Prof. Marco Panesi

AE410/CSE461—Computational Aerodynamics :: Spring 2014

Website `http://nauka.ae.illinois.edu`

Instructor Prof. Marco Panesi (AE)

Office	314 Talbot	Credit	Three hours (CRN: 29954)
E-mail	`mpanesi@illinois.edu`	Time	11:00 am –12:20 pm TR
Office hours	01:00–02:30 pm TR	Location	Greg 319

Description (From course catalog) Finite difference and finite volume methods for solving partial differential equations. Model equations will be used to introduce methods prior to application to compressible inviscid and viscous flows. Emphasis will be placed on developing techniques for programming and analyzing numerical schemes applicable to more complicated scenarios.

Prerequisites Undergraduate level fluid mechanics;* introductory numerical methods

Necessary background Calculus, some differential equations, basic programming skills.

Textbook Lomax, Pulliam, & Zingg, *Fundamentals of computational fluid dynamics*

Other recommended texts These texts are on reserve in the engineering library.

Hirsch, *Numerical computation of internal and external flows*, Volumes 1 & 2.
Computational Fluid Mechanics and Heat Transfer by J. Tannehill, D. Anderson, R. Pletcher; Sec
Gustafsson, Kreiss, & Oliger, *Time dependent problems and difference methods* (advanced)
LeVeque, *Finite volume methods for hyperbolic problems* (advanced)

Grading

Homework/mini-codes	20%
Take-home midterm	40%
Project	40%

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

*For example, AE312 or ME310