

This course will cover advanced topics in chemical kinetics (the study of reaction rates on a macroscopic scale) and reaction dynamics (the study of reaction rates and mechanisms on a molecular scale). Prerequisites are undergraduate kinetics (usually taught as part of the thermodynamics course) and a strong foundation in calculus (preferably at least two semesters).

**Required books:** *Chemical Kinetics and Dynamics*, 2<sup>nd</sup> ed. by Jeffrey I. Steinfeld, Joseph S. Francisco and William L. Hase and *Chemical Kinetics and Reaction Dynamics* by Paul L. Houston

**Class:** MW 8-8:50am; F 12-12:50pm in room 4180.

**Office Hours:** M 11:30am – 1pm. Tu 1-2pm. W 11:30am – 2pm, F 8-9:30am; or by appointment.

**Tentative grading:** The relative proportions of your grade coming from each category are *approximate*. Check the course web page for any changes. Your grade will be based on the total number of points received out of the total number possible.

Hourly exams (3 @ 100 pts each):	300 pts
Cumulative final exam:	150 pts
Assignments (30 - 40 pts each):	~250 pts
Quizzes and in-class assignments (5 - 10 pts each):	~100 pts
Project:	100 pts
<b>Total:</b>	<u>~900 pts</u>

Tentative grades (you may do better than this, but not worse): 90% = A, 80% = B, 70% = C, 60% = D, <60% = F. As the semester progresses, current grades will be posted on [WebCT](http://www.eiu.edu/vce/index.php) (<http://www.eiu.edu/vce/index.php>).

**Attendance:** You are expected to attend class regularly. If you miss class, it is *your* responsibility to find out what you missed, get notes from a classmate, etc. If you know that you are going to miss class, you must inform the instructor *before* the absence. If you will be away the day an assignment is due, arrange to turn it in early. If you will miss an exam, you may only make it up with a **written excuse** documenting a valid reason for your absence (serious medical circumstances, university activity, or other emergency). Contact the instructor *before* the exam if at all possible. Written excuses must be provided and make-ups completed within *one week* of your return from the absence. The [final exam](#) is *Monday, December 10, 2006 at 8:00 am*. It **must** be taken at the scheduled time unless you have a conflict with another exam. Let me know ASAP if there is a conflict.

**Assignments:** You will be assigned 6 – 8 graded homework assignments over the course of the semester. Assignments will be posted on the class web site, <http://www.ux1.eiu.edu/~rpeebles/5250F07.htm>. You must check this site regularly to download any new assignments. Not being able to access an assignment is not an acceptable excuse for late homework. Make sure you download the assignment early enough that any computer issues can be resolved, and contact the instructor ASAP if you have difficulties with any part of the course web page. You are encouraged to discuss the homework with your classmates, but you must cooperate constructively. Copying even one question from anybody else is **cheating** on the part of both you and the person who let you copy. When you work together, you may *discuss* a concept or how to do a calculation. It is also acceptable to help somebody find the correct section in the textbook or notes, but **you must write the answer in your own words, punch the buttons on your own calculator, and lay out the problem in your own way on the paper**. **ASSIGNMENTS WITH EVEN ONE COPIED ANSWER WILL RECEIVE AN AUTOMATIC ZERO (NO WARNINGS) AND REPEAT INSTANCES WILL BE REPORTED TO JUDICIAL AFFAIRS WITH THE RECOMMENDATION OF AN “F” IN THE COURSE.** (See below for further information on academic integrity.) Homework answers will be posted on the course web page (see link above) shortly after the assignment is due. There will be no make-ups and no late assignments. The instructor is always willing to help if you are having trouble with assignments or any other aspect of the course.

**Additional Responsibilities:** Since this is a graduate level course, you should expect to spend significantly more time studying outside of class than you would for an undergraduate course. You may also need to review some concepts from calculus I and II and undergraduate thermodynamics and kinetics on your own. It is very likely that there will be some high level calculus results presented in class that you will not have seen in your previous math courses. The instructor will make an effort to point out, as they are encountered, the mathematical results that are beyond what you are expected to know. For your day-to-day studying, it is an excellent idea to recopy your notes each evening, trying to understand them and reproduce any derivations or other math as you go. Reading the relevant material in *both* textbooks will also be essential to your understanding. You will also be assigned ungraded questions from the textbook(s). The problem numbers for each chapter will be posted on the online syllabus as we come to the chapter in class. These questions should be completed as soon as possible after they are covered in class. Answers to some of the assigned problems are in the back of the textbook, and answers to others will be made available by the instructor. In the graduate level textbooks that we’ll use for this course, there are significantly fewer worked examples than there are in an undergraduate textbook; therefore, it is essential that you work the assigned problems carefully in order to fully understand the concepts discussed in class. Please let me know ASAP if you think you have found an error in a problem or in the text. There will also be occasional graded in-class assignments that are intended to give you extra practice on some of the more difficult topics that we will cover this semester.

**Academic Dishonesty:** Cases of academic dishonesty include (but are not limited to): 1. Cheating on exams, homework, or other coursework; 2. Plagiarism (copying homework or other material; failing to credit your sources); 3. Helping other students to cheat or plagiarize. Suspected cases of academic dishonesty will be reported to the Office of Judicial Affairs with the suggested penalty of an “F”

(Fail) in the course. The Judicial Board will then assess the evidence for and against the student. Your instructor may also report *suspected* cases of academic dishonesty to Judicial Affairs as a matter of record. According to university policy, cheating in any form (however “minor” you may consider it) is deserving of an “F” (Failure) in a course. See <http://www.eiu.edu/~judicial/code.html> for the university code of conduct which fully explains university policies on these matters.

**Class Conduct:** In class, you are expected to behave in a manner which is mature and conducive to learning. **CELL PHONES MUST BE TURNED OFF DURING CLASS.** Talking, passing notes, sleeping, reading, and doing homework are all **disruptive behavior** and **will not be tolerated.** Repeated instances of disruptive behavior will be reported to the Office of Judicial Affairs.

**NOTE:** To receive accommodation for a documented disability, contact the Office of Disability Services (581-6583) as soon as possible.

*Tentative* class schedule, reading assignments and end of chapter (ungraded) problems (updated online as we get to each chapter):

Date	Textbook Sections	Textbook problems
M8/20	Steinfeld: Chp. 1	S1.3a, S1.4, S1.6, S1.7a,b, H2.1, H2.3
8/22	Houston: 2.1 – 2.3.2,	
8/24	2.3.4, 2.3.5	
M8/27	Steinfeld: 2.1 – 2.2	S2.1, S2.4, S2.5(c), S2.9, H2.6, H2.9, H2.16,
8/29	Houston: 2.3.3, 2.4.1 –	H2.24, H2.28, H2.33, H2.35
8/31	2.4.3	
<b>M9/3</b>	<b>No Classes</b>	
9/5	Continued from 8/31	
9/7	Steinfeld 2.3	
M9/10	Houston: Chp. 1	H1.1, H1.8, H1.13, H1.16, H1.17, H1.18
9/12	Steinfeld: Chp. 6	
<b>9/14</b>	<b>Exam 1 (Tentative)</b>	
M9/17	Steinfeld: Chp. 7	H3.1, S7.1, S7.3, S7.4, S7.9 (note typo on
9/19	Houston: 3.1 – 3.2	updated corrections list), S7.10, S7.12
9/21		
M9/24		
10/8	Steinfeld: Chp. 8	H3.2, H3.3, H3.4, H3.7, S8.1, S8.2, S8.5
10/10	Houston: 3.3	
10/15		
10/17		
10/19	Steinfeld: Chp. 9 & 3	S9.2, S9.3 (as much related to Chp. 8 as Chp. 9)
M10/22	Houston: Chp. 8	
10/24		
<b>10/26</b>	<b>Exam 2 (Tentative)</b>	
M10/29	Steinfeld: Chp. 3	
10/31	Houston: Chp. 2.6	
11/2	Steinfeld: Chp. 10	S10.1, S10.5, S10.7, S10.6(a-c), S10.9, S10.12
M11/5	Houston: 3.4 – 3.5	
11/7		
11/9	Steinfeld: Chp. 4 & 5	S4.3, S4.5, S4.9
M11/12		
11/14		
11/16		
<b>M11/19</b>	<b>No Classes</b>	
<b>11/21</b>	<b>No Classes</b>	
<b>11/23</b>	<b>No Classes</b>	
M11/26	Steinfeld: Chp. 15	
11/28	Houston: Chp. 7	
<b>11/30</b>	<b>Exam 3 (Tentative)</b>	
M12/3	Catch-up, Review,	
12/5	Projects	
12/7		