

# Kinetics

## Chemistry 5741-201

### Spring 2012

#### General Information:

**Time:** MW 7:00-8:20 pm      **Place:** 476 Brown Hall

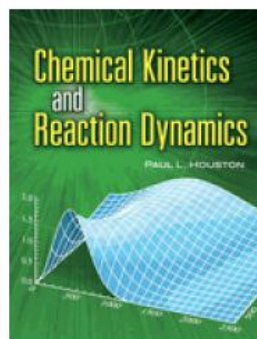
**Instructor:** Dr. Marina Roginskaya  
**Office:** 462 Brown Hall  
**Phone:** (423) 439-4928  
**Email:** [roginska@mail.etsu.edu](mailto:roginska@mail.etsu.edu)  
**Office Hours:** MW 10-11 am

Individual assistance may also be obtained by appointment or by emailing questions to the instructor.

**Course Summary:** Experimental and theoretical methods in studying reaction rates and reactions mechanism, both classical and current. Prerequisites: One year of physical chemistry requiring calculus.

**D2L Site:** A Desire2Learn (D2L) site for this course is available. All homework assignments, handouts etc. will be posted to the site. Please check the D2L site regularly for news and announcements related to the course.

**Text:** Houston, Paul L. *Chemical Kinetics and Reaction Dynamics*. Dover Publications, Inc., Mineola, New York, 2001.



#### Topics:

1. The Rates of Chemical Reactions
2. Kinetic Theory of Gases
3. Theories of Chemical Reactions
4. Transport Properties
5. Reactions in Liquid Solutions
6. Reactions at Solid Surfaces
7. Photochemistry

#### Chapter

- 2
- 1
- 3
- 4
- 5
- 6
- 7

## Schedule

**January 18** - The first day of classes

**February 6** - Submission of review paper abstracts

**March 5 and March 7** - Spring break, no classes

**April 11** - Submission of a rough draft of review paper

**April 25** - The last day of classes. Submission of a final draft of review paper

### Exams:

**Midterm Exam 1** – February 15 (Ch. 2)

**Midterm Exam 2** – March 19 (Ch. 1, 3)

**Midterm Exam 3** – April 9 (Ch. 4-5)

**Midterm Exam 4** - May 2, 8:10 pm - 9:30 pm (Ch. 6-7)

### Grading (there will be no extra credits!):

Assignment	Percent of Final Grade
Home Assignments	15%
Four Midterm Exams (1 hour, in class)	65%
Review Paper	20%
Total	100%

### Conversion to Letter Grades:

Grade	Percent	Grade	Percent
<b>A</b>	91-100	<b>C</b>	66-69
<b>A-</b>	86-90	<b>C-</b>	62-65
<b>B+</b>	82-85	<b>D+</b>	58-61
<b>B</b>	78-81	<b>D</b>	54-57
<b>B-</b>	74-77	<b>F</b>	<54
<b>C+</b>	70-73		

**Home Assignments** Weekly home assignments will be placed on D2L. Problem solutions can be in a printed or hand-written form (or a combination of both) and have to be returned before the beginning of class on a due date. Any late home assignment submission is penalized 20% up to a week. A grade of 0 is considered for an assignment if it is not turned in within a week. Individual work is expected for homework assignments. Identical solutions are referred to as **plagiarism!** The

instructor has the authority to assign the grade of 0 for a given problem or home assignment for plagiarism.

**Exams:** There will be 4 midterm exams during the semester. The midterm exams will not be explicitly cumulative, but material from previous tests may be required to complete the current work. The material is often very abstract and highly mathematical. It cannot be learned the night before a test. It can only be mastered by working problems. Please make every attempt to keep up and do not hesitate to ask questions both in and out of class. **Note:** You are responsible for all mathematics covered!

**Review Paper.** This assignment is to prepare a mini-review paper on any subject in chemical kinetics. This literature review paper has to be prepared in the style of a review in *Chemical Reviews* and should contain:

- A separate title page
- Introduction
- Main part of the review which has to be logically structured using numbered sections
- Conclusions
- References

Figures, tables, and references have to be formatted in the style of *Chemical Reviews*. Although the size of the review and the number of figures, tables, and references are not specified, at least 10 pages of a 1.5-spaced text, at least 4 figures, and at least 15 references (from peer-reviewed journals or books) are recommended.

Students are strongly advised to start working on a review paper early. There are three deadlines (see the Schedule above) in this project:

- Submission of an abstract, in which you briefly describe the topic you have chosen;
- Submission of a rough draft of the review paper, which is supposed to be in a finalized form. Although the draft will not receive a separate grade, the quality of the draft and timeliness of its submission will be considered in the overall grade for the paper.
- Submission of a final draft of the review paper. For late submissions, the same rules are applied as for home assignments.

## Course Policy

**Attendance:** Class attendance is expected and is essential for successful performance in any college course. There is a very strong correlation between class attendance and course grade earned. It is your responsibility to remain current in the class. In case of inclement weather, we will follow the announced school closing schedules.

**Missed Exams:** It is strongly recommended not to miss a regularly scheduled exam. There will be no make-up tests except of extenuating circumstances. If you must miss an exam, arrangements should be made with the instructor **prior to the exam**. Written documentation (e.g. a doctor's note) must be provided. For a student participating in a University sponsored event, an exam will be scheduled early. The student is responsible for documentation of the event. This documentation must be presented in the first week of classes.

**Calculators:** The use of only **non-programmable calculators** is permitted during exams. **No other electronic devices** are permitted during the exams. Use of any other electronic devices during an exam will result in a grade of 0 for the assignment.

**Books and Notes:** The use of any books or notes is **not permitted** during exams. Some constants and equations will be provided for exams.

**Academic Honesty:** Cheating in class is a serious offence and will not be tolerated. As stated in the University Catalog: “Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the university’s academic misconduct policy as a result of academic misconduct, the instructor has the authority to assign an “F” or a zero (“0”) for the exercise or examination, or to assign an “F” in the course.” Any incident of academic misconduct will result in a minimum grade of 0 on the assignment and will be reported. All students need to read the Departmental Academic Integrity Policy, posted in the syllabus module of this course on D2L.

**Disabilities:** It is the policy of ETSU to accommodate students with disabilities, pursuant to federal law, state law and the University’s commitment to equal educational access. Any student with a disability who needs accommodations, for example arrangement for examinations or seating placement, should inform the instructor at the beginning of the course. Faculty accommodation forms are provided to students through Disability Services in the D.P.Culp center, telephone 439-8346.

**Mental Health:** Students often have questions about mental health resources, whether for themselves or a friend or family member. There are many resources available on the ETSU Campus, including: ETSU Counseling Center (423) 439-4841; ETSU Behavioral Health & Wellness Clinic (423) 439-7777; ETSU Community Counseling Clinic: (423) 439-4187.

**If you or a friend are in immediate crisis, call 911.**

Available 24 hours per day is the National Suicide Prevention Lifeline: 1-800-273-TALK (8255).