

ChE 326, Reaction Phenomena
MWF 12:00 – 12:50

Term: Spring 2011
Instructor: Edwin L. Kugler
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Office Hours: MW 10:00 – 10:50

Required Textbooks: *Elements of Chemical Reaction Engineering (4th ed)*, H. S. Fogler, Prentice-Hall 2006

Introductory Chemical Engineering Thermodynamics, J. R. Elliott and C. T. Lira, Prentice-Hall 1999

- Learning Goals:**
1. Students will be able to calculate rate constants and activation energies from experimental data.
 2. Students will be able to determine rate laws from experimental data.
 3. Students will be able to use pseudo-steady-state approximation to develop a rate expression for a series of elementary reactions.
 4. Students will be able to use concept of rate-limiting step to develop a rate expression for a series of elementary reactions.
 5. Students will be able to apply Michaelis-Menten kinetics for enzyme-catalyzed reactions.
 6. Students will be able to develop a rate expression for surface-catalyzed reactions using Langmuir-Hinshelwood kinetics.
 7. Students will understand the criterion for chemical reaction equilibrium and be able to solve chemical reaction equilibrium problems.
 8. Students will be able to use Polymath and Excel software to solve the problems listed above.

Exams: All exams will be comprehensive. Newer material covered since the last exam will be emphasized.

Homework: Homework assignments will normally be given on Wednesday and will be due at the beginning of class on the following Monday. It will not be accepted late. It is expected that homework will be done in groups so that you may learn from each other, but each student is expected to turn in his or her own homework assignment. Homework problem solutions will be placed on e-reserve on the library web site as soon as possible after they are due.

Grading:	1 st Exam	20%	Friday, February 4
	2 nd Exam	20%	Friday, March 4
	3 rd Exam	20%	Friday, April 8
	Homework	20%	
	Final Exam	20%	15:00-17:00, Friday, May 6

Letter Grades: This class will not be graded on a curve. The following percentage grade will earn the letter grade indicated:

90 – 100 %	A
80 – 89 %	B
70 – 79 %	C
60 – 69 %	D
< 60 %	F

Approximate Schedule:	Weeks 1-2	Fogler, Chapter 3
	Week 3-4	Fogler, Chapter 5
	Weeks 4-6	Fogler, Chapter 7
	Week 7-8	Fogler, Chapter 10
	Week 9-10	Elliott & Lira, Chapter 14
	Week 11-13	Supplemental material
	Week 14	Design Presentations