Chemical Engineering 641
Spring 2013

Class	Day	Date	Topic		Assignments	Reading
1	W	May 1	Introduction, Discussion of Content for Course	THF		
			Equilibrium Concepts			
2	F	3	More Equilibrium Concepts	THF	**Proposal Due**	Equilibrium
			Lab - Equilibrium program demos			Hints
3	M	6	Intro to ChemKin/Cantera	DOL		
			Lab - Work on equilibrium projects			
4	W	8	**Equilibrium presentations**	**DOL**		
			Lab - Cantera			
5	F	10	PSR/Premixed Theory	DOL	**Proposal Due**	
			Numerical Methods, Sensitivity Analysis			
6	M	13	Full & Reduced Mechanisms, Sensitivity Analysis	THF		
			Lab - Cantera			
7	W	15	PaSr	THF		
			Lab -Cantera			
8	F	17	**Cantera presentations**	**Both**		
			Exam review			
	M	20			**Combustion Inst Mtg**	
	W	22				
9	Th	23	**EXAM (oral)**	**Both**		
10	F	24	Intro to Multi-Dimensional CFD	THF		
			Gridding, TEACH			
12	M	27	**Memorial Day**			
11	Tu	28	SIMPLE, Turbulence-CFD	DOL	**Proposal Due**	Ch. 10*
			Lab - Fluent/StarCCM+?			
13	W	29	Turbulence - Chemistry	DOL		11.1-3*
			Turbulence - Chemistry			11.4-8*
14	F	31	Lab - Fluent/StarCCM+?	Both		
			Lab - Fluent/StarCCM+?			
	M	Jun 3	**Turbulent Gaseous Combustion Presentations**	**Both**		
15	W	5	Particle Flow	DOL	**Turbo Expo Mtg**	Ch.9, Ch.12*
			Demo - Fluent			
16	F	7	Solid Phase Reactions	THF		3.5, 4.1, 4.2*
			Lab - Fluent		**Proposal Due**	
17	M	10	Turbulence-chemistry w/solid reactions	DOL		Ch. 13*
			Turbulence-chemistry w/solid reactions			
18	W	12	Lab - Fluent	Both		
	F	14	NOx Pollutant Modeling	THF		Ch. 15*
			Radiation			Ch. 14*
19	M	17	**Particle Laden Flow Presentations**	**Both**		
20	W	19	**Final Exam (Oral)**	**Both**		
*Reading material covered in Smoot and Smith (1985)						