
Tue & Thu 11:00–12:30 in 2-146


TA. TBA. There may be none.

News Updates. Check the News Updates link in the web page frequently!
Information concerning office hours, TA, etc., etc., will be posted there.

Course rules. Read the ”policies” write-up in the course web-page.

Prerequisites. Basic theory of complex variables and a working knowledge of differential equations.

Textbook. The subject is based on the material presented in the lectures. There is no official textbook.
- Various course notes and related materiel are available through the course website. In particular, the comprehensive set of Lecture Notes prepared by Professor C. C. Mei [see OCW website]: https://ocw.mit.edu/courses/mechanical-engineering/2-062j-wave-propagation-spring-2017/lecture-notes/
- See the list of references, available in reserve at the library, below.

Exams. None. See grading below.

Problem sets. There will be 6 or 7 problems sets. Typically a new problem set will be handed every other week, and you will have at least a week to work on it. Answers will be posted after their due date. Do them all, you need them to learn the material.

Term paper. One. Should be handed at least one week before the end of the lectures. Start early.
Can be on any topic relevant to the course (instructor pre-approval required). Does not have to be original research, but must be original work [e.g.: review the literature in some topic, and summarize the results in your own words, giving proper credit to the sources]. The explanations must be clear, and accessible to an average student in this class. You can use materiel from your own research, but “recycling” (e.g.: handing a piece of your thesis) is not allowed. Furthermore
- Must be typed (font size 11-14), and submitted electronically in pdf format.
- Length not exceed 15 pages. More if you have many figures, but use judgement here.

Failure to follow these guidelines may result in a paper being classified as “not acceptable”.

Grading. Each problem set will contain a buried mini-quiz within it (1-3 problems). Only the quiz will be graded, but you need to do all the problems, since the quiz problems will not be identified. The course grade will be based on the cumulative quiz-grade, and a binary-grade term paper: If you hand in an acceptable term paper, then the grade is quiz-based, as explained before. Else the grade is F.

OUTLINE of the Course. Some topics may be covered in more/less detail than this suggests. Some topics may be skipped and others may be included. This is to give you an idea of the flavor of the course.

1b. Elementary concepts. Exponential notation, frequency, wave number, phase, phase velocity, etc.
1c. Conservation laws and modeling in continuum physics.
1d. Sample wave problems. Taut string, elastic rod, shallow water waves, acoustic waves in a pipe, traffic flow, blood flow in arteries.


One, or more, of the topics below.


4c. Waves through laminated media. Effective equation for thin and thick laminates.


4e. Waves in a rotating fluid. f and β plane approximations. Poincaré, Kelvin, and Rossby waves. The equatorial waveguide.

4f. Partially trapped waves and leaky modes.

Recommended/suggested books and textbooks.


Other books (alphabetical)


**PDE books**