

Course Number:	CE 596/696
Title:	Theories and Methods of Travel Behavior
Section:	008
CRN(s)	45680/45682
Credits	4
Prerequisite(s)	Graduate Standing or Permission
Days/Time	Tuesdays & Thursdays/ 14:00-15:50
Location	EB 315 (ITS Lab)
Final Exam Day/Time	Monday, March 19 (take home exam)

Course Website <http://kellyjclifton.com/>

Instructor	Kelly J Clifton, PhD
Office	EB 301E
Phone	503/725-2871
E-mail	kclifton@pdx.edu
Office Hours	Mondays at 1pm or by appointment
Mailbox Location	CEE Office, EB 200 Suite

Required Text or Other Materials: All readings will be provided on the course website, accessible from my website: <http://kellyjclifton.com>. The password is Theory.

Catalog Course Description:

This graduate course will cover the various theoretical perspectives on travel behavior and the methodological approaches used to analyze and understand behavior. Travel behavior includes the study of the set of transportation choices and outcomes, including: vehicle ownership, activity engagement and scheduling, mode choices, destination choices, and routing decisions. It is also closely aligned with other behaviors and choices such as where to live, work-life, overall lifestyle, and health. The field aims to understand the collective set of conditions and considerations that lead to these decisions, such as socio-demographics, economic conditions, the built and natural environment, attitudes, perceptions and cognition, experience and history and a wide range of other influences. As much of the theory and methods draw upon social science approaches to behavior and applied to transportation decisions, the study spans disciplines but has been primarily informed by theories from economics, psychology, sociology and geography and influenced by engineering and urban planning.

These various theoretical perspectives for understanding behavior will be used to reflect upon the specific data and analytical methods used in transportation planning practice. However, the course will not have intensive methodological focus – this is not a modeling class. Rather, it provides some background for understanding how methods evolved and where they might be headed.

Course Objectives

Students must demonstrate:

- Understanding of the various theories that intersect travel behavior

- Ability to identify how these theories are incorporated into planning research and practice
- Familiarity with the data and methods used to analyze travel behavior.

Learning Outcomes

After taking this course, students should be able to:

- Frame various transportation engineering and planning questions and policies in various theoretical frameworks from different disciplines,
- Understand the debates put forth in the extensive literature in the travel behavior field,
- Link various empirical data and methods to specific questions derived from theory,
- Develop a research question and write a term paper exploring this topic.

Course Requirements:

The relative weight of each of these aspects is the same for students taking the course as 596 or 696. However, PhD students taking the course as CE 696 will have extra requirements in their exams and final paper/projects. See below.

Class Participation (10%): Students are expected to actively engage in the class. This course is reading and discussion oriented. There is a lot of reading for this course and students should come prepared to discuss to questions provided in the reading guide for each module. Your participation grade also includes regular attendance, asking questions, providing examples and commentary, and contributing to the intellectual environment of the classroom. Just attending class is not enough to get full credit for participation.

Midterm and Final Exam (25% x 2 = 50%): These exams will test students' ability to apply the concepts and theories in class to transportation planning practice. These two exams will be take home and be typed responses, similar to long homework, and a mix of problems and short/long essay questions.

Research Paper (40%): In this paper, you will explore a topic of your choosing in depth, using a wide range of scholarly literature. Students may choose to do empirical work, analyzing data or applying a methodological approach to transportation and health; or, they may choose to examine the literature, making original arguments based upon the work of others. More detailed information about the final paper requirements (format, length, topics) will be provided.

PhD students are held to higher standards when grading their final papers and projects, in terms of length, quality and sophistication of ideas and analysis presented. Specifically, PhD students must include a review of the literature in their report and frame the project in terms of current engineering and planning policy debates. This should result in an increased paper length of approximately 5 pages.

Your final project or paper for the term should focus on a narrowly defined topic with a well-thought out research question or survey methodology that you wish to investigate related to travel behavior. The form of the finished project is up to you: students may choose a more traditional term paper or project but innovative projects, such as computer programs, websites, survey designs, applications, etc, are also welcome but must be pre-approved.

Here are some guidelines that everyone must follow:

- The paper or project must be written in a consistent and readable font (≥ 11 pt) with 1.5 line spacing.
- There is no maximum page length requirement. However, the substance of the paper must reflect the weight of a term project. In general, the recommended length of the final papers/project reports should be around 10 pages for CE 596 students and 15-pages for those students registered for CE 696, not including citations or tables/graphics. Papers prepared for the Annual Meeting of the Transportation Research Board serve as good examples for the length of a term paper for PhD students.

- Please number your pages.
- All secondary sources must be properly referenced in the text and cited in a footnote, endnote or bibliography. The format of the citation is up to you but it must be consistent throughout the paper. Scholarly articles and books must comprise the majority of literature cited in your paper/project. Other sources such as magazines, reports, newspaper articles and webpage content are allowed but should be minimized.
- Plagiarism will not be tolerated. If you have questions about the appropriate methods of citing others work, please consult with me or a writing reference. **Any plagiarized work will be given an F for the final project.**
- I intend to grade based upon the relevance of your research question, robustness of your ideas, and the thoroughness of your research. It is difficult to separate these criteria from the presentation of your work, in terms of the quality of writing, graphics and other techniques used to communicate your points. While this is not an English course, I do have high expectations and your grade will include an assessment of your writing. That said, I do understand that for many of you English is not your first language and take that into consideration in my assessment.
- **Please print out a copy of your paper/project and turn it into the CEE Office and email an electronic version of your paper to kclifton@pdx.edu with Travel Behavior Final Paper in the subject line.**

Grading

The final grade will be assigned as follows:

90 to 100%	A
80 – 89	B
70-79	C
60-69	D
<60	F

	Date	Topic	Goals	Required Reading/Activity
1	9-Jan	Introduction	No class - TRB Conference: Review syllabus, Read assigned readings - prepare discussion for class on 1/16/2017, What is travel behavior? How does it relate to current issues in transportation? What are models for?	Syllabus; Pendyala and Bhat 2004; Heggie 1979
	11-Jan	Introduction	No class - TRB Conference, Read assigned readings - prepare discussion for class on 1/16/2017, Transportation 4-step model; what is a theory?	Beimborn & Kennedy 1996; Ryn and Heanie 1992
2	16-Jan	Introduction	Introductions. Course motivations & goals. Review syllabus. Discussion questions above.	
	18-Jan	Social Physics	Premise behind big data/social physics; what is a good model?	Bell 1997; Barnes & Wilson 2014
3	23-Jan	Social Physics	The gravity model - history, applications, critique	
	25-Jan	Economics	Disaggregate approach, rational decision making, RUM/choice models, travel as a disutility/cost.	Dominich and McFadden 1975; Ben-Akiva & Lerman, 1985: Chapter 3; Talvitie 1997
4	30-Jan	Economics	Disaggregate approach, rational decision making, RUM/choice models, travel as a disutility/cost.	
	1-Feb	Geography	Time and space constraints, accessibility, time-geography	Hägerstrand 1970; Neutens, Schwanen, & Witlox 2011
5	6-Feb	Geography	Activity-based approach to travel analysis.	McNally & Rindt 2008; Pas 1985
	8-Feb	Planning	Built environment and travel	Midterm. Crane 2000; Ewing and Cervero 2010

6	13-Feb	Planning	Self-selection issue	Cao et al. 2009
	15-Feb	Psychology	Theory of human motivation, theory of reasoned action, theory of planned behavior; attitudes, intentions/motivations	Maslow 1943; Montaña & Kasprzyk 2008
7	20-Feb	Psychology	Habits, socio-ecological model, positive utility of travel	Garling and Axhausen 2003; Alfonzo 2005; Russell and Mokhtarian 2015
	22-Feb	Urban design	Physical dimensions; sensory qualities; experience	Whyte 1979 (film); Mehta 2008
8	27-Feb	No class	Work on project	-none- (work on project)
	1-Mar	Urban design	Environmental and experiential qualities	Ewing & Handy 2009; Forsyth & Krizek 2011
9	6-Mar	Health	Behavioral change, socio-ecological model	Prochaska 2008; Sallis et al. 2008
	8-Mar	Conclusion	Discuss students will discuss their project/paper ideas with the class	
10	13-Mar	Conclusion	Present and discuss comprehensive theories of travel behavior. Recap the class. Discuss lessons learned.	
	15-Mar	Conclusion	Present and discuss comprehensive theories of travel behavior. Recap the class. Discuss lessons learned.	
	19-Mar	Final exam date	Paper/project due	

Readings:

Introduction

1. Pendyala, R.M., and C.R. Bhat (2004), "Emerging Issues in Travel Behavior Analysis," Resource paper for workshop on Emerging Issues, National Household Travel Survey Conference, Washington, D.C., November.
2. Heggie, I. (1978) "Putting Behaviour in Behaviour Models of Travel Choice", *Journal of the Operational Research Society*, 29(6): 541–550.
3. Beimborn, E., & Kennedy, R. (1996). Inside the blackbox: Making transportation models work for livable communities. Citizens for a Better Environment and The Environmental Defense Fund.
4. Van Ryn, M and Heaney, C (1992) "What is the Use of Theory?" *Health Education Quarterly*, 19(3):315-330.

Social Physics

1. Bell (1997) "Comment on Talvitie's paper", *Transportation* 24: 33–42, 1997.
2. Barnes and Wilson (2014) Big Data, social physics, and spatial analysis: The early years, *Big Data & Society*, April–June: 1–14.

Economics

1. Domencich, T. A., & McFadden, D. (1975). Chapter 1: Introduction, in *Urban travel demand: A behavioral analysis*. New York, NY: American Elsevier Publishing Company, Inc.
2. Ben-Akiva, M., & Lerman, S. R. (1985). Chapter 3, in *Discrete choice analysis: Theory and application to travel demand*. Cambridge, MA: The MIT Press.
3. Talvitie, A. (1997) "Things planners believe in, and things they deny", *Transportation*

Geography

1. Hägerstrand, T. (1970). What about people in regional science? *Papers in Regional Science*, 24(1), 6–21.
2. Neutens, T., Schwanen, T., & Witlox, F. (2011). The prism of everyday life: towards a new research agenda for time geography. *Transport Reviews*, 31(1), 25–47.
3. McNally, M. G., & Rindt, C. R. (2008). The activity-based approach. In D. A. Hensher & K. J. Button (Eds.), *Handbook of transport modelling (2nd ed.)*. Bingley, UK: Emerald, Inc.
4. Pas, E. I. (1985). State of the art and research opportunities in travel demand: Another perspective. *Transportation Research Part A: General*, 19(5), 460–464.

Planning

1. Crane, R (2000) The influence of urban form on travel: an interpretive review, *Journal of Planning Literature*, Vol. 15 (1): 3-23.
2. Ewing, R., & Cervero, R. (2010). Travel and the built environment: A meta-analysis. *Journal of the American Planning Association*, 76(3), 265–294.
3. Cao, X., Mokhtarian, P. L., & Handy, S. L. (2009). Examining the impacts of residential self-selection on travel behaviour: A focus on empirical findings. *Transport Reviews*, 29(3), 359–395.

Psychology

1. Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396.
2. Montaña, D. E., & Kasprzyk, D. (2008). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In K. Glanz, B. K. Rimer, & K. Vizwanath (Eds.), *Health behavior and health education: Theory research, and practice (4th ed.)* (pp. 67–96). San Francisco, CA: John Wiley & Sons, Inc.
3. Gärling, T. and Axhausen, K. (2003) “Introduction: Habitual travel choice”, *Transportation* 30: 1–11.
4. Alfonzo, M., 2005. To walk or not to walk? The hierarchy of walking needs. *Environment and Behavior*, 37, 808–836.
5. Russell, M and Mokhtarian, P. 2015 How real is a reported desire to travel for its own sake? Exploring the ‘teleportation’ concept in travel behaviour research, *Transportation* (2015) 42:333–345.

Design

1. William H. Whyte. 1979. “The social life of small urban spaces” (film), Municipal Art Society of New York, New York, NY. Access online: <https://archive.org/details/thesociallifeofsmallurbanspaces#>
2. Vikas Mehta (2008) Walkable streets: pedestrian behavior, perceptions and attitudes, *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 1:3, 217-245.
3. Ewing, R., & Handy, S. (2009). Measuring the unmeasurable: Urban design qualities related to walkability. *Journal of Urban Design*, 14(1), 65–84.
4. Forsyth, A., & Krizek, K. (2011). Urban design: Is there a distinctive view from the bicycle? *Journal of Urban Design*, 16(4), 531–549.

Health

1. Sallis, J; Neville, O; and Ficher, E. 2008. Ch. 20 Ecological models of health behavior, in *Health Behavior and Health Education: Theory, Research and Practice* 4th edition (Eds Glanz, Rimer, and Viswanath), John Wiley and Sons.
2. Prochaska, J. O. 2008. Decision Making in the Transtheoretical Model of Behavior Change, *Med Decision Making* 28: 845-851.

Conclusion

1. Peter Jones. 2009. “The Role of an Evolving Paradigm in Shaping International Transport Research and Policy Agendas over the last 50 Years”, keynote address, International Association of Travel Behavior Research, Jaipur, Rajasthan, India, December 13-18. Available online at: https://iatbr2009.asu.edu/ocs/custom/resource/Keynote_Jones.pdf

Computer and E-mail Accounts

- If you haven't done so already, please go to the CadLab located in EB 325 to activate your engineering account. If you need help in using this account, please see the attendant or send an e-mail to support@cecs.pdx.edu
- If you choose not to check your CECS e-mail account regularly (yourname@cecs.pdx.edu) then please forward it to an e-mail account that you do check. Important information and announcements are delivered via this e-mail address.

Code of Conduct

The PSU Student Conduct Code prohibits all forms of academic cheating, fraud, and dishonesty. Further details can be found in the PSU Bulletin. Allegations of academic dishonesty may be addressed by the instructor, and/or may be referred to the Office of Student Affairs for action. Acts of academic dishonesty may result in a failing grade on the exam or assignment for which the dishonesty occurred, disciplinary probation, suspension or dismissal from the University. The students and the instructor will work together to establish optimal conditions for honorable academic work. Questions about academic honesty may be directed to the Office of Student Affairs: <http://www.ess.pdx.edu/osa/>.

Classroom Rules and Behavior Expectations

The classroom is a professional space and professional conduct is expected. Please silence your cell phone and refrain from text messaging during class and exam times. Treat your fellow students and the instructor with respect and please use appropriate language at all times. Additional rules may be added at the instructor's discretion.

Ethics and Professionalism

As future professional engineers you should plan to take the FE Exam (see the Oregon State Board of Examiners for Engineering and Land Surveying at www.osbeels.org), and you should be familiar with the ASCE Code of Ethics (www.asce.org/inside/codeofethics.cfm), which includes the following:

Engineers shall act in such a manner as to uphold and enhance the honor, integrity and dignity of the engineering profession.

Campus Resources

As a PSU student, you have numerous resources at your disposal. Please take advantage of them while you are here. A small sample is listed below:

- CEE Website: <http://www.cce.pdx.edu>
- Career Center: <http://www.career.pdx.edu/>
- Center for Student Health & Counseling: <http://www.shac.pdx.edu/>
- The Writing Center: <http://www.writingcenter.pdx.edu/>
- PSU Disability Resource Center: 435 SMU - The PSU Disability Resource Center is available to help students with academic accommodations. If you are a student who has need for test-taking, note-taking or other assistance, please visit the DRC and notify the instructor at the beginning of the term.

Participation in student and professional groups can be a valuable part of your education experience. Membership gives students opportunities to get to know fellow students better, meet and network with professionals, collaborate in solving real engineering problems, learn about internship or job possibilities, socialize and have fun. Consider becoming active with a student organization, such as the following:

- American Society of Civil Engineers Student Group (ASCE): <http://www.asce.pdx.edu>
- Institute of Transportation Engineers Student Chapter (ITE): <http://www.its.pdx.edu/ite/>

Most professional organizations have monthly meetings and encourage student participation by providing discounts for lunch and dinner meetings. These meetings provide opportunities to network with potential future employers, learn about scholarships, and increase your technical knowledge. Take a look at these organizations as a starting point:

- American Society of Civil Engineers (ASCE) Oregon Section: www.asceor.org
- Institute of Transportation Engineers (ITE) Oregon Section: www.oregonite.org
- Society of Women Engineers (SWE) Columbia River Section - <http://www.swe-columbia-river.org>
- Structural Engineers Association of Oregon (SEAO): www.seao.org

Library and Literature Research

With the advent of the Internet it is very tempting to think that all necessary resources for a term project will be available in full text after typing in a few words at Google.com. This is not the case. You will often need to go to the library, use real library search tools and access real books and articles contained in refereed/archival journals.

Be sure to make use of the Vikat library catalog accessed via the PSU library home page at <http://www.lib.pdx.edu/>. Also available on the library home page are Full Text Electronic Journals and a list of on-line Databases. Databases to try are EI Compendex (<http://www.ei.org/ev2/ev2.home>) and Lexis-Nexis. Note that access to these databases is free for PSU students, but you must be using a computer on campus or via a dial-in service. See <http://www.lib.pdx.edu/services/distance/proxyserver.html> for instructions on how to gain off-campus access using a proxy server.

Campus Safety

The University considers student safety paramount. The Campus Public Safety Office is open 24 hours a day to assist with personal safety, crime prevention and security escort services. Call 503-725-4407 for more information.

For Campus emergencies call 503-725-4404.