

January 19, 2015

Dear EECE 503 students,

In my e-mail notes (letters to you) of January 13 and 15 I spelled out the plan for the course and provided you with the key reference materials.

1) On January 13, regarding week 1, I strongly suggested reading materials related to the Tuesday, January 13, class in the following chapters (all on our course web page):

ChE 505 Ch.1N

ChE 505 Ch.2N

ChE 505 Ch.2N Appendix

ChE 505 Ch.3N

In addition those that did not have much reaction engineering should read the lectures in ChE 471: Lecture 1, 1A, 1B, 1C, 1D

HW 1 distributed in class is due Tuesday, January 20 in class. After this individual HW you will form teams and submit one HW per team.

2) Today on January 19 I sent you as attachments the reading material for the lecture of Thursday January 15.

3) During week 2 ( see tentative syllabus below) we will briefly review the key points of chemical thermo that we covered and focus on kinetics- rate expressions and their dependence on temperature and composition. We will then introduce the methods for obtaining rates from mechanisms and show their applications.

### **Week 2. (Jan. 20, 22)**

Concepts of kinetic rates, activation energy, elementary reactions, reaction mechanisms, derivation of rate forms.

Transition state theory; elementary gas phase and liquid phase reactions.  
Diffusion limited reactions.

Suggested readings related to basic theories and concepts of elementary reactions and derivation of rate forms from mechanisms (how much you should read depends on your background or lack of it) are all from Chapters in ChE 505:

Ch 4N, Ch 5N, Ch 5N addendum, Ch 6N (sections 6.2, 6.4.1-6.5. Also read relations for evaluations of rate constants and applications of PSSA and RLSA to chain reactions. Read Ch 7N mainly Sections 7.4; 7.5.2-7.5.3; 7.5.4; 7.8.2-7.8.3, 7.8.4 and be aware of Ch 7N Appendix.

HW 2 will be distributed by Joyce and will be your first team homework.

See you in class tomorrow.

Mike D.