

Chem 116 - Syllabus

Qiang Cui (QC): Chem-8305i, cui@chem.wisc.edu
Lecture: MWF 8:50 am, Chem-2373 [Jan. 21-May 08]
Final: May 14, 10:05 am -12:05 pm

January 16, 2015

Questions? Office Hours: M, F 4:00-5:00pm; drop me an email; set an appointment.

Teaching Assistant: Mr. Josh Ostrander. Email: jostrander@chem.wisc.edu.

Lab director: Ms. Pam Doolittle: Chem-2303a, pam@chem.wisc.edu.

Text: "Principles of Modern Chemistry", 6th. ed. (what you used for 115), by D. W. Oxtoby, H. P. Gillis and A. Campion.

Notebook: A lab notebook with provision for making copies is required; your notebook from 115 will suffice if enough pages remain.

Safety Goggles: **Required at all times.**

Problem sets: You will receive a problem set about once per week. The TA will grade your solutions to selected problems and provide solution sets. You should be prepared to discuss the problems in your discussion section. You may work with other students, but you must hand in and take responsibility for your own solutions.

Labs: For the first six weeks of the semester, you will perform labs similar to 115. Before coming to the lab, you are expected to read and understand the lab procedure and complete the pre-lab assignment, if there is one. You must keep a lab notebook providing a detailed record of your primary data. For each lab, an assignment will be due *one week* after your lab period (i.e., at the following lab session). For one lab (HPLC), you will write a formal lab report, due one week after your lab period (instructions are found in your lab manual).

For the next eight weeks of the semester, you will work in faculty research labs for at least 8 hrs per week. This experience will culminate in a written research report and a class

presentation on your research project. Unless noted otherwise, class presentation will occur during the Tuesday/Thursday morning lab times in the last week of class.

To pick research labs: you can arrange your own position (confirm with me), or you can rank choices from my list (will get to you in about 2 weeks). Otherwise I'll make assignments. Good time to start the process *now!*

Exams: We plan to have *three* mid-term exams and a final exam, as listed in the course outline. *We may have class on some exam days.* If a religious observance conflicts with any scheduled activity, please notify me as soon as possible. We will schedule a makeup or otherwise accommodate you.

Grading: In total 1000 pts:

- Three mid-terms: 3×120 pts
- Final exam: 140 pts
- HW problems: 200 pts
- 6-week lab: 150 pts
- Research & presentation: 150 pts

Course Outline - Chem 116 Spring 2015 (only the exam dates are guaranteed!:-)

Compared to 115, we focus here on macroscopic rather than microscopic descriptions of chemical systems - i.e., we focus on the behavior of a large number (N_A) of atoms/molecules/ions. Microscopic views won't be ignored - but they are secondary in most of our discussions.

Principles of Modern Chemistry, 6th ed. D. W. Oxtoby, H. P. Gillis, A. Campion

Chap 12. Thermodynamic processes and thermochemistry

Chap 13. Spontaneous processes and thermodynamic equilibrium

Exam 1 - Feb. 18 Weds **In class** (50 + 5 min).

Chap 14. Chemical Equilibrium

Chap 15. Acid-base equilibria

Chap 16. Solubility and precipitation equilibria

Exam 2 - Mar. 25 Weds **In class** (50 + 5 min).

Spring Break: Mar 28 - Apr 5

Chap 17. Electrochemistry

Chap 18. Kinetics

Chap 11. Physical Equilibria

Exam 3 - Apr. 28 Tuesday **7pm-9pm** (2 hrs) (Room: TBA)

Polymers

Other topics

Research Presentation

Final Exam May 14 Thurs **10:05 am-12:05 pm** (Room: TBA)