**MAE 571 Fluid Mechanics**
Fall 2014 Monday/Wednesday 10:30-11:45 PM, Classroom: LL14

Instructor: Huei-Ping Huang (hp.huang@asu.edu), ERC 359
Office hours: Monday 3-5 PM, Tuesday 3-5 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 presentations (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:** Approximately 9 take-home problem sets will be handed out through the semester. These will include one mandatory set which serves as the midterm, and a package of two mandatory sets which serves as the final exam. Your final grade will be determined by your best 4 (5 if the total number of problem sets exceeds 9) performances from the regular problem sets plus the 3 mandatory sets. Specific rules for the take-home assignments will be released at a later time.

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### Useful links

**Please make sure that you are familiar with ASU policies on academic integrity 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 for Matlab:**
ASU common software/applications portal: https://apps.asu.edu (login required)
MATLAB searchable online documentation: http://www.mathworks.com/help/techdoc/?s_iid=ML2013_bb_doc
MATLAB online tutorial: http://www.mathworks.com/help/matlab/examples/index.html