

COURSE SYLLABUS

CRP 3850/5850
Urban Mass Transit
3 units
Spring Semester, 2023
M/W 9:40am to 10:55am
West Sibley 115

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Office Hours: M/W 11:30am to 12:30pm or by appointment

Course Description

This course evaluates planning and policy aspects of transit service provision in the United States. The history and roles of transit, economic structure of transit, transit fare policies, and justifications for transit subsidies are surveyed. In addition, aspects and methods of both transit capital and operations planning will be evaluated, including ways in which capital and operations planning objectives can conflict with one-another and approaches to mitigate this. Equity implications of transit planning and policy decisions; as well as land use, governance structure, and financing structure implications on transit planning and policy decisions; are assessed throughout the course.

Learning Objectives and Outcomes

1. Describe the evolution of transit in the context of urbanization in the United States.
2. Explain different approaches to capital transit project valuation.
3. Understand how land uses and travel dynamics influence transit mode share potential and the economic soundness of different transit capital investments.
4. Explain what influences different travelers' satisfaction and adoption of transit as a mode choice.
5. Align service operations planning approaches with different service operation objectives.
6. Differentiate the methodologies and applications of economic cost modeling and cost allocation modeling of transit operations.
7. Measure the incidence of transit investments and subsidies and their alignment with policy objectives.

Assignments and Grading

Assignment	Description	% of Grade
Class Participation	Your contribution to class discussion and group work will be accounted for in your grade. Generally, only students who show a clear lack of engagement will experience a reduced grade in this category.	10%
Pop Quizzes (4 total)	A total of four pop quizzes will be given at the start of class that cover the readings of that day. The dates that these will be proctored will be randomly chosen. The quizzes will be in short-answer format. Each pop quiz is equally weighted. Your lowest score pop quiz will be dropped from your grading.	15%
Midterm 1	Two closed book/note in-class midterms will cover <i>new</i> reading and lecture material up to the date of the midterm. Format will mostly entail short-answer questions.	17.5%
Midterm 2		17.5%
Class Project	A project relating to cost allocations will be assigned. Depending on class size and skillsets, the project may be individual- or group-based.	20%
Final Exam	A closed book/note in-class final exam will be comprehensive but favor new materials. Format will mostly entail short-answer questions.	20%

Course Schedule

Week	Date	Module	Topic	Readings*
1	January 23	Introduction	Course Overview; Introduction	—
	January 25		Evolution of Transit; Modes of Transit; Role of Transit	Ch. 2-3 in Jones (1985)
2	January 30	Foundational Concepts	Equity; Efficiency; Travel Behavior	Taylor and Norton (2009); Ch. 3 in Ben-Akiva et al. (1985)
	February 1		Economics of Public Transit; Cost Models	Pels and Rietveld (2007)
3	February 6		Governance Structures; Localism v. Regionalism	Fischer et al. (2020); USFTA et al. (2002)
	February 8	Rider Demographics; Political Economy of Transit	Taylor and Morris (2015); Van Lierop and El-Geneidy (2016)	
4	February 13	Social and Land Use Influences	Land Use Impacts on Transit; Transit Impacts on Land Use; Transit-Oriented Development	Renne (2016); Rennert (2022)
	February 15		Access Planning; Station Area Planning	Ch. 1, 7-10 in National Research Council (2012)
5	February 20	Transit Operations	Paratransit; Taxi Policy and Regulation	Nguyen-Hoang and Yeung (2010); Schaller (2007)
	February 22	MIDTERM 1		
6	February 27	FEBRUARY BREAK		
	March 1	Transit Operations (cont.)	Spatial and Modal Organization; Operations Planning; Congestion Management	Guihaire and Hao (2008); Rivasplata et al. (2012)
March 6	Peak Service Costs; Labor Costs and Relations; Contracting		Anderson (2014); Sarriera et al. (2018)	
March 8	Subsidy Policy; Fare Policy; Disparate Impacts and Disproportionate Burdens		Cervero (1990); Serebrisky et al. (2009)	
8	March 13		Operational Financing	Hess and Lombardi (2005); Iseki (2016)
	March 15		Major Investment Studies; Alternatives Analysis; Core System Impacts	Babalik-Sutcliffe (2002); Pickrell (1992)
9	March 20	Capital Planning	Environmental Review <i>(Guest Lecture: George Frantz)</i>	Clinton, Executive Order No. 12898 (1994); Parts 1501-1505 of Council of Environmental Quality (2021)
	March 22		Regional Contexts of Planning; Geopolitics/Alignment Politics	Higgins and Kanaroglou (2016); Mallett (2017); Vartabedian (2022)
10	March 27		Capital Financing	Manville and Cummins (2015); Salon et al. (2019)
	March 29	MIDTERM 2		
11	April 3	SPRING BREAK		
	April 5	SPRING BREAK		
12	April 10	Elective Topics	Case Study: BART's Second Transbay Tube	Mallett (2014); Mallett (2015)
	April 12		Comparative International Topics of Urban Mass Transit	Rubensson et al. (2020); Yu et al. (2018)
13	April 17		Age, Gender, Family, and Transit	Fan et al. (2016); Hu (2021)

Week	Date	Module	Topic	Readings*
	April 19		Disruptive Technologies; COVID-19 Pandemic/Remote Work	Grahn et al. (2020); Qi et al. (2021)
14	April 24	Closing Lecture	Course Conclusion; Closing Dialogue	—
	April 28 (note day change)		Transit Agency Representatives	—
15	May 1		Student Projects	—
	May 3			—
16	May 8			—

* Readings are complimentary to lectures. Contents of readings do not define all content that will be covered on the given topic.

Grading Scale

Grade	Percent Range
A	[95%, 100%)
A-	[90%, 95%)
B+	[87%, 90%)
B	[84%, 87%)
B-	[80%, 84%)
C+	[77%, 80%)
C	[74%, 77%)
C-	[70%, 74%)
D+	[67%, 70%)
D	[64%, 67%)
D-	[60%, 64%)
F	[0%, 60%)

Academic Integrity

Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit will be the student's own work. For this course, collaboration is allowed when specified.

You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e-mail, an e-mail attachment file, a diskette, or a hard copy.

Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Code can also be extended to include failure of the course and University disciplinary action.

During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations may lead to failure of the course and University disciplinary action.

Accommodations for students with disabilities

In compliance with the Cornell University policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances, so arrangements can be made. Students are encouraged to register with Student Disability Services to verify their eligibility for appropriate accommodations.

Inclusivity Statement

We understand that our members represent a rich variety of backgrounds and perspectives. The Urban and Regional Studies program and the City and Regional Planning department are committed to providing an atmosphere for learning that respects diversity. While working together to build this community we ask all members to:

- Share their unique experiences, values, and beliefs;
- Be open to the views of others;
- Honor the uniqueness of their colleagues;
- Appreciate the opportunity that we have to learn from each other in this community;
- Value each other's opinions and communicate in a respectful manner;
- Keep confidential discussions that the community has of a personal (or professional) nature; and
- Use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the Cornell community.

Bibliography

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