

CE 4311/5337
Fall 2017

Instructor: Dr. Kyung Kate Hyun

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Office Hours: Tuesdays and Thursdays, 11am-12pm or by appointment

Time and Place of Class Meetings: Tuesdays and Thursdays, 9:30 – 10:50 am, GS 104

Teaching Assistant: Sina Famili (sina.famili@mavs.uta.edu),
Office Hours: Tuesday and Thursday, 12:15pm – 1:45pm (NH B24)

Description of Course Content:

Engineers in the transportation field and urban planners require the skills used in transportation planning to effectively understand the transportation system and urban form. Effective transportation planning requires the understanding of existing techniques and a thorough understanding of their limitations.

Student Learning Outcomes:

1. Develop transportation system planning concepts
2. Introduce students to the use of TransCAD
3. Improve transportation planning and modeling skills
4. Create an understanding of the planning process
5. Introduce methods for modeling of transportation data sources
6. Identify practical applications for the planning process
7. Improve writing and presentation skills

Required Textbooks and Other Course Materials:

(Required) Modeling Transport, Ortúzar and Willumsen, 4th Edition

(Other relevant texts) Transportation Demand Analysis, Kanafani; Statistical, econometric methods for transportation data analysis, Karlaftis and Mannering; and Fundamentals of Transportation Engineering: A Multimodal Systems Approach, Fricker and Whitford

Descriptions of major assignments and examinations:

Quizzes 2%
Homework 8%
Mid-Term 20%
Final 30%
Data Project Part I 5%
Data Project Part II 10%
TransCAD Project 20%
Presentation 5%

Software: TransCAD and Microsoft EXCEL or R (Graduate students only)

CE 4311/5337 Schedule

Date	Topic	Text	Quiz / Assignment Due
Aug 24	Introduction, Supply and Demand	Chapter 1	
Aug 29	Transportation Planning Process	Chapter 1	
Aug 31	Data Collection and sampling	Chapter 3	
Sep 5	Survey and Zoning system	Chapter 3	Homework #1 due
Sep 7	Data analysis	Chapter 3	Quiz #1
Sep 12	No Class – Conference		
Sep 14	Lab 1: Introduction to TransCAD I		Homework #2 due
Sep 19	Lab 2: Introduction to TransCAD II		
Sep 21	Trip Generation: General and Regression	Chapter 4	Data project part 1 due
Sep 26	Trip Generation: Cross Classification	Chapter 4	Homework #3 due
Sep 28	Trip Distribution: Growth factor and Gravity	Chapter 5	Quiz #2
Oct 3	Lab 3: Trip Generation		
Oct 5	Lab 4: Trip Distribution		
Oct 10	Calibration and Issues & Review for Midterm	Chapter 5	Data project part 2 proposal due
Oct 12	Modal Split	Chapter 6	Quiz #3
Oct 17	Modal Split (Cont.)	Chapter 6	Homework #4 due
Oct 19	Midterm		
Oct 24	Lab 5: Modal Split		
Oct 26	Discrete Choice models	Chapter 7	
Oct 31	Discrete Choice Models: Multinomial Logit	Chapter 7	Quiz #4
Nov 3	Assignment: All or Nothing	Chapter 10	Homework #5 due
Nov 7	Assignments (Cont.)	Chapter 10	Data project part 2 final report due
Nov 9	Lab 6: Assignment		
Nov 14	Equilibrium methods	Chapter 11	Quiz #5
Nov 16	Lab 7: Putting it together		Homework #6 due
Nov 21	Lab 8: Analyzing Problems and Review for Presentation		
Nov 23	No Class - Thanksgiving		
Nov 28	Other topics – Activity based models	Chapter 13	Homework #7 due
Nov 30	Presentation I		
Dec 5	Presentation II and Review for Final		TransCAD Project Due

IMPORTANT SCHEDULE NOTE: *As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.*

TransCAD Labs

The class will have eight TransCAD labs in place of a lecture. These labs will teach the basics for TransCAD's use and its application to the project.

Homework

The homework should be submitted before the class hour on the day that it is due. I need the homework turned in by this date so that the TA can return the solutions to you within a week. If you are unable to attend class, please submit your homework via e-mail before the class. If the homework is not submitted the maximum score will degrade in the following manner:

- If the homework is submitted after the class hour on the day that it is due – 10% of total score will be deducted
- If the homework is submitted after the due date – 30% of total score will be deducted every day

Mid-term and Final (closed book)

The midterm will last one and a half hours, and the final will be two hours.

While each test will focus on a specific section, any of the course objectives that have been covered to that point may be addressed. All of the problem solving will be closed book.

Missed Exams

If an exam is to be missed, I should be contacted immediately. If I do not hear from you on or before the test day, and you do not have an adequate medical/family emergency (hospitalization/doctor's note/death certificate), you will receive a zero on the exam.

Data Project

This project consists of two parts.

Part I - Literature review

This part should be performed individually. A total of five-page literature review should be written describing a summary of three papers below (use google scholar to search the paper):

- Pucher, J. and Renne, J.L., 2003. Socioeconomics of urban travel: evidence from the 2001 NHTS. *Transportation Quarterly*, 57(3), pp.49-77.
- Santos, A., McGuckin, N., Nakamoto, H.Y., Gray, D. and Liss, S., 2011. Summary of travel trends: 2009 national household travel survey (No. FHWA-PL-II-022).
- Collia, D.V., Sharp, J. and Giesbrecht, L., 2003. The 2001 national household travel survey: A look into the travel patterns of older Americans. *Journal of safety research*, 34(4), pp.461-470.

Part II - Sampling design and data analysis

This second part a student group (typically 2-3 students) will design and implement a data analysis strategy.

Any publicly available data sources could be used; however, it is recommended to use National Household Travel Survey (NHTS) or Vehicle Inventory and Use Survey (VIUS):

NHTS Database - <http://nhts.ornl.gov/download.shtml>

VIUS Database - <https://www.census.gov/svsd/www/vius/products.html>

Guidance will not be provided on the topic; however, potential research topics may include:

- Transportation mode choice analysis
- Travel trends
- Traffic safety
- Public health related topic
- Rural and urban trips
- Freight analysis
- and so on

- A. One-page proposal should be written describing a transportation planning strategy. The proposal should identify the research question and motivation, sampling strategy and proposed methodology.
- B. This project should be at least 7-page paper that includes the analysis of transportation data using the sampling techniques covered in the class. It should include a brief motivation for the problem studied, a brief description of the data, a brief presentation of the methodology, a description of the results and a short conclusion. For your analysis, you may use Excel (for undergrads only) or R.

Presentation

The findings from the Data Project and TransCAD project will be presented at the end of the course in a 12-15 minute presentation. The Data Project presentation should cover the research problem, methodology, data analysis and results while the TransCAD presentation should focus on the original solution proposed by your group. The presentations will be graded on content, clarity, and timeliness.

TransCAD Project

For the project, a student group (2-3 students) will develop a transportation-planning model using TransCAD. The modeling process and the subsequent recommendations for the future conditions must be presented. Details on the project will be distributed during the first two labs.

Project Grading Criteria

- Organization 15%
- Clarity 15%
- Content 30%
- Solution originality 10%
- Difficulty 10%
- Content 20%

Trans CAD is installed in NH 239. Graduate students should not use the lab when it is reserved for other classes. Violations of this policy may result in further restrictions to your access to NH 239.

To gain entrance, students will need their ID card and 5-digit PIN number, which can be obtained by going to this site:

<https://www.uta.edu/oit/verifynetid>

The PIN number is unique to each student & is assigned by the university, not the department.

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I allow students to attend class at their own discretion; however, there will be a few unannounced quizzes held during class throughout the semester. Or, quiz schedules could be changed without notice to the students.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.*

Title IX Policy: The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.*

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located through the two doors at the front and back of the room. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](#), [major-based learning centers](#), developmental education, [advising and mentoring](#), personal counseling, and [federally funded programs](#). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

University Tutorial & Supplemental Instruction (Ransom Hall 205): UTSI offers a variety of academic support services for undergraduate students, including: 60 minute one-on-one tutoring sessions, Start Strong Freshman tutoring program, and Supplemental Instruction. Office hours are Monday-Friday 8:00am-5:00pm. For more information visit www.uta.edu/utsi or call 817-272-2617.

The IDEAS Center (2nd Floor of Central Library) offers FREE tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The English Writing Center (411LIBR): [Optional.] The Writing Center offers FREE tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at <https://uta.mywconline.com>. Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information on all our programs and services.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. <http://library.uta.edu/academic-plaza>

Librarian to Contact: Martin Wallace, martin.wallace@uta.edu, 817-272-3924, Office Hours

<p>Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. Non-emergency number 817-272-3381</p>
