Gasdynamics

EAS 6138 Section CAMP
Class Periods: MWF, 9, 4:05-4:55 pm
Location: NEB 0G0102
Academic Term: Spring 2026

Instructor:
Subrata Roy
roy@ufl.edu
(352) 392-9823
Office Hours: TBD

Prerequisites

EAS 4103 or EML 5714 or any course in one-dimensional compressible flow.

Course Objective

The objective of this course is to explore concepts related to Gasdynamics and compressible flows. The course will use the basic understanding of one dimensional isentropic flow as the starting point and expand into more advance concepts of compressible flows. The skills developed in this class are important to a variety of mechanical and aerospace engineering applications.

Topics

Below is an approximate list of the topics that will be covered in this class.

- Review of Gas Thermodynamics
- Wave propagation
- Shock Tubes
- Oblique shocks and wedge flows
- Thin airfoil theory
- Linearized flow equations
- Potential Flow
- Transonic flows
- Method of characteristics
- Compressible Boundary Layers
- Multi-dimensional compressible flow
- Air breathing propulsion – Ramjet & Scramjet
- Hypersonics
- Special Topics Numerical Methods

Text and Other Resources

- **Class Text:** Elements of Gasdynamics, by H. Liepman and A. Roshko, Dover Publications. .
- **Supplemental Text:**
  - Zucrow and Hoffman, "Gas Dynamics," Volume 1, Wiley, 1976
  - Anderson, "Modern Compressible Flow," McGraw Hill, 1990
  - Schreier, "Compressible Flow," Wiley, 1982

Course web page

- Maintained through UF and can be found by signing into elearning.ufl.edu

Grade Determination

Assignment	Due date	Weightage
Homework/Paper review (assigned through website)	March 30	20%
Exam 1	February 27	20%
Exam 2	April 17	20%
Project	April 30	40%
Total		100%

Project: Discuss any project idea that you may have that is suitable for this course. This should be finialized by the middle of the semester. Topics may be relevant to your research, you may write your own code to design a nozzle or use CFD software to solve a problem of your interest.

Personal Responsibility

You are personally responsible for all information disseminated during the lectures. This means knowing all homework due dates, knowing when exams will be given, where they will be given, what material they will cover, and knowing all material, handouts, and announcements made in the lectures, whether or not you were present. Thus, if you miss a lecture, it is your responsibility to obtain all information presented during that lecture. "I missed that information" or "I was unaware of that information" will not be accepted as valid excuses.

Late / Makeup Work

Students are permitted one late HW submission, provided the HW is handed in prior to the posting of the solution. ***The request for this extension must be made to the instructor before the due date of the assignment.*** Make-up exams will not be given. If a student has a legitimate reason for missing an examination or assignment, the course grade will be determined from the remainder of the other course assignments.

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: https://go.ufl.edu/syllabuspolicies. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu