Chemical Engineering 374
Class Schedule and Assignments (Subject to Change)
Fall 2013

Class	Date	Topic	Reading	RQ #	HW #	Problems	*Problems 2nd edition*
						(W=see web!)	*(W=see web!)*
1	W--Sep 4	Introduction	1		--		
2	F--Sep 6	Fluid Properties	2.1-2.6	1	1	1-3, 1-13, 1-23, 1-37, 1-54W	*1-3, 1-12 (6 kg, 0.18 m3), 1-25, 1-37, 1-57W*
3	M--Sep 9	Fluid Statics	3.1-3.2	2	2	2-13, 2-25W, 2-46, 2-79, 2-80W	*2-14, 2-25W (use 20 oC), 2-43 (use 0.8%), 2-75, 2-76W*
4	W--Sep 11	Pressure Forces on Surfaces	3.3-3.6 (buoyancy)	3	3	3-29, 3-24W, 3-58	*3-25 (use 225 ft), 3-20W, 3-53*
5	F--Sep 13	Property Balance Math	4.1, 4.6	4	4	3-12, 3-67, 3-86W, 3-102	*3-10 (use h's=0.4,0.6,0.8), 3-67, 3-80W, 3-98W (use 25 cm)*
6	M--Sep 16	Integral Mass Balance	5.1-5.2	5	5	4-18, 4-93, 4-94	*4-18, 4-94, 4-95*
7	W--Sep 18	Integral Energy Balance	5.3, 5.5	6	6	5-7, 5-14, 5-W1	*5-7, 5-13, 5-W1*
8	**F--Sep 20**	Bernoulli Equation	5.4	7	7	5-27, 5-25	*5-23, 5-25 (use 110 m below, 900 kg/s)*
9	M--Sep 23	Bernoulli Applications	5.4	8	8	5-34, 5-49, 5-51W, 5-66	*5-35, 5-47, 5-49W, 5-63*
10	W--Sep 25	Review			9	5-53, 5-56, 5-62, 5-W2	*5-51, 5-54 (105 kPa, 37oC, 65 L/s), 5-55, 5-W2*
11	F--Sep 27	**Exam1** / Safety			--		
12	M--Sep 30	Exam Review			--		
13	W--Oct 2	Mechanical Energy	5.6		--		
14	F--Oct 4	Dimensional Analysis	7.1-7.3	9	10	5-86, 5-97, 5-94	*5-78, 5-93 ($0.06/kWh, $0.13/kWh), 5-95*
15	M--Oct 7	Dimensional Analysis	7.4-7.5	10	11	7-38, 7-57, 7-65	*7-40 (instead of one fifth, L=4.85 m, 0.44 m/s, ans=30.2 m/s), 7-57, 7-65*
16	W--Oct 9	Laminar Pipe Flow	8.1-8.4	11	12	See web page	*See web page*
17	F--Oct 11	Turbulent Pipe Flow	8.5	12	13	8-23, 8-37, 8-40, 8-39	*8-23, 8-35, 8-38 (D=28 cm, L=330 m), 8-39*
18	M--Oct 14	Minor Losses	8.6	13	14	8-39, 8-35, 8-46, 8-50	*8-32, 8-33, 8-44, 8-46*
19	W--Oct 16	Single Pipelines	8.5	14	15	8-47, 8-56, 8-63, 8-64, 8-W1	*8-50, 8-60, 8-61 (8 m high, D=2.2 cm), 8-63, 8-W1*
20	**F--Oct 18**	Pipe Networks	8.7		16	8-83, 8-152, 8-132	*8-100, 8-149, 8-132*
21	M--Oct 21	Flow Meters	8.8	15	17	8-92, 8-94, See web page	*8-95, 8-97 (L_A=1500 m, L_B=3000 m, ans=0.31 m3/s), See web*
22	W--Oct 23	Review		16	18	8-118, 8-124, 8-116	*8-120, 8-126, 8-131*
23	F--Oct 25	**Exam 2** / Environment			--		
24	M--Oct 28	Exam Review			--		
25	W--Oct 30	Integral Momentum Balance	6.1-6.4		19	See web	See Web
26	F--Nov 1	Differential Balances	9.1-9.2, 9.4	17	20	6-21, 6-25, 6-28W, 6-95 Project Proposals Due	*6-19, 6-23, 6-26W (35 m/s water, 10 m/s cart, ans=536 N, 5.36 kW), 6-82 (m_sat=3400 kg, 3s not 2s* *Project Proposals Due*
27	M--Nov 4	Navier-Stokes Equations	9.5-9.6	18	21	W, 9-28, 9-36W, 9-32, 9-29	*W, 9-30, 9-31W, 9-34, 9-38*
28	W--Nov 6	Boundary Layers	10.6: 554-564 (2nd: 530-540)	19	22	9-89W, 9-93, 9-101	*9-91W, 9-95, 9-106*
29	F--Nov 8	Submerged Flows	11.1-11.6	20	23	10-83, 10-102	*10-86, 10-94*
30	M--Nov 11	Pump Systems	14.1-14.2 not 808-815 (2nd: 783-789)	21	24	11-31, 11-42, 11-78, 11-70	*11-41 (40 km/h), 11-46, 11-73 (200 m, 15 oC), 11-77*
31	W--Nov 13	Pump Scaling	14.3	22	25	14-31, 14-45, 14-60, 14-62	*14-30, 14-47 (3 m lower, z-z=10.85 m), 14-62, 14-64*
32	F--Nov 15	Turbines	14.4-14.5	23	26	14-72, 14-93, 14-103, web-prob	*14-66, 14-98, 14-102, web-prob*
33	M--Nov 18	Review		24	27	14-90, 14-108 (fig 14-88), 14-122	*14-84, 14-113, 14-130*
34	W--Nov 20	**Exam 3**			--		
35	F--Nov 22	Exam 3 review			--		
36	M--Nov 25	Non-Newtonian Flows	Notes (see web)				
37	T--Nov 26	Compressible Flow	12.1-12.3				
38	***F--Nov 29***	******** ***HOLIDAY*** ********					
39	M--Dec 2	CFD	15.1				
40	W--Dec 4	CFD	15.3				
41	F--Dec 6	Project Presentations		25	28	See webpage	*See webpage*
41	M--Dec 9	Projects Presentations			29	12-5, 12-18, 12-31, 12-45	*12-6, 12-25, 12-36, 12-48 (Ma=1.8, 0.9)*
42	**W--Dec 11**	Projects Presentations		26			
	F--Dec 13	*Exam Preparation Day*					
43	**M--Dec 16**	**Final Exam 2:30 PM-5:30 PM**					