CE 4177 Transportation Engineering
Course Syllabus

Lecture: Tuesday & Thursday, 3:30 pm – 4:45 pm, Civil and Environmental 120

Instructor: Prof. Mahyar Amirgholy
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                      Office Hours: Tuesday & Thursday, 4:00 pm – 5:00 pm (MS Teams)

Prerequisite: Data Collection and Analysis in Engineering (ENGR 3305)

Co-requisite: Transportation Engineering Lab (CE 4179)

Textbook

The primary course text will be the following book:

- o Principles of Highway Engineering and Traffic Analysis, 7th Ed., Fred L. Mannering, Scott S. Washburn, John Wiley & Sons, Inc. (ISBN: 978-1-119-49396-9).

  Recommended:

- •   Traffic and Highway Engineering, 5th Edition, Nicholas J. Garber and Lester A Hoel

- o Traffic Engineering, Roger Roess, Elena Prassas and William McShane, 4th Edition, July 2010 , Publisher: Prentice Hall

- o Transportation Engineering: An Introduction, Khisty and Lall, 3rd Edition, Publisher: Prentice Hall

  KSU Library: https://library.kennesaw.edu

Additional readings and references will be posted as necessary to D2L Brightspace.

Description and Objectives

[3 credits] This course introduces the fundamental concepts of transportation engineering with a focus on traffic operations and roadway design. Students will explore key topics such as traffic flow theory, queuing theory, and shockwave analysis to understand how traffic behaves under various conditions. The course also covers capacity analysis, methods of intersection control, roadway geometric design principles, and techniques for evaluating and improving roadway safety.

Course Topics

- • Fundamentals of Traffic Flow Theory
- •   Fundamentals of Queuing Theory
- • Shockwaves
- • Capacity Analysis

- Intersection Control
- Roadway Geometric Design
- Safety Analysis

Course Learning Outcomes

1. Design vertical and horizontal curves.

2. Solve traffic flow theory problems.

3. Conduct capacity analysis for uninterrupted flow facilities.

4. Identify transportation problem(s), potential solution of the problem(s) and present knowledge, justification, arguments, and conclusions behind them.

5. Introduce other transportation engineering fields, such as Intelligent Transportation Systems.

6. Evaluate engineering failures to understand ethical implications and diverse perspectives in civil engineering practice.

Course Requirements and Grades

Course grades will be based on four components:

1. **Homework** [20%] In order to practice concepts from the class, some shorter exercises will be assigned as homework. For these assignments, you may talk to other students in the class and share ideas. Unless I tell you otherwise, I expect individual submissions.

2. **Midterm Exam** [40%] The midterm exam evaluates your knowledge in the middle of the semester. The problems will be similar in size and scope to the assigned homework. Unless instructed otherwise, the midterm exam will be closed book.

3. **Final Exam** [40%] The final exam is a cumulative exam at the end of the semester, covering all lectures and assigned readings. Similar to the midterm exams, the final exam will be also closed book.

Course Communication

Course communications will be sent to the class using the D2L website. This site is where notes, readings, assignments, and other announcements will be posted. It is important that if you are registered for the course, you are also on the roster for the D2L site.

Communication Rules

To maintain a respectful and productive learning environment, it is important to adhere to certain communication rules in our online class. These rules are referred to as Netiquette. To ensure successful online communication, you should be sensitive and reflective towards what others are saying, avoid typing in all capital letters as it can come across as shouting, refrain from using offensive language and outbursts of extreme emotion or opinion, and think carefully before posting as you won't be able to take it back. Use clear subject lines, refrain from using abbreviations or acronyms unless everyone in the class knows them, and keep the conversation collegial and professional. It can be challenging to convey humor online, so it's best to avoid it. Assume good intent and respond accordingly, even if you are unsure or annoyed by a message. If you need time to process, wait 24 hours before responding.

Online Discussion

In order to facilitate open discussion and answer any questions you may have about the material covered in class, we will be holding weekly one-to-one online discussion sessions (with appointments) on Tuesdays and Thursdays from 4:00 pm to 5:00 pm (EST). These sessions will provide an opportunity for you to delve deeper into the topics introduced in class and to seek clarification on any points that may be unclear. Participation in these sessions is highly encouraged, as they will serve as an important supplement to your overall understanding of the course material. Please come prepared with any questions or comments that you may have.

Expectations and Participation

It is important to actively engage in discussions, complete assignments and projects, and communicate effectively with your instructor to succeed in this online class. It is essential that you come prepared with a solid understanding of the required pre-requisite course.

Responsibilities

To succeed in distance learning, one needs to have good self-discipline and control over their schedule. Students are expected to regularly check the course page on D2L, study the assigned material, e.g., virtual lectures, reading assignments, textbook chapters, PPT slides, and complete and submit assigned homework on time.

Effective Online Learning

As a student in an online class, you have the freedom to learn at your own pace and in your desired environment. To make the most of this experience, here are some helpful tips:

- Regularly visit the D2L course website to stay up-to-date on the course status. You can enhance your learning experience by utilizing the tools and materials provided, subscribing to RSS feeds within the News Tool, signing up for text message alerts, or subscribing to your own posts within the Discussion Tool.

- Stay in touch with your instructor. If you have any questions, feel free to contact me through email or text. I will respond within 24 hours.

- Avoid procrastination and start your assignments early. Starting a task early will reduce stress and give you enough time for help or unforeseen circumstances. Don't wait until the last minute to begin an assignment.

Contacting Me

The best way to contact me is by email. Include "CE 4177" in the subject line to ensure your message receives timely attention. In general, homework questions are difficult to answer by email, so I may request that you come in for office hours.

Academic Integrity Policy

Homework assignments are designed to be an individual effort, and you are expected to submit only your own work. Semester projects must consist of your original analysis and writings. Ideas from other authors must be properly cited, and plagiarism will not be tolerated. All students are expected to adhere to the Kennesaw State University Codes of Conduct.

Disability Statement

Kennesaw State University provides program accessibility and reasonable accommodations for persons defined as disabled under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Kennesaw State University does not deny admission or subject to discrimination in admission any qualified disabled student.

A number of services are available to help students with disabilities with their academic work. In order to make arrangements for special services, students must visit the Office for Student Disability Services and make an appointment to arrange an individual assistance plan. In most cases, certification of disability is required.

Special services are based on

- Medical and/or psychological certification of disability,

- Eligibility for services by outside agencies, and

- Ability to complete tasks required in courses.

ADA Position Statement:

Kennesaw State University, a member of the University System of Georgia, does not discriminate on the basis of race, color, religion, age, sex, national origin or disability in employment or provision of services. Kennesaw State University does not discriminate on the basis of disability in the admission or access to, or treatment or employment in, its programs or activities.

The Americans with Disabilities Act (ADA), Public Law 101-336, gives civil rights protections to individuals with disabilities. This statute guarantees equal opportunity for this protected group in the areas of public accommodations, employment, transportation, state and local government services and telecommunications.

The following individuals have been designated by the President of the University to provide assistance and ensure compliance with the ADA. Should you require assistance or have further questions about the ADA, please contact:

- ADA Compliance Officer for Students: 470-578-6443

- ADA Compliance Officer for Facilities: 470-578-6224

- ADA Compliance Officer for Employees: 470-578-6030

For more information, go to: https://www.kennesaw.edu/accessibility.php

Learner Data and Privacy Statement

The Family Educational Rights and Privacy Act of 1974 (FERPA), as amended, is a federal law that sets forth requirements regarding the privacy of student records. FERPA governs the disclosure of student records maintained by an educational institution as well as access to those records. Students enrolled in any course offered by KSU, at any location or through any method of delivery (i.e., campus/on-site, hybrid, partially online and fully online) are covered by FERPA. KSU defines an admitted student as one who is in attendance upon enrollment/registration for classes. Institutions that receive funds administered by the U.S. Department of Education are bound by FERPA requirements and failure to comply may result in the loss of federal funding.

For more information, go to: https://www.kennesaw.edu/ferpa/

For D2L privacy policy, go to: https://www.d2l.com/legal/privacy/

Course Delivery

KSU may shift the method of course delivery at any time during the semester in compliance with University System of Georgia health and safety guidelines. In this case, alternate teaching modalities that may be adopted include hyflex, hybrid, synchronous online, or asynchronous online instruction.

KSU Academic Integrity Statement

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section 5c of the Student Code of Conduct addresses the university's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.

KSU Disruption of Campus Life Policy

All students are responsible for knowing the information, policies and procedures outlined in the Kennesaw State University Codes of Conduct. Student Conduct and Academic Integrity (SCAI) includes: the general Student Code of Conduct, the Residential Code of Conduct, and the Code of Academic Integrity.

KSU Web Accessibility Policy Statement

Federal law Section 508 Subsection 1194.22 of the Rehabilitation Act and the Board of Regents (BOR) of the University System of Georgia (USG) Web Accessibility Guidelines require that all web content meet the federal government's accessibility guidelines. As such, KSU complies with USG guidelines.

University accessibility assistance is provided by several offices as noted below. Staff in these offices work to accommodate requests for access or assistance with access as soon as possible in order to either accommodate the request or identify an effective alternative for the requester.

Student Disability Services
470-578-2666
studentdisability@kennesaw.edu

University Information Technology Services
470-578-3555
studenthelpdesk@kennesaw.edu

University Information Technology Services
470-578-6999
service@kennesaw.edu

KSU Reasonable Accommodations Policy

Students with qualifying disabilities under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act who require "reasonable accommodation(s)" to complete the course may request those from Office of Student Disability Services. Students requiring such accommodations are required to work with the University's Office of Student Disability Services rather than engaging in this discussion with individual faculty members or academic departments. If, after reviewing the course syllabus, a student anticipates or should have anticipated a need for accommodation, he or she must submit documentation requesting an accommodation and permitting time for a determination prior to submitting assignments or taking course quizzes or exams. Students may not request retroactive accommodation for needs that were or should have been foreseeable. Students should contact the office as soon as possible in the term for which they are seeking accommodations. Student Disability Services is located in the Carmichael Student Center in Suite 267 on the Kennesaw campus or Building A in Suite 160G on the Marietta campus. Please visit the [Student Disability Services (SDS) website](#) for more information, or call the office at 470-578-2666 (Kennesaw campus) or 470-578-9111 (Marietta campus).

KSU Enrollment Management/Course Attendance Policy

Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

Copyright Law

It is the responsibility KSU faculty and students to respect the rights of copyright holders and complying with copyright law. The University System of Georgia recognizes that the exclusive rights of copyright holders are balanced by limitations on those rights under federal copyright law, including the right to make a fair use of copyrighted materials and the right to perform or display works in the course of face-to-face teaching activities.

The University System of Georgia facilitates compliance with copyright law and, where appropriate, the exercise in good faith of full fair use rights by faculty and staff in teaching, research, and service activities. The University System of Georgia ensure compliance with copyright law in the following ways.

The USG informs and educates students, faculty, and staff about copyright law, including the limited exclusive rights of copyright holders as set forth in 17 U.S.C. § 106, the application of the four fair use factors in 17 U.S.C. § 107, and other copyright exceptions.

The USG develops and makes available tools and resources for faculty and staff to assist in determining copyright status and ownership and determining whether use of a work in a specific situation would be a fair use and, therefore, not an infringement under copyright law;

The USG facilitates use of materials currently licensed by the University System of Georgia and provides information on licensing of third-party materials by the University System; and

The USG identifies individuals at the University System and member institutions who can counsel faculty and staff regarding application of copyright law.

Protecting Students' Privacy (FERPA)

Students have certain rights to privacy. These rights are mandated by federal policy. Leaving their work in an unsecured area such as outside your office door (unless agreed upon with each student) means that the students' names and grades and possibly social security numbers are accessible to everyone. Additionally, research papers can be taken and used by other individuals. It is recommended that you permit students to retrieve their work from your office if you don't return it to them in class. Information should not be made public in any way in which a student's grades, social security number, or other personal information may be identified. Grade information may be shared with members of the KSU community who also have a legitimate educational interest in student success (e.g. academic advisors or members of the Behavioral Response Team). Faculty may be asked to provide early alert information if there is a concern that a student is at risk, academically or otherwise.

As a member of the Kennesaw State University community of scholars, I understand that my actions are not only a reflection on myself, but also a reflection on the University and the larger body of scholars of which it is a part. Acting unethically, no matter how minor the offense, will be detrimental to my academic progress and self-image. It will also adversely affect all students, faculty, staff, the reputation of this University, and the value of the degrees it awards. Whether on campus or online, I understand that it is not only my personal responsibility, but also a duty to the entire KSU community that I act in a manner consistent with the highest level of academic integrity. Therefore, I promise that as a member of the Kennesaw State University community, I will not participate in any form of academic misconduct.

The Student Handbook (select Student Handbook in the Drop Down list in upper right corner) contains information regarding Rights Pertaining to Student Records, and FERPA specific details are available on the Registrar's website.

Privacy in the Education Process. A key requirement of the formal evaluation process is the protection of individual privacy rights concerning educational grading. The University's online learning system and email system is designed to prevent unauthorized individuals from gaining access to sensitive information or information protected by federal or state law. Consequently, faculty and students are strongly encouraged to only communicate regarding course matters through the University's designated technology learning system.

KSU Sexual Misconduct Policy

In accordance with federal and state law including, Title IX of the Education Amendments of 1972 ("Title IX") and Title VII of the Civil Rights Act of 1964 (Title VII), the University System of Georgia (USG), including Kennesaw State University, prohibits discrimination on the basis of sex in any of its education programs or activities or in employment. The USG is committed to ensuring the highest ethical conduct of the members of its community by promoting a safe learning and working environment. To that end, Kennesaw State University follows USG Board of Regents Policy Manual, Section 6.7. See https://equity.kennesaw.edu/titleix/title-ix.php.

Withdrawal from Classes

Students who withdraw from courses before the withdrawal deadline, as specified by the academic calendar will receive a grade of W. A student who officially withdraws from a course will receive a grade of "W" and receive no credit.

Students may drop one, some, or all of their classes during the drop/add period. Courses dropped in this manner do not appear on a student's transcript and are not considered as hours attempted for financial aid purposes. No grade is assigned for such courses. However, a student who wishes to withdraw from a course after the last day of the drop period for a term must withdraw through Owl Express. Students with an active registration hold on their record must clear that hold before being able to withdraw from their coursework.

If a student experiences significant personal hardship (e.g., medical or family emergency, prolonged illness), the Dean of Students can approve a hardship withdrawal from all courses in the term for which the student is currently registered. In the case of an approved hardship withdrawal from all courses, the Registrar will assign grades of "W" for those classes. The deadline for final approval of a hardship withdrawal by Dean of Students is the last day of class for which the hardship withdrawal is sought. If the hardship withdrawal process is not complete by the last day of class for which the hardship withdrawal is sought, a student must appeal for a retroactive hardship withdrawal from the Academic Appeals Committee.

Appeals for retroactive hardship withdrawals must be directed to the Academic Standing Committee. Retroactive hardship withdrawals are rarely granted if it has been more than one year since the last day of class for which the withdrawal is sought. Extraordinary justification must be shown. In the case of approved retroactive hardship withdrawals, the Registrar will assign a grade of "W."

If a student is suspended by the Office of Student Conduct following a violation of the University's Code of Conduct not related to academic dishonesty, the Office of Student Conduct may facilitate a University-initiated withdrawal from courses for which a student is registered for the term. The Registrar will assign grades of "W" for those classes.

A student will receive a refund only when the student withdraws from ALL courses for the applicable semester and only by the schedule outlined in the University refund policy.

Students should be aware that a reduction in their hours might result in the loss of full-time student status and thus affect their financial aid, scholarships, athletic and ticket eligibility, University housing accommodations, use of University resources and access to University facilities, immigration status for international students, and Veterans Educational Benefits. Students should contact the appropriate office and their academic advisor with questions about the impact of their withdrawal from a course before initiating a withdrawal. Veterans and dependents of veterans who receive educational benefits must notify the Veterans Education Benefits Area in the Office of the Registrar of any course load reductions.

A student will receive a "WM" symbol for all courses and a full refund of tuition and mandatory fees and a pro rata refund of other fees for military and other service, as defined by BOR Policy Manual, Section 7.3.5.3. To request a military withdrawal, the student must submit a copy of official orders to the Office of the Registrar.

KSU Graduate Course Auditing Policy

Auditing of courses will be permitted for regularly enrolled graduate students, as well as on a space-available basis for those who hold a graduate degree from Kennesaw State. Auditing courses is not allowed in the Coles Doctor of Business Administration, the Coles Executive MBA, the Master of Science in Conflict Management (MSCM), the Master of Science in Information Systems (MSIS), or any of KSU's Master of Education (M.Ed.) programs. Students must have completed all prerequisites necessary for the course to be audited and are expected to complete all course requirements as noted on the course syllabus. A student may audit no more than 6 credit hours of graduate course work in a given term.

The grade of "V" will be given for successfully completed audited courses. This grade will have no effect upon the student's grade-point average, and students will not be permitted to have the audit grade changed at any future date. Audited courses will not count toward degree completion for any of KSU's graduate programs.

The permission to audit form, available in the Office of the Registrar, must be submitted before the end of final registration. The form must be signed by the Graduate Program Director of the program offering the course to be audited. Audited courses count at full value in computing the student's course load and fees. The student's name will appear on the official class rolls of the courses audited, as well as the student's approved schedule of courses. No credit is granted for audited courses, and students are not permitted to change to or from an auditing status except through the regular procedures for schedule changes.

Academic Feedback

Institutional Chief Academic Officers will encourage faculty to clarify for students, at the beginning of each course, the basis on which grades will be determined and to provide timely academic feedback as the course progresses (BOR Academic and Student handbook policy 2.18).

Netiquette: Communication Courtesy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats.

Inclement Weather Policy

During the course of the year, Kennesaw State University may decide to close campus or operate on a delayed schedule in cases of inclement weather.

The University will announce campus closures and delayed schedules in several ways. The cell phone number on file with the university will automatically receive KSU Alerts, so make sure your information in OwlExpress is accurate at all times. An email will also be sent to your university account.

In addition, announcements will be made by a notice on the Kennesaw State University home page.

Learner Support Links

- Technical support links (UITS, D2L support etc.): https://uits.kennesaw.edu/
- Accessibility policies and services link: https://sds.kennesaw.edu/
- Academic support services: https://www.kennesaw.edu/current-students/
- Student services and resources: https://www.kennesaw.edu/current-students/
- How to obtain technology: https://uits.kennesaw.edu/
- Online Learning Support: https://ols.kennesaw.edu/everyday/