

DEPARTMENT OF CIVIL ENGINEERING
UNIVERSITY OF ARKANSAS
COURSE SYLLABUS: **Transportation Modeling (CVEG 5463)**

Meeting Time: Monday, Wednesday, and Friday, 12:55 PM– 1:45 PM

Location: Bell Engineering Center 2291

Instructor: Sarah Hernandez, PhD, PE
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(Lab) 239 Cato Springs Research Center
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Open door policy for office hours (Bell M, W, F and Cato T, TH)

Course Description: This course covers the theoretical foundations of transportation planning methods. This course will cover the theory and application of aggregate and disaggregate models for trip generation, trip distribution, mode choice, and trip assignment. The focus of the course will be on passenger-based travel demand models but will also introduce state of the art models including activity based models as well as freight forecasting models. Students will be introduced to transportation planning software through self-guided lab tutorials.

Course Objectives: By the end of this course students should be able to...

1. Recognize the role of travel demand modeling in transportation planning.
2. Identify and evaluate current and anticipated transportation network problems based on travel demand and network performance.
3. Estimate, validate, and apply models for trip generation, trip distribution, mode choice, and trip assignment.
4. Develop and compare alternative scenarios for transportation system improvements.
5. Contrast traditional and state-of-the-art models used for passenger travel demand forecasting.
6. Describe freight forecasting models used in practice.
7. Use transportation planning software to apply models for trip generation, trip distribution, mode choice, and trip assignment.

Materials:

Handouts: By email

Textbook: Ortuzar & Willumsen (2011). Modeling Transport (4th) Wiley
(ISBN 978-0-470-76039-0), older versions okay

Computing: TransCAD Transportation Planning Software (Caliper Corporation) will be provided in the CVEG graduate computer labs; arrangements will be made for

dedicated class meetings in the computer labs; Software manuals will be provided by email

Student Evaluation: The following weighting scheme will be applied:

- *Homework (20%)*- Eight assignments as shown on course schedule; due at start of class; neatly hand written or typed; no late work accepted
- *Presentation and Report (30%)*- Students will create a travel demand model in TransCAD for a small fictional city and assess the impacts of a proposed transportation demand or infrastructure solution. Requirements for a written report and an in-class presentation will be provided later in the semester.
- *Midterm Exam (20%)*
- *Final Exam (30%)*

Academic Integrity and Emergency Procedures:

Each University of Arkansas student is required to be familiar with and abide by the University's 'Academic Integrity Policy' which may be found at <http://provost.uark.edu/>. Students with questions about how these policies apply to a particular course or assignment should immediately contact me.

In addition, many types of emergencies can occur on campus. Instructions for specific emergencies such as severe weather, active shooter, or fire can be found at <http://emergency.uark.edu/>.

Tentative Course Schedule (*see attached*)