

AME 530b: Dynamics of Incompressible Fluids (3.0 Units)

Spring 2017

12:30-1.50pm Monday and Wednesday, OHE 100D

Instructor: Prof. Mitul Luhar (luhar@usc.edu)

Preliminary Schedule

W	Date	Lectures	Notes
1	01/09/17	M: Preliminaries, Overview of Course W: Dimensional Analysis and Scaling	
2	01/16/17	M: Martin Luther King Day (No Class) W: Flow Field Kinematics	HW1 Out
3	01/23/17	M: Navier-Stokes Equations and Boundary Conditions W: Energetics of Incompressible Flows	
4	01/30/17	M: Vorticity Equation W: Vortex Dynamics I	HW1 Due HW2 Out
5	02/06/17	M: Vortex Dynamics II (Travel: reschedule) W: Boundary Layer Theory	
6	02/13/17	M: Steady Boundary Layers W: Unsteady Boundary Layers	HW2 Due HW3 Out
7	02/20/17	M: President's Day (No Class) W: Perturbation Expansion and Streaming I	
8	02/27/17	M: Perturbation Expansion and Streaming II W: Transition to Turbulence I	
9	03/06/17	M: Transition to Turbulence II W: Introduction to Turbulence	HW3 Due HW4 Out
	03/13/17	Spring Recess	
10	03/20/17	M: Reynolds Decomposition W: Turbulent Transport of Momentum and Heat	
11	03/27/17	M: Energetics of Turbulence W: Vorticity Dynamics in Turbulence	HW4 Due HW5 Out
12	04/03/17	M: Early Theories of Turbulence (Mixing Length) W: Wall-Bounded Turbulent Flows I	
13	04/10/17	M: Wall-Bounded Turbulent Flows II W: Wall-Bounded Turbulent Flows III	
14	04/17/17	M: Wall-Bounded Turbulent Flows IV W: Boundary-Free Turbulent Flows I	HW5 Due
15	04/24/17	M: Boundary-Free Turbulent Flows II W: Boundary-Free Turbulent Flows III	Final (Mon-Fri)