheme" and what it means for the long-term economics of a community.
- 3) What do you see as the primary barrier to stopping the growth Ponzi scheme and how can communities create more vibrant and economically-successful places through transportation and land use planning?

Deadlines and Grading

Discussion board is worth 10 points this week: 5 for your initial post and 5 for your posts responding to other students. Post responses to the discussion board questions by Wednesday at midnight. You are then expected to provide substantive responses (~2-4 sentences) to two other student posts by Friday at noon (this is to ensure you are engaging with ideas posed by other students in the class). Your initial discussion board post (due Wednesday) should be a total of 300-500 words. Responses should be in complete sentences and include specific references to the readings and videos from the week (your discussion board score will be based on your ability to develop original responses that incorporate the ideas and topics covered in the course materials each week).

Unread

✓ Subscribed


↩ Reply

Published

Edit

This is a graded discussion: 10 points possible

due Feb 12 at 12pm



Week 3 Discussion Board

Dan Piatkowski

Feb 8 at 9:22am

531

For this week's discussion board posts, I would like you to select one of the below questions and respond to it:

- 1) Autonomous Vehicles: after watching the presentation and completing the readings, what aspects of AVs are you most excited about and why - or alternately, what aspects are you most concerned about and why? Finally, what is your opinion of the value and impact of AVs in transportation planning?
- 2) COVID-19: How has COVID-19 impacted transportation and use of urban space? Have you seen impacts in your local community, and what are the long-term implications (if any) of COVID-19 for the future of transportation planning?

Please directly cite readings and other course content to respond to one of the above questions in a 300-500 word response. Post your answer by Wednesday at midnight, then post responses to two other student posts by Friday at noon.

Search entries or author

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Reply

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Edit

This is a graded discussion: 10 points possible

due Mar 5 at 12pm



Week 6 Discussion Board

Dan Piatkowski

Mar 1 at 10:48am

821

For this week's discussion board posts, I would like you to select one of the below questions and respond to it:

- 1) Redlining: How can the legacy of redlining and highway development be seen in your local community, and what are its impacts today? Then, propose specific solutions to the inequalities in your community.
- 2) Traffic stops: Given all of the evidence, is there a viable argument to continue conducting traffic stops? Then, how could we do away with traffic stops and ensure a safe (and equitable) transportation system?

Please directly cite readings and other course content to respond to one of the above questions in a 300-500 word response. Post your answer by Wednesday at midnight, then post responses to two other student posts by Friday at noon.

Search entries or author

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Reply

This is a graded discussion: 10 points possible

due Mar 26 at 12pm



Week 9 Discussion Board

Dan Piatkowski

Mar 18 at 10:20am

41 25

For this week's assignment, please answer the following questions in one 300-500 word post, specifically citing the readings (and potentially including any external links that might support your answers).

- 1) Is congestion good or bad, and why?
- 2) What is "Level of Service" and how can it cause problems when planners prioritize vehicle LOS over other modes?
- 3) The Multi-Modal Transportation planning reading by Litman states: "People involved in transportation decision-making (public officials, planning professionals and community members) should live without using a personal automobile for at least two typical weeks each year that involve normal travel activities (commuting, shopping, social events, etc.) in order to experience the non-automobile transportation system." How do you think this would change transportation planning in your community? (i.e., if you live in Lincoln, or Omaha, or elsewhere....)

As always, your discussion board posts are due on Wednesday at midnight, and you must respond to two other student posts by Friday at noon.

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This is a graded discussion: 10 points possible

due Apr 16 at 12pm



Week 12 Discussion Board

Dan Piatkowski

Apr 12 at 11:18am

11 29

For this week's discussion board, please answer the questions below in 300-500 words (due Wednesday by midnight), then respond to two other student posts by Friday at noon. When you answer the questions, be sure to directly quote and/or reference the readings.

- 1) What are minimum parking requirements? Why were they put in place to begin with, and what are three problems they cause cities?
- 2) What do you think is the biggest mistake your city has made with regard to parking? Using ideas from the readings, how would you recommend your city fix this problem? (please include any applicable external links, etc. so we can best understand the problem you identify)

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This is a graded discussion: 10 points possible

due Apr 23



Week 13 Discussion Board

Dan Piatkowski

Apr 19 at 10:29am

6 23

For this week, please answer the following questions completely, including specific references to the the Walker reading and video to support your responses. Answer each question in 3-6 complete sentences. Post your answers in one post to the discussion board by Wednesday at noon.

After you have posted your own answers to the questions, follow-up with two posts of substantive responses (at least 1-2 sentences) to two other student's posts by Friday at noon.

Discussion board questions for this week:

1. The Walker chapters give a big-picture overview of what transit is and does (or should be and should do). In the video, Walker then talks about the "geometric" problem that transit solves (as opposed to the potential for technological solutions). Based on these materials, specifically what type of transit service would you like to see in Downtown Lincoln? Briefly describe its route and why you think it would be beneficial. Then describe how it address the "geometric" problem that technology may not be able to address.
2. What does Walker mean when he says: "In the city, we free ourselves only by freeing others"? Specifically, what does this mean for the relationship between transportation and land use?


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Appendix C: Weekly Assignment Screengrabs



Week 1 Assignment and Discussion Board

Jan 25 at 9:50am

28

This assignment requires you to create a short presentation and post it to the discussion board (below). You will then be expected to watch your classmate's presentations and comment on them. The goals of this assignment are:

- 1) introduce yourself to the class
- 2) introduce critical thinking about transportation and land use
- 3) gain familiarity and comfort with online learning technologies

Assignment Details

The presentation should be no more than 5 minutes long, and include the following information on three powerpoint slides:

1. Slide 1: Introduce yourself to the class
 - Who you are, where you are currently are (i.e., Omaha, Lincoln, etc..), your major or Graduate Program, and why you wanted to take a class on transportation planning
2. Slide 2: Find a picture online (or go out into the community and take one - if the snow melts!)
 - The picture should represent a problem/challenge described in the "Cities and the future of urban transportation..." reading.
 - Describe the issue you are illustrating with the picture, what the author's say about this issue, and what you think is a viable solution.
3. Slide 3: Find another picture online (or go out into the community and take one - if the snow melts!)
 - The picture should illustrate how a given street prioritizes vehicles over people as described in the "Street Rivals..." reading.
 - Present your impression of jaywalking - should it be a crime? Which users do our streets prioritize today, and how could that be changed?
4. Once you have uploaded your own presentation, watch all other student presentations and comment on two other student presentations.
 - Your comments will be graded for content. In your comments you should specify whether you agree or disagree, cite course readings from this week, and explain your response. Be sure to be clear and respectful in your online comments. It is easy to mistake a comments tone in an online environment, so best to reframe from jokes or sarcasm.

To create and upload your presentation to the discussion board, use the "VidGrid" video service; getting started and instructional videos for vid grid can be found here: <https://its.unl.edu/services/unl-academic-video/>

Review the training videos (<https://app.vidgrid.com/content/D4AqNjtGFkvn>) , login, download the recorder to your computer, record your short powerpoint, and post it using a web link to the discussion board.

Grading

This assignment is worth ten points: 5 points possible for your video and 5 points possible for your comments.

Due Dates

By Wednesday of Week 1 at midnight you must post your video as a web link to the discussion board

By Friday of Week 1 at noon you must have comments posted to other student's videos

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Week 4 Overview

Overview

This week we are examining the relationships between transportation and health, and transportation and sustainability.

No instructor video this week. Instead I am introducing a project that you will work on (individually) that is due next week.

Readings are embedded in the links in the description paragraphs below. Please review them first.

Description of Topics for the next two weeks

What do I mean by "transportation and health"? I am specifically talking about how transportation, whether it be the way we travel (e.g., by car, bus, bike, or foot) or our transportation infrastructure impacts public health. For example, [suburban sprawl and auto-dependence has been associated with increased rates of obesity and social isolation](#) ². Also, around 40,000 Americans die every year in car crashes on our streets, and this is a public health problem! But don't forget about how freeways often cut-off low-income communities from healthy food options, [creating food deserts](#) ³, and thus limiting the ability of residents in these neighborhoods to get healthy food; this is also a public health problem caused by our transportation system.

When talking about ["transportation and sustainability"](#), I'm specifically referring to [environmental sustainability](#) ⁴. This means considering the relationship between how we travel (e.g., by car, bus, bike, or foot) and how that affects our environment. This also means the impacts of transportation infrastructure on sustainability (e.g., urban heat island effects of paved surfaces, or stormwater run-off due to those same impermeable surfaces). These are just some potential affects of transportation, and transportation infrastructure, on environmental sustainability. Other impacts could involve the problems around manufacturing fuel and vehicles, or asphalt and concrete. Still more impacts could involve the impacts of travel on climate change and carbon emissions.


To do

For this week I'd like each of you to do some research on your own and report back to the class on an issue around either "transportation and health," or "transportation and sustainability." (just pick one!)

So for this week, take a look at [the discussion board](#) for details on the short presentation due next week (week 5).

This is a graded discussion: 10 points possible

due Apr 9 at 12pm



Week 11 Discussion Board

Dan Piatkowski

Apr 5 at 8:50am

10 25

For this week's assignment, I want you to go out into your community and identify one example of a street or intersection that uses "passive" (i.e., highway-style) design approaches in an urban environment, what problems it causes, and how you might fix it. You should create a short (~5 minute) powerpoint presentation using pictures and graphics to illustrate the problem site you identify and the solution you propose. Be sure to specifically cite (e.g., include quotations from the text) in your presentation slides to demonstrate your comprehension and application of the readings.

Please post your presentation below by Wednesday at midnight, and respond to two other student presentations by Friday at noon.

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This is a graded discussion: 10 points possible

due Apr 30 at 12pm



Week 14 Discussion Board

Dan Piatkowski

Apr 26 at 9:51am

19

For this week your reading and the videos covered some history, an international case study on multi-modal planning, and two videos about safety. I'd like you to try and apply that to where you live. You will create a ~5 minute presentation (post the url below), where you will report back on a "bike/ped audit" of a location you have chosen. You should visit that location and take photos, and also be sure that you specifically cite course material when you answer the below questions in your presentation:

Your location should be one that is an attempt at a bike-and-ped friendly area, with connections to transit. Your "job" is to audit the location for successes and challenges. It could be an intersection, a transit hub, a street/street segment, etc. Try to focus on a specific site (i.e., don't choose an entire neighborhood). Then visit the location, take some pictures and notes, and report back:

- 1) Identify the location and why you have chosen it.
- 2) Describe the existing infrastructure (include pictures), how it is meant to support multi-modal planning, and if it does or does not meet that goal.
- 3) Offer recommendations on how to improve the location to make it safer and more functional for multiple modes.

Post the link to your presentation below by Wednesday at midnight, and comment on two other student presentations by Friday at noon.

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Appendix D: Final Project Details

Introduction to final project:

Week 8 Overview

This week we have a special guest presentation from Evan Schweitz and Jason Rose, representatives from Omaha Metro who are working on the Omaha Rapid Bus Transit (ORBT) system, and will be our "client" for final projects this semester.

Please try to be at the LIVE zoom presentation on 4/16 from 1pm-2:30pm: (<https://unl.zoom.us/j/99726973268>) where Evan and Jason will present on the topic and project, and go through the challenges that they would like you all to work on for your final projects.

For background, be sure to read the following before the presentation:

1) https://omaha.com/business/chamber-to-millennials-how-do-you-want-to-get-around-omaha-in-the-future/article_e35c73c0-7f77-5b7a-b92b-985c857710f8.html

2) https://omaha.com/news/local/govt-and-politics/omahas-bus-system-is-taking-a-big-step-forward-are-you-on-board/article_73c3786b-c689-5274-bc2c-9320235ef6a2.html

3) <https://www.itdp.org/library/standards-and-guides/the-bus-rapid-transit-standard/what-is-brt/>

The project description (provided by our client's at Omaha metro), is [available here](#) ↓

Final Project Overview:

Week 10 Overview

For this week, you will need to create a project proposal for your final projects.

Project Proposal Details (DUE THIS WEEK - week 10):

For this week you need to write a 500 word brief describing the topic for your proposal. The brief must include a specific description of the topic you are addressing, as well as a detailed outline of your report. Finally (in addition to the 500 word proposal), you must include an annotated bibliography in which you identify 4 relevant, peer-reviewed research articles. These articles should be listed on a separate page from your outline. After each article, include a few sentences describing how the article relates to your topic. [Turn in your proposal here by this Friday at noon.](#)

Final Project Details (Due week 15):

Remember, the final projects are challenges identified by our community partners at Omaha Metro's ORBT program. You must identify a specific topic within challenge areas they have identified, and create a research report addressing that topic.

The final reports will be 5,000 wds for undergraduate students, and 10,000 words for graduate students. All students must include at least 10 high-quality references from peer-reviewed sources. These references should be cited in-text using the APA style, and included in a reference list at the end of the report (also formatted in APA style).

Final Project Description:

University of Nebraska Lincoln Community & Regional Planning

Online Course
CRPL 463/863 - Land Use and Transportation
Spring 2021

Metro Next - Planning Process

Overview:

Metro Transit, the largest public transportation provider in Nebraska, is preparing for what's next. The agency recently launched [ORBT](#), a new bus rapid transit line on Dodge street, connecting destinations from downtown to Westroads with arrivals every 10 minutes. ORBT introduces a variety of new features aimed to make the travel experience smoother and easier, including enhanced stations and buses, upgraded technology, vehicle priority at traffic lights, and downtown bus lanes. This ORBT line is the first step toward a future network of rapid transit across the broader Omaha area.

Metro is well-positioned to expand its network. In 2019, the Nebraska State Legislature voted to allow transit agencies in cities of metropolitan class to grow as regional transit authorities in order to better serve the needs of expanding communities. Currently bound by Omaha city limits and facing restrictive budget policies, such a transition would allow Metro to expand service and provide better connections across the region. Throughout 2021, Metro will conduct public engagement to help shape the ***MetroNEXT*** plan, which will be implemented from 2022 to 2026.

In partnership with the Greater Omaha Chamber of Commerce, Metro and other partners have been gathering critical community input to develop a unified transportation strategy called [ConnectGO](#). Significant support for public transportation has been expressed by participants, with several recommended priorities taking shape:

- An expanded ORBT network
- More frequent arrivals for existing routes
- Enhanced first/last mile connections to transit stops
- Innovative service to locations without bus routes
- Easier access to the system, especially for cost-burdened individuals

COVID-19 has illuminated the critical need and potential for transit in our community. As our community emerges from the pandemic, Metro Next will provide riders, stakeholders, and our

Board of Directors with a clear direction to establish a more resilient and connected transit system, both now and into the future. The Metro Next plan will inform the Board as they consider voting to become a regional authority and implement Metro's vision for the future: that we are a valued transportation choice for all members of our community and a vital partner in Omaha's future.

Metro is seeking student input on three strategies for consideration in the Metro Next plan. Select one of the problem statements below and develop a proposal to address the issue.

Problem Statement 1: First/Last mile connections - Every transit rider begins and ends their journey as a pedestrian. While Metro typically focuses on the onboard rider experience, feedback shows the experience outside of the bus can be even more important to riders. Some of these challenges include:

- Unclear schedule and wayfinding information
- Unpleasant waiting experience, especially at night or during inclement weather
- Long distances from the bus stop to a rider's origin or destination
- Lack of supportive infrastructure for those with mobility challenges
- Development patterns that prioritize automobiles over pedestrians

What are the most important strategies Metro should deploy to address this issue?

Problem Statement 2: Innovative service to new areas - Metro prioritizes frequent and direct bus routes for the city's most populated neighborhoods, but many areas of the region are not designed to support fixed-route transit. With destinations spread further apart, fewer sidewalks, and lower residential densities, suburban areas likely warrant new transit solutions. Other cities have explored options such as:

- Vanpooling
- Commuter shuttles
- Flex-routes
- On-demand microtransit
- Ridesharing partnerships (such as Uber or taxi vouchers)

What are the most important strategies Metro should deploy to address this issue?

Problem Statement 3: Easier system access - Many current and prospective riders have expressed interest in new payment options to remove barriers to accessing Metro's services. Cash payments remain the most common, especially among the unbanked population, although that may change as new smart card and mobile payment methods are introduced this spring. To improve access to transit, other cities have explored strategies such as:

- Expanded corporate and/or university pass programs
- Fare capping (guaranteed price maximums per day/week/month based on usage)

- Eliminating transfer costs (currently 25 cents to connect with a second route)
- Unlimited access for K-12 students
- Mobility as a Service (MaaS) & integration with other travel modes

What are the most important strategies Metro should deploy to address this issue?