

## CE 469/569 Travel Demand Modeling (Fall 2018)

The University of Arizona

Meeting: Monday 5:00-7:45 PM

In class: CE206 Large Conference Room

Live Online: <https://zoom.us/j/808511300>

Office Hours: By appointment @ [www.doodle.com/calmag](http://www.doodle.com/calmag)

Course website: see UA D2L

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### Description of Course

This course contains detailed investigation of methods to urban travel demand analysis. The course learning activities cover basic concept, methodologies, models and formulas, data collection and analysis, model development, and forecasting applications.

### Course Prerequisites or Co-requisites

Undergraduate students should have completed CE363 or similar course. Students need to feel comfortable about calculus, using MS Excel or some basic programming languages such as Matlab, C, or python (preferred for graduate students). MS Word, and basic statistical analysis techniques.

### Course Objectives and Expected Learning Outcomes

The objective of this course is to familiarize students with concept and advanced techniques in modeling and solving common problems arising in both demand and supply areas of urban transportation systems. This course focuses on the processes involved in the urban transportation planning, and the practice of modeling service, performance and design of transportation systems, and the use of quantitative techniques in operations research and statistics for solving such problems.

- To familiarize students with concepts, theories, and practices of urban transportation systems as related to the planning, design, and operations of the transportation system, from a system perspective.
- To familiarize students with advanced techniques in modeling problems related to transportation systems planning and operation.
- To introduce advanced methodologies for analyzing and solving transportation system related problems.
- To provide a forum for exchanging ideas and thoughts regarding issues related to transportation systems analysis and design.

### Absence and Class Participation Policy

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: <https://deanofstudents.arizona.edu/absences>

### Required Texts or Readings

All the readings are listed in D2L.

### Zoom Session, No-class Days and Make-up Sessions

This course is to be designed to be a hybrid in-class/online format. About ½ of the sessions are conducted live via the zoom platform. Please check the D2L calendar for the online session. Make-up sessions will be scheduled using the Zoom platform at the instructor's discretion. If it is to take place, date and time will be announced.

Sept 3	Labor Day. No live session. Video recording will be released as the substitute
Nov 12	Veterans Day. No live session. Video recording will be released as the substitute

### Assignments and Examinations: Schedule/Due Dates

- Several homework assignments will be given throughout the semester.
- Homework is due at the beginning of the class on the day it is due. Late homework will not be accepted unless advanced approval is granted by the instructor.
- Appeal of homework grade needs to be submitted to the professor through the D2L e-mail within **one week after posting of homework grade**. No appeal would be accepted if the appeal is delivered verbally or if the appeal passes the due date. It is the student's responsibility to regularly check the posting of grades.
- Discussing with peer classmates is encouraged. However, **each student needs to produce his/her own solutions**. Copying another person's work, without attribution, including copying of any part or the whole of computer files or material from the Internet, is considered plagiarism. It will be prosecuted as a violation of the University of Arizona Student Code of Conduct, in accordance with the Code of Academic Integrity. This code is published on-line [here](#). It is the student's responsibility to be familiar with these Codes.
- For group homework assignments, each group needs to elect **a group leader for each assignment**. Only the group leader needs to submit the group homework. For each homework assignment, the group leader needs to submit a one-paragraph journal summarizing the participation of each group member. To recognize the group leader's extra work, the group leader receives additional 5% points for each group assignment.
- The instructor reserves the right to choose which homework assignment to grade. In other words, **not all homework assignments will necessarily be graded and the choice of graded homework is at the instructor's discretion**. The instructor won't announce which assignment will be graded; however, solutions will be posted soon after the due date.
- Only the graded homework assignments are to be included in the final grade calculation.

### Final Examination or Project

One 2-hour mid-term exams will be given during the semester. The exam will take place in the evening hours. Makeup exams are not usually given except unexpected special extenuating circumstances. However, for a legitimate schedule conflict and with the instructor's approval, a student may be able to take the exam at a different time. Scaling of exam grade may be permitted for the entire class. However, no scaling will be performed for the final grade calculation. Graduate students may be given additional questions at the exam. If this occurs, the total points will be scaled to the same as those for the undergraduate students after adding the additional questions.

The date and time of the final exam or project, along with links to the Final Exam Regulations, <https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information>, and Final Exam Schedule, <http://www.registrar.arizona.edu/schedules/finals.htm>

### Grading Scale and Policies

Specify the grade distribution for the course. University policy regarding grades and grading systems is available at <http://catalog.arizona.edu/policy/grades-and-grading-system>

Different grading policies apply to undergraduate and graduate students as follows.

	<b>Undergraduate</b>	<b>Graduate</b>
Homework	30%	30%
Quiz	10%	10%
Mid-term Exam	30%	20%
Final Exam	30%	20%
Term Project Report	--	20%

This course will be graded on a straight scale with the following grade thresholds. The instructor reserves the right to make final adjustments.

Total percentage of points earned	Final Grade
90 -100 %	A
80 – 89.9 %	B
70 – 79.9 %	C
60 – 69.9 %	D
< 60%	F

**Requests for incomplete (I) or withdrawal (W)** must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

### Scheduled Topics/Activities

The course outlines are summarized as follows. Slight deviation may be likely per the student learning progress in the semester.

	Description
Module 1	Introduction of urban transportation system - theory and practice from a system Perspective
Module 2	Concepts and principles of transportation system analysis and design
Module 3	Urban Transportation Planning – Overview of demand and supply analysis
Module 4	Urban Transportation Planning (Demand) – Trip Generation
Module 5	Urban Transportation Planning (Demand) – Trip Distribution
Module 6	Urban Transportation Planning (Demand) – Modal Split
Module 7	Urban Transportation Planning (Supply) – Traffic Assignment
Module 8	Linking Operations and Planning

### Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where

we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

### **Threatening Behavior Policy**

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

### **Accessibility and Accommodations**

Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit <http://drc.arizona.edu>.

If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

### **Code of Academic Integrity**

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

University Libraries have some excellent tips for avoiding plagiarism, available at <http://www.library.arizona.edu/help/tutorials/plagiarism/index.html>.

*Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent.* Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

### **UA Nondiscrimination and Anti-harassment Policy**

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

### **Additional Resources for Students**

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

Student Assistance and Advocacy information is available at <http://deanofstudents.arizona.edu/student->

[assistance/students/student-assistance](#)

### **Confidentiality of Student Records**

<http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa>

### **Subject to Change Statement**

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.