

Instructors and Office Hours:

Professor Peter T. Wolczanski Baker (Olin) 180 x5-7220
Office Hours: Wednesday, 4:30-5:30 PM; Friday, 4:30-5:30 PM

Dr. Jess Vickery, Laboratory Director Baker 121 x4-4958
Office Hours: Tuesday, 2:00-3:00 PM or by appointment

Lectures: MWF 11:15 AM - 12:05 PM Baker 219

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 the week of Jan. 19th. 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 Dr. Dan Lorey (dl24@cornell.edu, 5-4791) in Baker 131 handle all questions concerning entrance to and exit from the course, both lecture and laboratory. 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 in the spring 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. The basic material will be covered on Mondays and Wednesdays. On Fridays, there will be some review, applications of the MW material for engineers, and some additional material designed to address current topics in chemistry. *New material covered on Fridays will be the subject of multiple choice questions taken from lecture and will comprise roughly 20-30% of each exam.*

Laboratory/Recitation Sections: The sections are held once a week from 1:25-4:25 T-F in Baker 201C; your TAs will be assigned at this time. If you have not been assigned a laboratory section, please go to the instructional office for placement. Bring a calculator and lab notebook to the first session (see Textbook & required Materials below). Report directly to your assigned lab after the first week.

Excused Absences and Make-ups: 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 Dr. Lorey 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 Dr. Lorey to receive an excused absence and arrange a make-up session. Please provide earlier notice if conflicts are predictable.

Course Web Sites: The main CHEM 2090 website, where announcements and course documents will be posted can be accessed via www.blackboard.cornell.edu. Log in with your NetID and Kerberos password and the 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. Students planning to take this workshop need to add this 1-credit course to their schedules using the online add/drop system. The course is listed as CHEM 1009, and is offered on either Mondays, Tuesdays, Thursdays or Fridays from 2:30-4:25 PM, or Wednesdays from 7:00-8:55 PM. For further information, 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) Scientific calculator with logarithm and exponential functions. Calculators capable of displaying text, i.e., graphing calculators, are not permitted for exams.
- 3) Laboratory Research Notebook (notebook with carbon paper or carbonless duplicate sets).
- 4) Ball-point pen, for laboratory.

Homework Problem Sets: These will be assigned weekly in lecture, 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 due the following Monday in class. Your best 10 PS scores will count toward your grade.

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

Examinations: Exam 1, February 24, 7:30-9:00 PM; Exam 2, April 7, 7:30-9:00 PM; Final Exam, TBA (2.5 h). 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 Dr. Lorey in Baker 131 as soon as possible; a purchased airline ticket is **not** a conflict.

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 had in the same work, an academic integrity violation will have occurred.

Grading: The course is graded on the basis of 1000 total points divided as shown below:

Problem Sets	100
Laboratory Reports	200
Exams (2@200 ea)	400
Final Exam	300

Tentative Course Outline

Date	Day	Lecture	Chapter	Topic
1/19	Mon	1	1,2	Introduction, Atomic Theory
1/21	Wed	2	2	Mole & Avogadro
1/23	Fri	3	2, 25	TBA
1/26	Mon	4	2-5	Chemical Compounds & Reactivity
1/28	Wed	5	2-5	Chemical Compounds & Reactivity
1/30	Fri	6	2-5	TBA
2/2	Mon	7	2-5	Chemical Compounds & Reactivity
2/4	Wed	8	2-5	Chemical Compounds & Reactivity
2/6	Fri	9	2-5	TBA
2/9	Mon	10	6	Gases
2/11	Wed	11	6	Gases
2/13	Fri	12	6	TBA
2/16	Mon	13	7	Thermochemistry
2/18	Wed	14	7	Thermochemistry
2/20	Fri	15	7	TBA
2/23	Mon	16	15	Equilibrium
2/25	Wed	17	15	Equilibrium
2/27	Fri	18	15	TBA
3/2	Mon	19	19	Entropy and Free Energy
3/4	Wed	20	19	Entropy and Free Energy
3/6	Fri	21	19	TBA
3/9	Mon	22	8	Quantum Mechanics
3/11	Wed	23	8	Quantum Mechanics
3/13	Fri	24	8	TBA
----- Spring Break 3/14 - 3/22 -----				
3/23	Mon	25	9	Periodic Table
3/25	Wed	26	9	Periodic Table
3/27	Fri	27	9	TBA
3/30	Mon	28	10	Chemical Bonding; Valence Bond
4/1	Wed	29	10	Chemical Bonding; Valence Bond
4/3	Fri	30	10	TBA
4/6	Mon	31	11	Chemical Bonding; Molecular Orbitals
4/8	Wed	32	11	Chemical Bonding; Molecular Orbitals
4/10	Fri	33	11	TBA
4/13	Mon	34	12	Liquids, Solids, Intermolecular Forces
4/15	Wed	35	12	Liquids, Solids, Intermolecular Forces
4/17	Fri	36	12	TBA
4/20	Mon	37	13	Solutions
4/22	Wed	38	13	Solutions
4/24	Fri	39	13	TBA
4/27	Mon	40	14	Kinetics
4/29	Wed	41	14	Kinetics
5/1	Fri	42	14	TBA

Chem 2090 - Schedule of Experiments

Spring 2009

<u>Week</u>	<u>Dates</u>	<u>Experiment</u>
1	1/19 - 1/23	Check-In & Safety
2	1/26 - 1/30	E1 - Synthesis & Decomposition of Zinc Iodide
3	2/2 - 2/6	E2 - Part I: Synthesis of Potassium Tris(oxalato)ferrate(III) Trihydrate
4	2/9 - 2/13	E2 - Part II: Analysis of Potassium Tris(oxalato)ferrate(III) Trihydrate
5	2/16 - 2/20	E3 - Chemical Reactions
6	2/23 - 2/27	E4 - Sodium Hypochlorite in Bleach
7	3/2 - 3/6	E5 - Alka-Seltzer Analysis
8	3/9 - 3/13	E6 - Enthalpy of Formation
9	3/16 - 3/20	Spring Break
10	3/23 - 3/27	E7 - Spectroscopic Determination of K_{EQ}
11	3/30 - 4/3	E8 - Optical Spectroscopy
12	4/6 - 4/10	E9 - Molecular Shape & Polarity
13	4/13 - 4/17	E10 - Properties of Pure Substances
14	4/20 - 4/24	E11 - Preparation of Soap
15	4/27 - 5/1	Check-Out

Additional Laboratory Information/Policies...

- 1. Answers to all pre-laboratory questions are due at the beginning of your lab period.**
- 2. Carbonless-copies of your lab notebook pages are due at the end of each lab period.**
- 3. Lab reports are due at the beginning of the lab period 1-week following the date the experiment was completed.**
- 4. Each lab experiment is worth 20 points.**
- 5. Your 10 best experiment scores count toward your final grade.**
- 6. 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.**