

UNIVERSITY OF CALIFORNIA
 Department of Mechanical Engineering
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ME106–FLUID MECHANICS
 Spring 2019
 Class: 141 McCone MWF 09:00–10

Text (optional). Munson et al. *Fundamentals of Fluid Mech.*, any recent ed., Wiley.

Course Reader. From ‘Copycentral’, 1971 Shattuck Avenue.

Grading. Quizzes (your best 3 out of the 6) 10%; tests 1 and 2, 20% each; final 50%

Tests and quizzes. Closed book. Require symbolic answers. Homework is neither collected nor graded, but tests cover only topics on which homework has been assigned. (The questions are different.) Sample tests are at the end of the reader.

Week	Monday	Topic	Text
1	1/21	Euler’s equation of motion Viscosity and Reynolds number	Ch. 1
2	1/28	Hydrostatics	Ch. 2
3	2/04	Flow kinematics Bernoulli equation (incompressible flow)	Ch. 4.1–4.3 Ch. 3
4	2/11	Transport theorem. Mass balances Momentum balances	Ch. 4.4, 5 Ch. 5
5	2/18 2/18	Momentum & energy balances Holiday	Ch. 5
6	2/25 2/27	Compressibility: sound speed & Mach cone 1st TEST (Weds.)	Ch. 11.1–11.3 CLOSED BOOK
7	3/04	Bernoulli equation (compressible flow) Converging–diverging nozzles	Ch. 3.8.1 Ch. 11.4
8	3/11	Normal shock waves	Ch. 11.5.3
9	3/18 3/25	Dimensional analysis Navier–Stokes equations for viscous flow (Spring break)	Ch. 7 Ch. 6.2, 6.8
10	4/01	Internal flow Poiseuille flow	Ch. 8.1 Ch. 8.2
11	4/08	Velocity profile in turbulent pipe flow	Ch. 8.3.3
12	4/15 4/17	Friction factor 2nd TEST (Weds.) External flow	Ch. 8.4 CLOSED BOOK Ch. 9.1, 9.3
13	4/22	Boundary layer on a flat plate	Ch. 9.2
14	4/29	Boundary layer separation	Ch. 9.2
15	5/06	Reading week	

FINAL TEST (closed book): Mon., 2019.05.13, 7–10pm
QUIZZES (closed book): begin Fri., 2/08; then every 2nd Friday.