

CEE 342, Autumn 2005

Introduction to Fluid Mechanics

Professor Mark Benjamin, More Hall 335; 543-7645, markbenj@u.washington.edu, TF 11:30, Th 10:30

TAs: Jennifer Duane, jenduane@u, More 121-I; T 2:30, Th 1:30

Se-Yuen Lee, leesy@u; Wilcox 173 W 2:30

Text: Munson et al., Fundamentals of Fluid Mechanics, 5th Ed., Wiley (2006),
<http://www.wiley.com/college/munson>

Day and Date		Topic	Text Reading
W	Sept 28	Introduction, Fluid Properties	1.1
F	30	Fluid Properties; Pressure	1.2-1.9
M	Oct 3	Fluid Statics; Manometry; Fluid Forces on Plane Areas	2.1-2.10
M	3	Forces on Curved Areas	
W	5	Buoyancy; Rigid Body Motion	2.11-2.12
F	7	Bernoulli Equation; Pitot Tubes	3.1-3.5
M	10	Venturi Meters; Free Jets; Hydraulic Grade Line	3.6-3.7
W	12	Kinematics; Streamlines; Lagrangian and Eulerian Perspectives	4.1
Th	13	LAB: <i>Venturi Meter</i> (Harris Lab)*	
F	14	Kinematics; Acceleration; Material Derivative	4.2
M	17	Reynolds Transport Theorem	4.3-4.4
W	19	Continuity Equation	5.1
F	21	Continuity Equation	5.1
M	24	QUIZ #1	
W	26	Flow in a Curved Path; Linear Momentum	5.2
Th	27	LAB: <i>Continuity Equation</i> (Harris Lab)*	
F	28	Linear Momentum	5.2
M	31	Energy Equation; Energy Grade Line	5.3
W	Nov 2	Dimensional Analysis	7.1-7.5
Th	3	LAB: <i>Energy Equation Analysis</i> (Harris Lab)*	
F	4	Dimensional Analysis	7.6
M	7	Modeling	7.8-7.9
W	9	Pipe Flow: Ideal and Real Fluids; Laminar Pipe Flow	8.1-8.2
F	11	<i>Veteran's Day Holiday</i>	8.3
M	14	QUIZ #2	
W	16	Pipe Flow: Transition to Turbulence and Turbulent Flow	8.4
Th	17	LAB: <i>Head Loss in a Pipe</i> (Harris Lab)*	
F	18	Pipe Roughness; The Moody Diagram	8.4
M	21	Pipe Flow	8.4
W	23	Minor Headlosses	8.4
F	25	<i>Thanksgiving Break</i>	
M	28	Multi-pipe Systems	8.4
W	30	Boundary Layers; Lift and Drag	9.1-9.2
F	Dec 2	Lift and Drag	9.3
M	5	Flow in Open Conduits	10.1-10.2
W	7	Flow in Open Conduits: Hydraulic Jumps	10.6
Th	8	LAB: <i>Hydraulic Jump</i> (Harris Lab)*	
F	9	Catch up, Review	
T	13	Final Exam, 2:30-4:20	

*Attendance at all laboratory sessions is mandatory.