

Instructors and Office Hours:

Professor Peng Chen, Baker Lab (ST Olin) 280A, x4-8533, chem2090@gmail.com
Office Hours: Wednesday, 5:00-6:00 PM; Friday, 5:00-6:00 PM

Dr. Dan Lorey, Laboratory Director, x4-4958; G-29A Baker Laboratory
Office Hours: TBA or by appointment

Lectures: MWF 12:20 AM - 1:10 PM, Baker 200

If you arrive late for lecture, do not enter through the doors on the second or third floor halls of Baker. Instead, go to the back of the lobby on the first floor of Baker where, near a bust of a famous former member of this department, you will find two staircases leading to the back of the main floor and balcony of Baker 200.

Teachings Assistants: Teaching assistants (TAs) will have regularly scheduled office hours that will be posted on the course website and on the bulletin board adjacent to the main stairwell of Baker. Office hours will start during the first full week of classes. Office hours are open to any student in the course, not just those of a particular TA. The TA mailboxes are located in Baker 131 (Undergraduate Instructional Office).

Undergraduate Instructional Office: Ms. Pat Hine (pah3@cornell.edu, x5-5287) and Ms. Jennifer Zawislak (jz56@cornell.edu, x5-4791) in Baker 131 handle all questions concerning entrance to and exit from the course, both lecture and laboratory, and are authorized to sign all add/drop and petition paperwork. The Department of Chemistry & Chemical Biology (CCB) requires departmental approval for all course changes, so if you are adding, dropping or petitioning out of CHEM 2090, a course change form must be *submitted to one of them for signature*. The office is open M-F 8:00 AM - 4:30 PM.

The Course: CHEM 2090 is offered to engineering undergraduates only. The course covers the material of CHEM 2070, and will use the same textbook; students can seamlessly transition to CHEM 2080 from this course. Additional material of CHEM 2080 will also be covered in part in the course.

Laboratory Sections: You need to be enrolled in one laboratory section. The sections are held once a week from 1:25-4:25 pm, MTWRF, and 9:00 am-12:00 pm, WF. Check the Chem 2090 Blackboard site starting Sunday, August 30, for your lab room assignment, or check in the lobby of Baker Lab starting Monday, August 31. Report directly to your assigned lab and sign in with your TA.

Labs begin Monday, August 31. Latecomers for 1st meeting of labs forfeit their spot and will be automatically dropped from the course. If you are unable to register for a lab section you need to sign-up on the Chemistry waiting list accessible only at <http://chemlabs.arts.cornell.edu>. Further information about the waiting list is available at the following link: <http://www.chem.cornell.edu/courses/WaitListFAQS.pdf>

Laboratory procedures and required prelaboratory questions will be posted on the Chem 2090 Blackboard site on the Thursday of the week before a new experiment begins. Students are required to download and print out the Introduction to Chem 2090 Labs handout packet and bring it to their first lab meeting (the week of August 31-September 4).

Excused Absences and Make-ups: You must attend lab at your assigned time with your assigned TA. Because all Chem 2090 lab sections will be at or near maximum capacity, it is highly unlikely that you will be able to make up lab work missed due to an unexcused absence, and you will receive a zero for that experiment. If you must miss a laboratory session because of illness, report to Gannett Clinic, obtain a Verification of Visit form and take it to Ms. Hine or Ms. Zawislak in Baker 131 to be excused from lab, or when possible to schedule a make-up. If you miss a lab for other valid reasons recognized by the University, including (but not limited to) religious holidays or approved extracurricular events that take you

off campus, you must see Ms. Hine or Ms. Zawislak to receive an excused absence and arrange a make-up session. Please provide earlier notice if conflicts are predictable.

Recesses and Travel Plans: Fall Break begins Saturday, October 10. Instruction resumes 7:30 am Wednesday, October 14. Thanksgiving recess begins at 1:10pm Wednesday November 25 and continues through Sunday, November 29. Laboratory sections will be cancelled around these breaks (see the Lab Schedule), and travel arrangements should be made accordingly. You will not be able to make up lab work missed due to travel plans.

Course Web Sites: The main CHEM 2090 website, where announcements and course documents (homework assignments and answer keys, lab procedures and prelabs, for example) will be posted can be accessed via www.blackboard.cornell.edu. Log in with your NetID and Kerberos password and then follow the instructions for enrolling to the CHEM 2090 website.

Academic Excellence Workshops (AEWs): The College of Engineering provides support for students enrolled in CHEM 2090 through Academic Excellence Workshops (AEWs). AEWs are small, cooperative sessions facilitated by upper-class engineering students trained in cooperative learning strategies. The workshops involve working cooperatively in small groups of 3 or 4 to solve challenging problems. Topics are arranged to complement the course syllabus and content is taught at or above course level. These 1-credit workshops meet once a week for two hours, and are graded S/U based on attendance (no more than 3 workshops may be missed during the semester). Any student interested in gaining more experience and exposure to course material is encouraged to enroll. For details, stop by the Engineering Learning Initiatives program office in 167 Olin Hall or go to www.engineering.cornell.edu/aew; the AEW program is not associated with, nor run out of CCB.

Textbooks and Required Materials:

- 1) *General Chemistry*, 9th Edition, Petrucci, Harwood, Herring and Madura
- 2) iClicker transmitter. Baker 200 is equipped with a personal response system that allows you to respond to questions. This is meant to enhance learning, not to take attendance or give quizzes. iClicker transmitters are available for purchase at the Campus Store. Please bring your transmitter to every lecture.
- 3) Scientific calculator with logarithm and exponential functions. Calculators capable of displaying text, i.e., graphing calculators, are not permitted for exams.
- 4) Laboratory Research Notebook (notebook with carbon paper or carbonless duplicate sets).
- 5) Ball-point pen, for laboratory.

Homework Problem Sets: These will be assigned weekly and posted on the CHEM 2090 website, typically on Monday. Problem Sets (PSs) will be graded Satisfactory (S), Marginal (M) or Unsatisfactory (U) by the TAs. Answer keys will be posted on the CHEM 2090 web site. Assignments are typically due the following Monday in class (or an alternative day if in conflict with Fall and Thanksgiving breaks. Please see the schedule below). Your best 10 PS scores will count toward your grade. Late assignments will not be accepted.

Laboratory Reports: There will be ten laboratory experiments requiring brief reports. Each will be worth 20 points.

Examinations: Exam 1, October 6, 7:30-9:00 PM; Exam 2, November 12, 7:30-9:00 PM; Final Exam, December 15, 2:00-4:30 PM. Exam locations will be given in lecture and posted on the web site. If you have a conflict with any of the exams, contact Ms. Hine or Ms. Zawislak as soon as possible; a purchased airline ticket is **not** a conflict.

Email to Instructors: Email for Prof. Chen should be sent to: chem2090@gmail.com. Please do not send messages intended for anyone else to this address. Please limit your use of this address to administrative matters. Routine questions on homework or course material are most effectively answered in person, during office hours, by a TA or by the professor.

Academic Integrity: Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit, except where you have been instructed to work in larger groups, should be identifiably that student's own work. Where multiple students hand in the same work, an academic integrity violation will have occurred.

Grading: The course is graded based on the following distributions:

Problem Sets:	10% of final grade
Laboratory Reports:	20%
Exams (2@20% ea):	40%
Final Exam:	30%
Total:	100%

Approximate course outline

Date	Day	Lecture	Chapter	Topic	
8/28	Fri	1	1,2	Introduction, Atomic Theory	
8/31	Mon	2	2	Atomic Theory	
9/2	Wed	3	2	Atomic Theory	
9/4	Fri	4	3-5	Chemical compounds and reactivity	
9/7	Mon	5	3-5	Chemical compounds and reactivity	PS1 due
9/9	Wed	6	3-5	Chemical compounds and reactivity	
9/11 (##)	Fri	7	3-5	Chemical compounds and reactivity	
9/14	Mon	8	3-5	Chemical compounds and reactivity	PS2 due
9/16	Wed	9	3-5	Chemical compounds and reactivity	
9/18	Fri	10	6	Gases	
9/21	Mon	11	6	Gases	PS3 due
9/23	Wed	12	6-7	Gases, Thermochemistry	
9/25	Fri	13	7	Thermochemistry	
9/28	Mon	14	7	Thermochemistry	PS4 due
9/30	Wed	15	8	Quantum Mechanics	
10/2	Fri	16	8	Quantum Mechanics	
10/5 (##)	Mon	17	8	Quantum Mechanics	
			<i>10/6 (prelim), 7:30-9pm, Tue</i>		
10/7 (##)	Wed	18	9	Periodic Table	
10/9	Fri	19	9	Periodic Table	PS5 due
10/12	Mon	<i>Fall break</i>			
10/14	Wed	20	10-11	Chemical Bonding	
10/16	Fri	21	10-11	Chemical Bonding	
10/19	Mon	22	10-11	Chemical Bonding	PS6 due
10/21	Wed	23	10-11	Chemical Bonding	
10/23	Fri	24	10-11	Chemical Bonding	
10/26	Mon	25	12	Liquids, Solids, Intermolecular Forces	PS7 due
10/28	Wed	26	12	Liquids, Solids, Intermolecular Forces	
10/30	Fri	27	12	Liquids, Solids, Intermolecular Forces	
11/2	Mon	28	13	Solutions	PS8 due
11/4	Wed	29	13	Solutions	
11/6	Fri	30	14	Kinetics	
11/9	Mon	31	14	Kinetics	PS9 due
11/11	Wed	32	14	Kinetics	
11/13 (##)	Fri	33	15	<i>11/12 (prelim), 7:30-9pm, Thr</i> Equilibrium	
11/16	Mon	34	15	Equilibrium	
11/18	Wed	35	15	Equilibrium	
11/20	Fri	36	24	Coordination chemistry	
11/23	Mon	37	24	Coordination chemistry	PS10 due
11/25	Wed	38	24	Coordination chemistry	

11/27	Fri	<i>Thanksgiving break</i>			
11/30	Mon	39	25	Nuclear Chemistry	PS11 due
12/2	Wed	40	25	Nuclear Chemistry	
12/4	Fri	41	25	Nuclear Chemistry	
<hr/>					
Final exam: Tuesday, December 15, 2:00-4:30 PM					
<hr/>					

Chemistry 2090 Lab Schedule, Fall 2009

<u>Week</u>	<u>Date</u>	<u>Experiment</u>
1	8/31 - 9/4	Check-In, Safety and Lab Introduction Bring a copy of the <i>Introduction to Chem 2090 Labs</i> Handout
2	9/7 - 9/11	E1-Determination of Chemical Formulae
3	9/14 - 9/18	E2-Synthesis of Potassium Ferric Oxalate Trihydrate
4	9/21 - 9/25	Finish E2; E3-Chemical Reactions
5	9/28 - 10/2	E4-Preparation of Soap
6	10/5 - 10/7 10/8 - 10/9	E5-Optical Spectroscopy Thurs. and Fri. - No lab
7	10/12 - 10/14 10/15 - 10/16	Fall Break: No lab Mon. - Wed. E5-Optical Spectroscopy
8	10/19 - 10/23	E6- Molecular Shape and Polarity
9	10/26 - 10/30	E7-Sodium Hypochlorite in Bleach
10	11/2 - 11/6	E8-Alka-Seltzer Analysis
11	11/9 - 11/13	E9-Polymer Cross-Linking and Viscosity
12	11/16 - 11/20	E10-Properties of Pure Substances
13	11/23 - 11/27	Thanksgiving - No lab all week
14	11/30 - 12/4	Check-Out

Additional Laboratory Information/Policies:

1. Experiment procedure handouts and pre-laboratory questions will be available only on the Chem 2090 Blackboard site. Handouts will be posted on Thursday of the week before a new experiment begins.
2. Answers to pre-laboratory questions are due at the beginning of your lab period.
3. Copies of your lab notebook pages are due at the end of each lab period.

- 4. Lab reports are due at the beginning of the lab period one week following the date the experiment was completed.**
- 5. You can submit one lab report one day late during the semester without penalty. After this instance, lab reports are penalized 5 points per day late.**