

CE 5330 - Characteristics of Traffic
Spring 2010
Room NH 203
MW 5:30 to 7 pm

Instructor:

Jim Williams
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Office Hours:

Monday: 1:30 to 3:30 pm
Tuesday & Thursday: 1:30 to 6 pm
Wednesday: 1:30 to 3 pm, 4 to 5 pm

Course Description:

The fundamental elements of traffic—the driver, the vehicle, and the roadway—are considered and then extended into studies of streams of traffic flow. Techniques of conducting traffic engineering studies, including methods of measuring speed, volume, and density, are covered along with methods for the determination of capacity on freeways and rural highways (uninterrupted flow facilities). Parking and accident studies are also included.

Pre-requisite: CE 3302; and CE 3301 (or concurrent enrollment in CE 3301).

Student Learning Outcomes:

- ▶ To command basic and applied knowledge of transportation engineering.
- ▶ To demonstrate the mastery of the theory and application of traffic engineering techniques beyond the fundamental knowledge gained in the basic transportation engineering course.
- ▶ To have the ability to critique and synthesize literature in the field, and to assess, interpret, and understand data.
- ▶ To be able to communicate engineering solutions in a written format.

Texts: R.P. Roess, E.S. Prassas, and W.R. McShane, *Traffic Engineering*, 3rd edition, Pearson Prentice Hall, 2004.
W.H. Kraft, editor, *Traffic Engineering Handbook*, 6th edition, Institute of Transportation Engineers, 2009.
Highway Capacity Manual, 2000 edition, Transportation Research Board.
H.D. Robertson, editor, *Manual of Transportation Engineering Studies*, Institute of Transportation Engineers, 2000.

FTP site: <http://mavspace.uta.edu/cejcwill/ce5330>
use your NetID username and password

Tests: 2 tests
Weighted equally

Homework:

There will be approximately six homework assignments, and is due on the date noted on the assignment sheets.

Final Grade: 20% - homework
80% - tests

90 - 100: A
80 - 89: B
70 - 79: C
60 - 69: D
- 59: F

Attendance Policy:

Attendance is not mandatory; however, no special accommodations will be made for incomplete or missed assignments and exams due to unexcused absences.

Drop Policy:

Please see the university drop policy and deadlines.

Course Objectives:

Basic vehicle, driver, and roadway characteristics. Basic traffic flow variables (speed, flow, and concentration), fundamental traffic flow equation, traffic studies, and capacity of uninterrupted roadway facilities.

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Course Outline

Topic	Chapters
1. Course Description and Introduction to Traffic Engineering	RPM: 1 TEH: 1
2. Driver and Vehicle Characteristics Roadway Characteristics	RPM: 2; TEH: 2 & 3 RPM: 3; TEH: 7
3. Traffic Stream Characteristics & Introduction to Traffic Flow Theory	RPM: 5 TEH: 4 HCM: 7 & 8
4. Traffic Data Analysis Introduction, Basic Probability, and Statistical Analysis	RPM: 7 TEH: 5
5. Traffic Studies Volume & OD Studies Speed, Travel Time, & Delay Studies Accident Studies Parking Studies	RPM: 8; TES: 2 RPM: 9; TES: 3 & 4 RPM: 10; TES: 11 & 12 RPM: 11; TES: 10
6. Capacity Analysis - Freeways & Rural Highways Introduction Basic Freeway Segments & Multilane Highways Weaving Sections Ramps & Ramp Junctions Freeway Systems 2-lane Rural Highways Transit Pedestrians & Bicycles	RPM: 12.1; HCM: 1, 2, 12, & 13 RPM: 12.2-12.6; HCM: 21 & 23 RPM: 13; HCM: 24 RPM: 13; HCM: 25 & 26 RPM: 21; HCM: 22 RPM: 14; HCM: 20 HCM: 14 & 27 HCM: 11, 18, & 19

RPM: Roess, Prassas, & McShane, *Traffic Engineering*

TEH: *Traffic Engineering Handbook*, ITE

HCM: *Highway Capacity Manual*, TRB

TES: *Manual of Transportation Engineering Studies*, ITE

Americans with Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the letter and spirit of federal equal opportunity legislation; reference Public Law 92-112, The Rehabilitation Act of 1973, as amended. With the passage of federal legislation entitled the Americans with Disabilities Act (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at <www.uta.edu/disability>. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Series 50101, Section 2.2)

Student Support Services Available:

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

Final Review Week:

Final Review Week consists of the five class days prior to the first day of final examinations in the long sessions. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there will be no scheduled activities such as required field trips; and no new homework will be assigned. During Final Review Week, no examinations constituting 10% or more of the final grade will be given, except makeup tests and laboratory examinations. In addition, no portion of the final examination will be given during Final Review Week. Classes are held as scheduled during this week and lectures and presentations may be given.

Librarian to Contact:

Barbara Howser, Science and Technology Library, basement of Nedderman Hall.

E-mail:

The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at <www.uta.edu/email>. New students (first semester at UTA) are able to activate their email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.