University of Massachusetts
Mechanical and Industrial Engineering 440
Fall 2004

Aerospace Fluid Mechanics

MWF 10:10-11:00 AM Elab 323

This course is designed to be an introduction into compressible fluid dynamics. Concepts including sound wave propagation, the Mach number, and normal and oblique shock wave will be will be developed and applied. A good knowledge of thermodynamics and fundamental fluid dynamics is required. The last month of the course will comprise an introduction into concepts of computational fluid dynamics (CFD). The commercial CFD code Fluent™ will be used to complete an end of the semester design project.

Instructor

Professor Jonathan P. Rothstein
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| Office hours: | Monday | 11:00-12:00 PM |
| | Tuesday | 9:00-10:00 AM |

Web Page

http://www.ecs.umass.edu/mie/faculty/rothstein/mie440.htm

Course Text

Anderson, J.D., *Modern Compressible Flow with Historical Perspective, 3rd Ed*. McGraw Hill, Boston, 2003.

Grading

The course grade will be based on two midterm exams and an end of the semester project given the following weight:
Homework	25%
Hour Exams (2)	50%
Final Project	25%

Homework

A set of homework problems will be assigned roughly once a week during lectures. You should work through these problems carefully as they are essential for your learning of the material. The problems will be typically collected and graded on Wednesdays. Towards the end of the semester you will be assigned a final design project using Fluent™.