

## **CE 5358: Traffic Engineering (In-Person)**

CRN: 28470

Spring 2022

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Office Hours: MW 4:30-5:50 p.m. @ CRBL304 College of Engineering

### **Course Information: What this class is about and what we will do**

#### **COURSE DESCRIPTION**

CE5358 is a 3-credit graduate elective course. This course is a continuation of the Traffic Data Collection & Visualization, Traffic Streams Models, Probabilistic Traffic Models, Parking and Connected & Automated Vehicles introduced in CE4340. The topics covered in CE5358 include macroscopic vs microscopic traffic parameters; volume-density-speed relationships; shock waves; platoon dispersion; gap acceptance; car-following models; lane changing models; and parking. The materials are more in-depth/theoretical/mathematical than in CE4340.

Students registered in CE5358 should have graduate standings. Undergraduate seniors may take this course as advanced topics. All student registrations for this course require instructor approvals.

#### **COURSE OBJECTIVES OR EXPECTED LEARNING OUTCOMES**

The objective of this course is to introduce to students the following traffic engineering topics and to prepare students with the fundamental knowledge of traffic flow theory and traffic operations prior to their entry into the civil engineering industry.

At the end of this course, students are expected to learn the fundamental theories of the following topics and how they lead to the related design decisions in traffic engineering practices:

- macroscopic vs microscopic traffic parameters;
- volume-density-speed relationships;
- shock waves;
- platoon dispersion;
- vehicle-following;
- lane changing;
- headway acceptance;
- parking.

#### **LEARNING MODULES**

The activities consist of lectures, a project, guest lectures, a field trip (if possible), homework and exams. The tentative weekly lesson and assessment plans are as follows:

## CE5358 Spring 2022 Semester Tentative Schedule

Week #	1	2	3	4	5	6	7	8
Mon		24-Jan	31-Jan	7-Feb	14-Feb	22-Feb	28-Feb	7-Mar
		Macroscopic volume	Macroscopic speed	Macroscopic density	Traffic stream models + HW2	Platoon dispersion	Microscopic volume	Mircoscopic sped & density
Wed	19-Jan	26-Jan	2-Feb	9-Feb	16-Feb	24-Feb	3-Mar	9-Mar
	Intro to class	Macroscopic volume + HW1	Macroscopic speed & density	Traffic stream models	Shock waves	Platoon dispersion + HW3	Microscopic volume	Exam 1

Week #	9	10	11	12	13	14	15	16
Mon	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	18-Apr	24-Apr	1-May
	Spring break	Car-following	Lane changing	Headway acceptance	CORSIM project	Parking	project consultation	Field trip
Wed	16-Mar	23-Mar	30-Mar	8-Apr	13-Apr	20-Apr	26-Apr	3-May
	Spring break	Car-following + HW4	Lane changing + HW5	Headway acceptance + HW6	CORSIM project	Parking	project consultation	Exam 2

## REQUIRED MATERIALS

### Calculator

A calculator approved for use in FE Exam (refer to <https://ncees.org/exams/calculator/>).

The following calculator models are the only ones acceptable for use during the 2021 exams:

- **Casio:** All fx-115 and fx-991 models (Any Casio calculator must have "fx-115" or "fx-991" in its model name.)
- **Hewlett Packard:** The HP 33s and HP 35s models, but no others
- **Texas Instruments:** All TI-30X and TI-36X models (Any Texas Instruments calculator must have "TI-30X" or "TI-36X" in its model name.)

Examples of approved calculators:



### Textbook

There is no assigned textbook. Materials will be provided in Blackboard. Students are expected to copy class notes.

## COURSE ASSIGNMENTS AND GRADING

Letter grades will be assigned based on the final course marks (out of 100):

A	90 and above
B	80 to 89.99
C	70 to 79.99
D	60 to 69.99
F	below 60

Contributions towards final mark (out of 100%)

15%	Attendance
25%	Exam 1
25%	Exam 2
25%	Homework
9%	Project + field trip
1%	Course evaluation

## TECHNOLOGY REQUIREMENTS

PowerPoint slides, class notes, homework, project instructions, field trip instructions, examinations, announcements, grades will be available in Blackboard. Office hours (consultations) and discussions will be in-person. Students may request by email for online consultation in Microsoft Teams. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Mozilla Firefox browser is recommended.

You will need to have access to a computer/laptop, scanner, a webcam, and a microphone. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have a word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.


**IMPORTANT:** If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Help Desk](#) as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

### Course Communication: How we will stay in contact with each other

- **Office Hours:** TBD @ A208 College of Engineering
- **Email:** UTEP e-mail is the best way to contact me outside the class meeting times and office hours. I will make every attempt to respond to your e-mail within 24 hours of receipt **if you follow the following email guidelines**. When e-mailing me, be sure to email from your UTEP student account (@miners.utep.edu) and please put the course number (CE5362) in

the subject line. In the body of your e-mail, start with a polite salutation, then clearly state your question. At the end of your e-mail, be sure to put your first and last name, and your university identification number.

Example:

 Send	To	Cheu, Ruey L (Kelvin);
	Cc	
Subject		CE4340 Exam 1
Dr Cheu		
I am your student in the CE4340 Transportation Engineering course. I am not able to take Exam 1 during class time on September 1. The reason is I am selected as the captain of the UTEP soccer team. On September 1 we will be going to Guadalajara to play a pre-season match against Leones Negros. Please tell me how I can take Exam 1. Attached is the official letter from Coach Maradona. Thank you.		
Guillermo Ochoa 800011966		

- **Discussions:** Discussion will be face-to-face during and immediately after class meetings or during office hours.
- **Announcements:** Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

### Course Policies: What do you need to do to be successful in the course

#### ATTENDANCE POLICY

Attendance will be taken in every class meeting, either by signing your signature in an attendance form, or calling your name to return graded homework. Your signatures will be checked for consistency throughout the semester. Inconsistent, missing signature, or failure to pick up graded homework during class time or failure to respond when your name is called will be marked as absent. For class meetings in Microsoft Teams, the sign-in and sign-out records will be used as the additional way of taking attendance.

#### HOMEWORK POLICY

- Six (6) homework have been planned for this course.
- Each homework consists of several questions. The solutions require you to work out by hand or with the help of a computer and Microsoft Excel.
- You are expected to submit the solutions of all the questions. All questions will be graded. The graded questions will be total up and scaled to the required percentage of the total course marks.
- Homework is usually due 1 week after given. Lengthy and difficult questions will be explained in the class, some even with in-class practices. Because I have given you

plenty of time to complete the homework, no late submission will be accepted, unless you have an emergency or special situation.

- The submission format (hard copy or electronic upload) and expectation will be announced in the homework instructions. Not following the submission instructions/format/presentation style will lead to marks being deducted.

## **EXAMINATION POLICY**

- Examinations are conducted in-persons during class time.
- The examinations are open-book.
- To discourage students from focusing narrowly on only a few questions, no practice exam will be given.
- Rescheduling of an exam is possible if you inform me ASAP before the exam, with a valid reason. Examples of valid reasons are official UTEP travel, accident, medical, family emergency, jury duty, court appearance, military service, isolation/quarantine, job interview. These are not expected and cannot be rescheduled. You may need to show documentary evidence (e.g., doctor's letter, police report, court letter). Events that can be pre-scheduled or rescheduled are not valid reasons. Examples of non-valid reasons are vacation, wedding, driving test, sending car for service, etc. If an emergency happens during the exam day, you should contact me or the TA at the earliest possible time.

## **CALCULATOR POLICY**

- Civil Engineering Department's policy: only calculators permitted by NCEES for use in the current semester's FE exam are permitted to be used in the examinations.
- No other make and model of calculator will be allowed.
- Models previously allowed by NCEES in the past but are no longer valid for the current FE exam are prohibited in the CE5358 exams. Please check <https://ncees.org/exams/calculator/> for the latest permitted calculator models.
- This calculator policy may not be enforced by some professors but will be enforced in CE5358. Models allowed by another professor in his/her exam are not an excuse. This is CE5358 and you should follow CE5358 course policy.
- If a student is found using an unapproved calculator is found during any exam, for the first time he/she will be given a warning. If this is repeated for the second time it will be reported as "cheating – bringing unauthorized materials into the exam" according to the UTEP Handbook of Operating Procedures.

## **COURSE DROP POLICY**

If you feel that you are unable to complete the course successfully, please let me know and then contact the [Registrar's Office](#) to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

I may drop you from the course if you:

- Fail to attend more than 8 class meetings (in the attendance records); or
- Fail to submit more than 3 homework combined; or
- Fail to submit more than 1 exam.

I will not drop you from the course if you are being investigated for cheating.

## **EXTRA CREDIT POLICY**

I will not give extra credit to individual – this is considered a form of preferential treatment/discrimination. If opportunity to earn extra credit arise, all students in the course will have equal opportunity.

## **ALTERNATIVE MEANS OF SUBMITTING WORK IN CASE OF TECHNICAL ISSUES**

I strongly suggest that you submit your work with plenty of time to spare in the event that you have a technical issue with the course website, network, and/or your computer. I also suggest you save, scan or make copies of all your work (answers to discussion points, quizzes, exams, and essays) in a separate Word document as a back-up. This way, you will have evidence that you completed the work and will not lose all the credit. If you are experiencing difficulties submitting your work through the course website, please contact the UTEP Help Desk. You can email me your back-up document as a last resort to claim credits.

## **ACCOMMODATIONS POLICY**

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#) (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at [cass@utep.edu](mailto:cass@utep.edu), or apply for accommodations online via the [CASS portal](#).

## **SCHOLASTIC INTEGRITY**

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

## **CLASS RECORDINGS**

Recording of class proceedings, either voice or video, by student is not allowed. Doing so may result in disciplinary action.



## PLAGIARISM DETECTING SOFTWARE

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

## COPYRIGHT STATEMENT FOR COURSE MATERIALS

All materials (textbook, homework questions and solutions, exam questions and solutions) used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated, such as posting in the Internet or social media. Doing so may result in disciplinary action.

## COVID-19 PRECAUTIONS

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu), so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit [epstrong.org](http://epstrong.org).

### Course Resources: Where you can go for assistance

UTEP provides a variety of student services and support:

#### Technology Resources

- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

#### Academic Resources

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.

- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

#### Individual Resources

- [Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.
- [Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.
- [Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

