CEE 4610 Syllabus

Multimodal Transportation Planning, Design, and Operations, CEE 4610 A, 3 Credits

Fall 2026

Instructor Information

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General Course Information

Description

Planning, design, and operation systems of air, rail, water, and highway facilities, including those for bicycles and pedestrians.

In this course, we will focus on understanding the importance, purpose, and design of multimodal transportation for passengers and freight. Have you ever heard of complete streets, park-and-ride facilities, and eco-transfer systems? These are examples of facilities that accommodate or allow changes in transportation modes. We will explore the following questions:

- Why is a multimodal transportation system important?
- How did transportation systems for people and goods evolve nationally and globally?
- What are the different modes of transportation available for people and goods?
- How do people decide which mode to use when they travel?
- How are goods transported across the supply chain using various modes?
- How do we plan and design multimodal facilities?
- How can we measure the performance and design of multimodal transportation systems?
- What strategies can we use to manage and improve the performance of multimodal transportation?
- How can multimodality become more resilient to disruptions?
- What are the future trends in multimodality, and how can we integrate passenger and freight transportation?

Course Learning Outcomes

Upon successful completion of this course, you should be able to:

- Discuss the evolution and purpose of multimodal transportation systems.
- Identify, examine, and evaluate different modes of transportation available.
- Assess the factors influencing individuals' decisions when choosing transportation modes for travel, as well as the modes used to transport goods across the supply chain.
- Describe and interpret principles and methods for planning and designing multimodal transportation facilities.
- Measure and analyze the performance and design of multimodal transportation systems.
- Analyze the importance, challenges, and future trends of improving multimodality.

Required Course Materials

There is no official textbook for this course. Reading materials will be provided through Canvas. You are responsible for staying up to date by checking Canvas regularly.

Grading Policy

The following table summarizes the graded components of the class. The ranges shown in the weight column below are intervals amongst which *we will collectively determine the final weights during our second lecture*.

Component	Proposed Weight	Description
Quizzes	*10%-30%*	You will complete approximately 5 quizzes. Missed quizzes cannot be retaken.
Assignments	*15%-35%*	You will complete approximately 5 assignments. Late submissions will receive point deductions unless prior permission is received. Collaboration is encouraged to develop a deeper understanding of the material; however, all assignments' results and conclusions must be your own work. All collaboration must be noted at the top of the assignment.
Peer Reviews	*1%-10%*	Projects will be peer-reviewed. The quality of the peer reviews you provide to your classmates will be graded and will count towards this component.

Mid-term Project	*15%-35%*	You will work on a group mid-term project focused on passengers. The deliverable will be a video.
Final Project	*15%-35%*	You will work on a group end-of-term project focused on freight. The deliverable will be a poster.

Grading Scale

Your final grade will be assigned as a letter grade according to the following scale (more information here):

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Description of Graded Components

Additional information about each assignment and project will be provided later in the semester. There will be extra credit opportunities, and the information will be provided during the first day of class.

Course Policies

Attendance and/or Participation

In this class, you will be asked to discuss concepts, theories, and methods with your peers. Class discussions will help you better understand course content, allow you to ask clarifying questions, and explain concepts and ideas in your own words. To make those discussions most effective:

- You are expected to come to class prepared to raise questions for discussion and to ask for clarification or more examples.
- You are expected to listen actively. You may be asked to paraphrase, summarize, or respond to what others have said. Active listening involves taking notes, asking questions, making eye contact, and listening to others without interrupting them.
- In the event of any disagreements, you are expected to do so respectfully. If you disagree with your peers, keep your discussion focused on the facts and the bigger question rather than on personal feelings.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Plagiarizing is defined by Webster as "to steal and pass off (the ideas or words of another) as one's own: use (another's production) without crediting the source." Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, which will investigate the incident and determine the appropriate penalty.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodations, contact the Office of Disability Services (404-894-2563) as soon as possible to schedule an appointment to discuss your needs and obtain an accommodations letter. Please also email me as soon as possible to schedule a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgment, and responsibility between faculty members and the student body. The Student-Faculty Expectations outline basic expectations you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to Georgia Tech's ideals in this class.

Pre- &/or Co-Requisites

There are no pre- or co-requisites for this course. However, you should be familiar with undergraduate-level mathematics and be interested in learning about transportation from a different perspective than you may be familiar with. To excel in this course, you should feel comfortable challenging yourself, actively engage in your learning, and regularly use your communication skills.

Extra Credit Opportunities

Are you interested in reducing stress during the final stretch of the semester while earning extra credit in your class? If so, you can opt in for a student-led presentation (and discussion). It should last 30 minutes and include the use of visual aids and a discussion with the rest of the class. The presentation will be related to one of the topics listed in the tentative course schedule and delivered on the day the topic is discussed. You can earn up to 15% extra credits based on your performance. You will be evaluated by the instructor and

your classmates. To enroll, you must request opting in via email to the instructor and teaching assistant by the end of the day of the third lecture. Presentation topics will be distributed in the order in which opt-ins occur. Further information will be provided during class.

Collaboration, Group Work, and References

Quizzes are individual, and no collaboration is allowed. Collaboration in assignments is encouraged to develop a deeper understanding of the material; however, all assignments' results and conclusions must be your own work. All collaborations must be noted at the top of the assignment. You are required to cite all sources you use in any deliverable. This includes direct quotations and cases where you use someone else's ideas, figures, photos, tables, etc. "Sources" include papers, journals, books, conversations, and anything found on the internet. You should provide a source if the thought did not originate with you. See below for more detailed information regarding using artificial intelligence (AI) and how to reference it as your source.

Extensions, Late Assignments, and Re-Scheduled/Missed Examinations

To avoid dealing with lateness and missed examinations, I provide you with more assessment opportunities than you need for your grade. Prior permission must be obtained for late submissions. Permissions will be given only for documented reasons of illness, family emergency, participation in approved Institute activities (such as field trips and athletic events), and accommodations for religious observances. Permissions must be requested via email as soon as you know they are required, and at least one day before the due date for which the permission is requested. Late submissions lose points unless prior permission is obtained. Missed quizzes cannot be retaken.

Re-grading

Requests for regrading may be submitted in writing within one week of the day the grade is returned to the class (regardless of whether you attend that day). You must justify in writing the technical basis for the regrade. If the regrading request is accepted, your entire graded component may be regraded (your grade may decrease afterward). Please do not assume that your grade will always go up after regrading.

Inclement Weather and Digital Learning Days

If a weather-related event affects campus operations, instructors may cancel class or pivot to digital instruction. Informed by departmental and/or program considerations, you may choose to include language here that proactively instructs students what they should expect in such an event. Read more about the policy regarding the requirements, procedures, and responsibilities related to Digital Learning Days for Modified Campus Operations. Explore

the Digital Learning Day Toolkit to learn more about guidance and tools that will make pivoting to digital learning easier.

Recording Classroom Activities

To preserve class integrity, student privacy, and a safe environment to express opinions, recording of our classes using digital, tape, or audio devices is not allowed. You are welcome (and even encouraged) to take notes and photos of the board. This policy can be waived at the instructor's discretion and for students with accommodations upon explicit recommendation from the Office of Disability Services.

Student Use of Mobile Devices in the Classroom

Research shows that unexpected noises and movements can divert and capture people's attention, disrupting the learning experience for everyone in the class. Therefore, it is essential to ensure that your devices, such as cell phones, pagers, or laptops, do not create any noise or visual distractions. However, to make learning more engaging, we may occasionally use digital resources during class. To make the most of these resources, you are encouraged to bring a charged, web-enabled device to class so you can take notes and access course materials. To avoid any distractions, it is recommended to turn off the sound on your device. If you use your device for anything other than taking notes or accessing course materials, please sit in the back row so as not to distract other students.

Student Use of Artificial Intelligence

You may use generative AI programs, e.g., ChatGPT, to help generate ideas and brainstorm. You should be aware that the material generated by these programs may be inaccurate, incomplete, biased, or otherwise problematic. Also, using these tools may stifle your independent thinking and creativity. Generative AI derives its output from previously created texts from other sources that the models were trained on, yet does not cite sources. Per Georgia Tech's Honor Code, you may not submit any work generated by an AI program as your own. If you include material generated by an AI program, it should be cited like any other reference material (with due consideration for the quality of the reference, which may be poor). When/if you use AI platforms in your assignments, please write a note to clarify where in your process you used AI, including the prompt used to generate the material and which platform(s) you used. See this article for how to cite AI.

Campus Resources for Students

Undergraduate Student Academic Success Resources

A list of resources for undergraduate students' academic success, along with information about advising, can be found at Success at Tech.

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Center for Sustainable Communities Research and Education (SCoRE)

This course is part of Georgia Tech's Center for Sustainable Communities Research and Education (SCoRE), which provides students with opportunities to combine their academic and career interests with their desire to make worthwhile contributions to the world and build sustainable communities where people and nature thrive in Georgia, the United States, and around the globe. Visit the website for more information and to sign up for the mailing list.

Student Well-Being

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness-related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being.

Statement of Intent

By enrolling in this course, you are acknowledging your acceptance of the syllabus and agreeing to follow the guidelines provided. Any necessary changes to the syllabus will be communicated to you.