

Chemical Engineering 378
Class Schedule and Assignments (Subject to Change)
Fall 2023

Class	Date	Topic	Reading	RQ#	HW#	Problems
1	W--Sep 6	Introduction to Materials	1	--	-	--
2	F--Sep 8	Atomic Structure, Bonding	2	1	1	Personal Info Sheet, 1.1, 1.5
3	M--Sep 11	Crystal Structures	3.1-3.7	2	2	2.8, 2.9, 2.18, 2.25
4	W--Sep 13	Crystal Directions & Planes	3.8-3.12	3	3	3.2, 3.6, 3.7, 3.9, 3.15, 3.18, OEP-1
5	F--Sep 15	Crystalline & Non-crystalline	3.13, 3.17	4	4	3.20, 3.21, 3.22, 3.34, 3.4, 3.54
6	M--Sep 18	Point Defects, Solid Solutions	4.1-4.4	5	5	3.57*, 3.59*, 3.64, 3.65, 3.67, 3.69*
7	W--Sep 20	Dislocation Lines, Area Defects	4.5-4.11	6	6	4.4, 4.6*, 4.27, 4.35, OEP-2
8	F--Sep 22	Glasses and Cements	12.1-12.5	7	7	4.40*, 4.46, 4.D1, 4.D2
9	M--Sep 25	Steady State Diffusion	5.1-5.3	8	8	12.13, 12.16, 12.25, 12.27
10	W--Sep 27	Non-Steady State Diffusion	5.4-5.7	9	9	5.8, 5.9, 5.10, 5.11, OEP-3
11	F--Sep 29	Stress, Strain, Elastic Deform.	6.1-6.5	10	10	5.13, 5.15, 5.24, 5.34
12	M--Oct 2	Tensile Properties, Hardness	6.6-6.12	11	11	6.10, 6.12, 6.19, 6.26
13	W--Oct 4	Review	1-6, 12	12	12	6.30, 6.42, 6.50, 6.51, OEP-4
14	F--Oct 6	Exam 1	--	--	--	--
15	M--Oct 9	Dislocation, Strengthening	7.1-7.13	--	--	--
16	W--Oct 11	Failure and Fracture	8.1-8.5	13	13	7.6*, 7.8, 7.14, 7.24, 7.31
17	F--Oct 13	Fatigue, Creep	8.6-8.15	14	14	7.40, 7.43, 7.D4, 7.D5
18	M--Oct 16	Polymers and Applications I	14	15	15	8.4, 8.7, 8.22, 8.41
19	W--Oct 18	Polymers and Applications II	ST1	16	16	14.2, 14.5*, OEP-5
20	F--Oct 20	Phase Equilibrium	9.1-9.12	17	17	14.25, SP1, SP2, SP3
21	M--Oct 23	Phase Eq., Fe-C System	9.13-9.20	18	18	9.10 (bdfh), 9.13, 9.24, 9.29
22	W--Oct 25	Interfacial Phenom., wetting	ST2	19	19	9.54, 9.55, 9.59, 9.71, OEP-6
23	F--Oct 27	Phase Trans.: kinetics, microst.	10	20	20	SP4, SP5, SP6
24	M--Oct 30	Review	ST1&2, 7-14	21	21	10.3, 10.4, 10.5, 10.10, 10.19(acfh), 10.28, 10.D7
25	W--Nov 1	Exam 2	--	--	--	--
26	F--Nov 3	Various Metals, Processing	11	--	--	--
27	M--Nov 6	Ceramics and Processing	13	22	22	11.4, 11.12, 11.22, 11.D11
28	W--Nov 8	Polymer Fabrication	15	23	23	12.52, 13.5, 13.13, 13.24, OEP-7
29	F--Nov 10	Composites, Fiber Orientation	16.1-16.7	24	24	15.1, 15.17, 15.40, 15.46
30	M--Nov 13	Composites: types, aps.	16.8-6.15	25	25	16.4, 16.7*, 16.8, 16.12
31	W--Nov 15	Corrosion, Corrosion Thermo.	17.1-2, ST3	26	26	16.15, 16.18, 16.19, 16.D5, OEP-8
32	F--Nov 17	Corrosion kinetics	17.3-7, ST3	27	27	17.14, 17.8, 17.11*
33	M--Nov 20	Corrosion Protections	17.8-9, ST3	28	28	17.18, 17.19*, 17.22, 17.24, 17.28
34	T--Nov 22	***NO CLASS***	--	--	--	--
35	F--Nov 24	***** HOLIDAY *****	--	--	--	--
36	M--Nov 27	Corrosion Special Problems	17.10-13, ST3	--	--	OEP-9
37	W--Nov 29	Review	--	29	29	SP7, SP8, SP9
38	F--Dec 1	Exam 3	--	--	--	--
39	M--Dec 4	Electrical Properties	18	--	--	--
40	W--Dec 6	Thermal Properties	19	30	30	18.28, 18.30, 18.48, 5.D4
41	F--Dec 8	Magnetic Properties	20	31	31	19.1, 19.8, 19.27, 19.D1
42	M--Dec 11	Optical Properties	21	32	32	20.1, 20.5, 20.9, 20.17
43	W--Dec 13	Final Exam Review	Everything	33	33	21.1, 21.7, 21.28, 21.D1, OEP 10
44	W--Dec 20	Final Exam 11:00 AM-2:00 PM				

* indicates that there are additional questions or helpful hints in the "Homework Notes" on the Website
ST = Special topics; these are on Learning Suite, SP = Special problems, OEP = Open Ended Problems