AE 6760 Syllabus

Acoustics I, A, 3

Fall 2026

Instructor Information

Instructor: Julien Meaud

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General Course Information

Description

Fundamental principles governing the generation, propagation, reflection, and transmission of sound waves in fluids.

Course Learning Outcomes

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

- Analyze the propagation of sound waves in fluids using fundamental acoustic equations.
- Apply mathematical models to predict acoustic behavior in complex systems.
- Evaluate acoustic measurements and experimental data using appropriate signal processing and statistical techniques.
- Critically assess contemporary research in acoustics and communicate findings effectively in written and oral formats.

Required Course Materials

Course textbook: Lawrence E. Kinsler, Austin R. Frey, Alan B. Coppens and James V. Sanders, *Fundamentals of Acoustics,* Fourth Edition, John Wiley & Sons, 2000. (can be downloaded from GT library website)

Other references

- Allan Pierce, Acoustics – An Introduction to Its Physical Principles and Applications (available from the Acoustical Society of America website)
- David T. Blackstock, Fundamental of Physical Acoustics, 1st Edition, John Wiley, 2000.

Grading Policy:

- Midterm Exam: 30%
- Final exam: 45%
- Homework assignments (6 assignments, each with the same weight): 25%

Final grades will be determined according to the following criteria: >90%: A; between 80% and 90%: B; between 70% and 80%: C; between 60% and 70%: D; below 60%: F.

Description of Graded Components

Midterm and Final Exam: These in-person exams will test the knowledge of the students and the ability of the students to apply this knowledge to solve simple problems.

Homework assignments: each assignment will require to solve 4 to 6 problems. These problems will require to apply the fundamental concepts and mathematical models taught in lecture to analyze the propagation and transmission of sound waves in fluids.

Course Policies

Attendance and/or Participation

Class attendance is not mandatory but strongly recommended.

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.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

Core IMPACTS is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated career competencies. This resource developed by the Center for Excellence in Teaching and Learning and Online Education at

Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up 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, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that 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 the ideals of Georgia Tech while in this class.

Pre- &/or Co-Requisites

MATH 2403 or MATH 2413 or MATH 24X3

Collaboration, Group Work, and Use of Generative AI

You can collaborate with your classmates for homework assignments. However, you need to write individually your own answer. It is recommended that you first try to find the solution on your own. In case of difficulty, you can talk to your classmates. I expect you to write to answer independently after you meet with them. You will not get any credit if you submit identical solutions.Use of Generative AI is not recommended but is not strictly prohibited. If you use Generative AI for any homework assignment, you must report it and explain how you used it.

You should use the homework assignments to learn the key concepts and how to apply the concepts to solve problems. Students who genuinely attempt to solve homework problems will receive most of the credit even if their answer is not totally correct.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Students needing extra time to submit their homework assignments must ask permission from the instructor at least 24 hours before the deadline. Unless we agreed on an extension, the following penalty will be applied:

- Homework assignments that are submitted late but within 24 hours will be penalized at a rate of 4 points per hour.

- No submission will be accepted more than 24 hours after the deadline.

Exams will not re-scheduled unless students provide documentation for their absence through the office of the Dean of Students.

Additional Course Policies

Re-grade requests: if you think there is an error in your grade for an assignment or exam, please email the instructor within a week. In your email, include a scan of your assignment and describe why you should be re-graded and how many points you think you should have received. I will then email you about my decision.

Campus Resources for Students

Graduate Student Academic and Professional Success Resources:

A list of resources for graduate students is given on the Office of Graduate and Postdoctoral Education website. Specific information for current graduate students includes

- Academic Resources such as the Communications Center, Language Institute, Library, Catalog, Registrar, resources for conducting research, Advocacy and Conflict Resolution resources, and how to manage unexpected situations that may impact your academic performance;
- Student Resources such as Campus Services, Child Care/Family programs, Health & Wellness, Career Services, and the Student Resource Guide; and
- *Professional Development such as the programming from the Career Center and other professional development resources and events"*

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 (student-resource-guide (gatech.edu)