

**CME 302 – Introduction to Transportation Engineering
Fall, 2006**

Call Number:22663/22664 **Time and Day:** 5-6:15pm M W **Classroom:** 1023 ERF

Instructor: Professor Jane Lin, ERF 2089; janelin@uic.edu; 996-3068, **Ohs:** MW 4-5pm

Teaching Assistant: Minyan Ruan, mruan2@uic.edu; **Ohs:** TR 2-3pm, 3071 ERF

Textbook: Mannering, Klareski, and Washburn, *Principles of Highway Engineering and Traffic Analysis*, 3rd Edition, Wiley, 2004

Objectives:

1. Provide a broad overview of the role of transportation in the economy and in society;
2. Introduce highway traffic theories and transportation planning principles for solving transportation problems.

What will students gain from this class?

1. Gain an understanding of the contributions of engineering, and especially civil engineering, to intermodal transportation systems;
2. Become articulate in the terminology and principles of the transportation field;
3. Become familiar with basic computer tools used in transportation analysis

Prerequisites by topic: basic computer skills, familiar with EXCEL spreadsheet.

Topics: Fundamentals of traffic engineering, operation and transportation demand and planning.

- System Issues and Challenges (Ch 1)
- Traffic Flow Basics (Ch 5)
- Traffic Queueing Basics (Ch 5)
- Capacity and Level of Service (Ch 6)
- Intersection Analysis (Ch 7)
- Transit Operations*
- Demand Analysis (Ch 8)
- Environmental Impacts*

*These two topics are not covered in the textbook. The topics will be introduced through (guest) lectures, computer lab exercises and a field trip.

Course Points: homework (20%), field trips (5%) and computer labs (10%), class project (15%), midterm examination (20%), and final examination (30%)

Homework assignment: a total of six assignments. Due dates will be posted when HW is assigned. No late submission is allowed.

Class project: an accuracy study of urban bus automatic passenger count (APC)/automatic vehicle location (AVL) data collection involving the use of class materials, understanding of intelligent transportation technology, computer software, and your creativity. Details will be discussed in class.

Computer usage: Highway capacity and traffic analysis software (HCS2000), and transportation planning software (TransCAD). A total of five labs scheduled. Lab reports are mandated. The format of the lab report will be explained during the lab. The lab session will take place at the regular lecture time (MW 5-6:15) at the CME computer lab (1264 SEL). If you have never used the computers there before, please acquire userID and password from Kassem Saad at 1258 SEL, 6-3291, ksaad@uic.edu. You need to see him in person.

Field trip: IDOT traffic systems control center at Oak Park and possibly a second one to the Illinois Tollway Open Road Tolling Conversion Construction site. Schedule to be announced before the trip.

Guest lecture: Three guest lectures are scheduled. Guest speakers are from the Chicago Transit Authority (CTA) and the Illinois State Toll Highway Authority (ISTHA).

Blackboard website: a Blackboard website (<https://blackboard.uic.edu/>) has been set up for the course. Lecture notes and other class materials will be available before noon of the lecture day. To log in, use your UIC netid and password.

Week	Date	Topic
1	8/28 8/30	Introduction, system issues and challenges (Ch 1) Traffic stream parameters and basic models (Ch 5.1-5.3), HW#1
2	9/4 9/6	No class, Labor Day Traffic flow models, (Ch 5.3)
3	9/11 9/13	Poisson distribution/Model (Ch 5.4), HW#2 Traffic Queueing I (Ch 5.5)
4	9/18 9/20	Traffic Queueing II (Ch 5.5), HW#3 Capacity and Level of Service (Ch 6.1-6.4)
5	9/25 9/27	Computer lab I: HCS2000 (Freeway LOS), lab report 1 <u>Field trip</u> : IDOT Traffic System Center
6	10/2 10/4	Capacity and Level of Service (Ch 6.5-6.7), HW#4 Computer lab II: HCS2000 (Multilane and Two-lane Hwy), lab report 2
7	10/9 10/11	Review for midterm examination Midterm
8	10/16 10/18	Intersection Analysis (Ch 7.1-7.3), HW#5 Computer lab III: HCS2000 (Intersection LOS analysis), lab report 3
9	10/23 10/25	Intersection Analysis (Ch 7.4-7.6) Computer lab IV: HCS2000 (Signal design), lab report 4
10	10/30, 11/1	Demand Analysis (Ch 8), HW#6
11	11/6 11/8	Transit Operation (Mike Haynes, CTA) Discussion of class project: Bus APC accuracy study
12	11/13 11/15	Class project: APC accuracy study field data collection Class project: data entry and analysis (class meets in CME computer lab)
13	11/20 11/22	Environmental Impact Assessment (Rocco Zuccherro, Tollway) No class. Class project due this week
14	11/27 11/29	Computer lab V: TransCAD lab report 5 Review for final examination
15	12/4 12/6	Tollway Automated Signage Design Demo (Tollway) Final exam