MAE 571 Fluid Mechanics

Fall 2016 Monday/Wednesday 10:45-12:00, Classroom: ECG 236

Instructor: Huei-Ping Huang (hp.huang@asu.edu), ERC 359
Office hours: Tuesday 3-5 PM, Wednesday 4-5 PM, or by appointment

Course website http://www.public.asu.edu/~hhuang38/MAE571.html

Textbook: "Elementary Fluid Dynamics", by D. J. Acheson, Oxford University Press, **Required**

Approximate order of planned lectures (chapter numbers refer to those in the textbook):

Chapter 1 Introduction; Eulerian vs. Lagrangian framework; Euler's equation (3 lectures)

Chapter 6 Navier-Stokes equations; Incompressible flow (5 lectures)
+ Very brief introduction to Chapter 9: Reynolds number; Laminar vs. turbulent flow
Chapter 2 Elementary viscous flow (3 lectures)

Chapter 7 Very viscous (low Reynolds number) flow (3 lectures)

Chapter 8 Boundary layers (3 lectures)

Chapter 4 Irrotational flow; Classical airfoil theory (4 lectures)

Chapter 5 Vortex motion; Incompressible, effectively inviscid flow (3 lectures)

Chapter 3 Waves in fluids; Very brief introduction to compressible flow (4 lectures)

Chapter 9 (if time allows) Instability and onset of turbulence/convection

Grade: Homework 80%, Attendance & class participation 10%, Oral exam 10%

Useful links

Please make sure that you are familiar with <u>ASU policies on academic integrity</u> and campus safety:
ASU policy on academic integrity: https://provost.asu.edu/academicintegrity
Campus safety and security: https://provost.asu.edu/University-Safety-Security

Grade and grading policies, contacts of advising office:
Grade and grading policies: https://students.asu.edu/grades
SEMTE advising: http://semte.engineering.asu.edu/advising/

Useful websites:
ASU common software/applications portal: http://myapps.asu.edu (login required)