

Principles of Physical Chemistry

Chemistry 3710

Spring 2012

General Information:

Time: MWF 11:30 am-12:25 pm **Place:** 476 Brown Hall

Instructor: Dr. Marina Roginskaya

Office: 462 Brown Hall

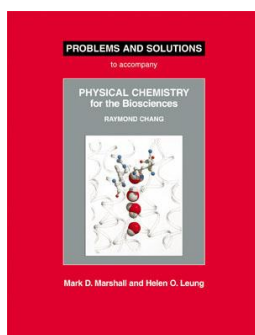
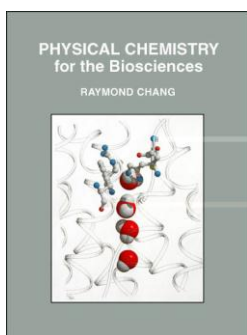
Phone: (423) 439-4928

Email: roginska@mail.etsu.edu

Office Hours: MW 10 am-11 am; individual assistance may also be obtained by appointment or by emailing questions to the instructor.

Course Summary: The course offers fundamental principles of physical chemistry. The course covers properties of gases and solutions, thermodynamics, chemical equilibrium, electrochemistry, and chemical kinetics. Prerequisites: General Chemistry, Organic Chemistry, and a year of Physics and Calculus. Only basic skills of differential and integral calculus are required for understanding the equations.

Text: R. Chang. *Physical Chemistry for the Biosciences*, 5th ed. University Science Books, 2005. The textbook is accompanied by Problems and Solutions by M. D. Marshall and H. O. Leung.



D2L Site. There is a D2L site associated with this course. Additional course materials and announcements will be placed there. Please check the D2L site regularly for news and announcements as well as home assignments related to the course.

Course Outline

| Topics | Book Chapter |
|----------------------------------|--------------|
| Properties of Gases | 2 |
| The First Law of Thermodynamics | 3 |
| The Second Law of Thermodynamics | 4 |
| Solutions | 5 |
| Chemical Equilibrium | 6 |

| | |
|-------------------|----|
| Electrochemistry | 7 |
| Chemical Kinetics | 9 |
| Enzyme Kinetics | 10 |

Schedule

- January 13** The First Day of Classes
January 16 Martin Luther King Day, No Class
March 5-9 Spring Break, No Classes
April 27 The Last Day of Classes

Exams:

- 1
- 2
- 3
- 4

Final Cumulative Exam

Dates:

- Friday, February 10
Friday, March 2
Friday, March 30
Friday, April 20

Monday, April 30, 3:50 pm – 5:50 pm

Grading (There will be no extra credits!)

| Assignment | Percent of Final Grade |
|---|------------------------|
| Home Assignments | 15% |
| Best Three of Four Midterm Tests, 20% each (1 hour, in class) | 60% |
| Final Exam (2 hours) | 25% |
| Total | 100% |

Conversion to Letter Grades:

| Grade | Percent | Grade | Percent |
|-------|---------|-------|---------|
| A | 91-100 | C | 66-69 |
| A- | 86-90 | C- | 62-65 |
| B+ | 82-85 | D+ | 58-61 |
| B | 78-81 | D | 50-57 |
| B- | 74-77 | F | <50 |
| C+ | 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 and a cumulative final exam during the semester. The midterm exams will not be explicitly cumulative, but material from previous tests may be required to complete the current work. You are responsible for all the mathematics covered.

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. An early ride home, being late for class, a flat tire *etc.* are not such 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).

Safety Training: All students registered for the lab must complete safety training (by watching the ACS safety video and passing the safety quiz). If you have not done this (online) in the last year; go to <https://healthsafety.etsu.edu/index/login> and login using your complete e-mail address (i.e. doej@etsu.edu) and your ETSU network password.

The site will welcome you, and then you will need to click on the “Training Modules” link on the left side of the page. A list will appear telling you which modules you are registered for. Click on the “Take” option next to Chemistry Safety. Please watch the video and then read all the safety information in the module. When complete, click on the  [Take Training Quiz](#) link at the bottom of the module and take the quiz. You must complete and pass the quiz before being allowed in lab. You must complete the safety training by January 19, 2012 or you will be purged from both the laboratory. If this laboratory course is dropped, it can have an effect on your financial aid. If you are purged, you will not be able to add the courses back until you have completed the safety training. Further, you will not be allowed in the laboratory until you have added back the courses. The last date to add back the courses is January 25, 2012 at 4:30 pm.