
**Prerequisite**: Familiarity with compressible laminar flows (ME 355) and incompressible turbulence (ME 361), or consent of the instructor.

**Instructor**: Javier Urzay, Ph.D.

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Office: 206 CTR, Phone: 650 723 9601
Office Hours: Mondays 4:00 PM-6:00 PM.

**Lectures**: Tuesdays and Thursdays, 1:30 PM-2:50 PM at room 380-381T.

**Reference Texts (not required)**:

Supplementary material shall be provided in class.

**Homeworks**: There will be 3-4 homework assignments. No late homeworks will be accepted.

**Exams**: Midterm Exam: Tuesday, May 9, in class.

Final Exam: TBA.

Both exams will consist of two parts: i) Short Questions (closed books, closed notes, no calculator), and ii) Problems (open book and open notes, calculator allowed).

**Grading Scheme**: 30% Homeworks + 30% Midterm Exam + 40% Final Exam.

**Academic Integrity**: The Stanford Honor Code will be followed: https://communitystandards.stanford.edu/student-conduct-process/honor-code-and-fundamental-standard

**Website**: http://www.stanford.edu/~jurzay/ME_451C
TENTATIVE OUTLINE

1. Introduction
   Engineering applications. Historical developments.

2. Fundamental Aspects of Compressible Flows

3. Shock Waves

4. Acoustics

5. Fluctuation Dynamics in Compressible Turbulence

6. The Interaction of Shock Waves with Plane Disturbances

7. Compressible turbulent boundary layers.

8. Subgrid-scale modeling for compressible turbulence.