Prof. Daniel J. Bodony
AE412/ME411, Fall 2012
Handout #1

Viscous Fluid Flow & Heat Transfer

Website `http://acoustics.ae.uiuc.edu`, click on 'AE412/ME411'

Instructor Prof. Daniel J. Bodony (AE)

Office	313 Talbot	Credit	Four hours (CRN: 29800, 36858)
E-mail	`bodony@illinois.edu`	Time	10:00–11:50 am TTh
Office hours	10:00–11:30 am M or by appointment	Location	153 MEB

Teaching assistant Revathi Jambunathan

E-mail	`jambuna2@illinois.edu`
Office	326 Talbot
Office hours	10 am–noon F

Description (From course catalog) Momentum and thermal transport in wall boundary-layer and free shear flows, solutions to the Navier-Stokes equations for heat conducting laminar and turbulent shear flows; similarity concepts; thermal boundary layers in ducts and high-speed aerodynamic boundary layers.

Prerequisites AE 311 or ME 310.

Necessary background Vector calculus, differential equations through partial differential equations, incompressible flow theory, thermodynamics, basic programming skills.

Recommended textbook *Viscous Fluid Flow*, F. M. White, 3rd edition, McGraw-Hill.

Reserved texts These texts are on reserve in the engineering library.

Van Dyke, *An Album of Fluid Motion* :: an excellent book.
Batchelor, *Introduction to Fluid Dynamics*
Landau & Lifshitz, *Fluid Mechanics*
Currie, *Fundamental Mechanics of Fluids*
Schlichting, *Boundary Layer Theory*
Bird, Stewart, & Lightfoot, *Transport Phenomena*

Grading

Homework (assigned regularly)	40%
Exam I	30%
Final Project	30%

Honor code It is assumed that the UIUC Student Code will be followed at all times, including during completion of homework and during exams.