The University of Iowa  
Principles of Chemistry I  
Summer 2011

Professors:
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Teaching Assistants:  
Chet Duda (Discussion) and Krysti Knoche (Lab) 

Course Content
Content: components of matter, stoichiometry, chemical reactions, kinetic molecular theory of gases, thermochemistry, quantum theory, chemical periodicity, models of chemical bonding, molecular geometries, theories of covalent bonding, intermolecular forces, and chemical equilibrium.

Course Objectives:
1. Demonstrate proficiency in performing calculations involving conversions between different units of measurements and recognize the different components of matter.
2. Identify the major classes of chemical reactions and to perform calculations involving reaction stoichiometry.
3. Recognize the properties of gaseous substances, the elements of the kinetic-molecular theory and thermochemistry. Define the quantization of energy in connection to the structure of the atom including electron configuration and chemical periodicity.
4. Distinguish between the different models of chemical bonding.
5. Apply the VSEPR theory in identifying molecular geometries and their impact on molecular properties. Recognize the different intermolecular forces and their role in phase changes.
6. Identify the types and properties of mixtures, and perform calculations involving the conversion between the different units of concentration. Write the mass action expression for a reaction, and identify the factors affecting the state of chemical equilibrium.

Course Materials
Chemistry: The Central Science, Eleventh Edition  
Brown, LeMay, Bursten, Murphy & Woodward  
MasteringChemistry Access Code  
Lab Notebook (w / carbonless copy pages) and laboratory goggles  
Case Study / Lab Experiment Manual  
(Solutions to Exercises, for Chemistry: The Central Science 11th ed, by R. Wilson  
Course Websites (Lecture & Lab)  
Chem 4:011 – Iowa Courses Online (ICON) website URL = http://icon.uiowa.edu/  
Use your Hawk ID and Hawk ID password to log in to ICON.
Lecture Attendance
Lectures will be held Monday – Friday, 2:00 - 2:50 PM in W228 CB. Regular attendance is expected and is essential for performing well in this course.

Discussion Section
Discussion Sections are limited to 24 students and are a complement to lectures. Each section meets twice a week. Students ask questions and obtain problem-solving experience. Discussion Sections will meet starting Tuesday, June 7th and Wednesday, June 8th. Section 001 meets 03:00-03:50 pm Monday and Wednesday in E240 CB, and section 002 meets 03:00-03:50 pm Tuesday and Thursday in E240 CB.

Case Study
Activities for credit are conducted during each Case Study period. Case Study is held on Monday 8:30 9:50 AM in W228 CB. The first case study will be on Monday June 13th.

Laboratory
Experiment: Experiments provide students with hands-on experience concerning selected course topics. Section 010 meets 8:30-11:20 am each Monday in W328 CB; Section 011 meets 8:30-10:20 am each Tuesday in W328 CB. Lab sections will meet the first week of classes: June 07 (section 010) & June 08 (section 011) for safety training and safety quiz.

Safety: Students must always comply with laboratory safety rules. Students must complete laboratory safety training and pass a safety quiz before they will be allowed to perform lab experiments. If a student fails to comply with laboratory safety rules, the student will be asked to leave the laboratory and points will be deducted.

Pregnancy: Many chemicals pose potential hazards to a fetus or young child. Women who are pregnant, nursing, or who expect to become pregnant are strongly advised to consult with their physician about the hazards of possible exposure to chemicals used in this course. MSDS and other information are available.

TA Office Hours
Discussion and Laboratory Section teaching assistants (TAs) have scheduled office hours in the Chemistry Resource Center (E244 CB). This facility is open Monday-Friday from 8:30-4:30 PM and is staffed with graduate students who can assist you with the content of this course.

Grading
Semester grades will be based on four 2–hour unit exams, homework, Case Study / Laboratory work, and Discussion Section participation; plus & minus grades will be awarded.

- 4 Unit Exams = 600 pts (60%)
- Case Study & Lab Experiments = 198 pts (20%)
- MasteringChemistry homework = 108 pts (11%)
- Discussion (quiz + participation) = 90 pts (09%)

Total = 996 pts (100%)

Recommended Grade Distribution of the College of Liberal Arts & Sciences for Elementary Courses

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<th>Grade</th>
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Average GPA = 2.5 out 4.0

Online Homework
MasteringChemistry is an Internet-based software package that helps improve problem-solving skills and concept understanding. 11% of your course grade will be based on your MasteringChemistry scores. Each of the 12 chapters has a MasteringChemistry Assignment worth 12 points each. The Chapter 1 score is discarded; the final homework score is based on the 9 best of the remaining 11 scores. Chapter scores of 90% or above will be adjusted to 100% at the end of the semester. To access MasteringChemistry please use the link provided on the
Laboratory Component Requirements and Make-up Information
A passing grade in Chem 4:011 requires successful completion of the Case Study / Laboratory portion of the course. This means: (i) you must receive at least 50% of the Case Study / Laboratory points, and (ii) you must complete at least four of the six laboratory experiments. If a Case Study or Laboratory is missed owing to illness, family emergency, or other qualifying excuse, a “Laboratory Make-up Request Form” must be submitted to the Chemistry Center. Makeup periods will be announced. A course grade of Incomplete may be assigned if it is impractical to make up more than one excused laboratory absence. Total points evaluated for each case study/laboratory component is as follows: case study (5 pts); prelab questions (10 pts); lab performance and report (18 pts).

Discussion Section Grading
In one of the two class sessions held each week, a quiz worth 10 points will be administered at the beginning of class. Students more than 5-minutes late for Discussion are ineligible to take the quiz. Up to 3 points also will be awarded for participation in each Discussion class. Only the best 6 of 8 quiz scores and the best 10 of 14 participation scores will be included in the final point tally (90 point maximum) at the end of the semester.

Examinations
There are four 2-hour unit exams. The first two exams will be multiple choice; the last two exams will include a mix of multiple choice and free response questions. Students should bring a pen/pencil, their University ID, and a basic scientific calculator, to each exam. Programmable/graphing calculators will not be allowed. All exams will be held in room W10 of the Pomerantz Center.

Exam #1: Thursday, June 16, 5:30 - 7:30 PM – W10 PBB – Chapters 1-3
Exam #2: Thursday, June 30, 5:30 - 7:30 PM – W10 PBB – Chapters 4, 5, and 10
Exam #3: Thursday, July 14, 5:30 - 7:30 PM – W10 PBB – Chapters 6, 7, and 15
Exam #4: Thursday, July 28, 5:30 - 7:30 PM – W10 PBB – Chapters 8, 9, and 11

Exams will not be re-scheduled to accommodate vacations or other travel plans.

Make-Up Examinations
If an exam is missed owing to an illness, family emergency, or other university recognized excuse, to qualify for a make-up exam, written documentation must be submitted to the Chemistry Center no later than 3 days after the missed exam.

Extra Credit Opportunity
On the last day, Friday July 28, a comprehensive exam from the American Chemical Society will be given to all those who wish to gain extra credit in this course. It is worth a total of 30 points that will be added to the final point tally before evaluating final grades. Taking this exam is not mandatory.

Expectations
Academic Misconduct: The College of Liberal Arts & Sciences academic misconduct policy is available in the Student Academic Handbook (www.clas.uiowa.edu/students/handbook/x/#2). Academic misconduct may result in grade reduction and/or other serious penalties, up to and including expulsion from the University.

Examinations: You are expected to work alone. The instructors will employ statistical software to examine student answer sheets to identify copying on exams. Cheating will not be tolerated.

MasteringChemistry homework: For your ultimate benefit in terms of exam performance, you alone should complete your MasteringChemistry e-homework. TAs are available at convenient times to help you gain the needed understanding and problem-solving skills, and faculty have office hours in order to help you.
Laboratory: Data collection is typically a group activity (2 or 4 students). All data is expected to be collected in the laboratory. Use of data not collected by the author of the report, use of data not acquired during the lab period, and/or use of fabricated data constitute serious academic misconduct. We encourage you to discuss Case Study, pre-lab, and lab questions in groups, but questions must be answered individually.

Course Administration
Go to Ms. Jessica Alberhasky, Room E225 CB in the Chemistry Center (phone: 335-1341; e-mail: jalberha@iowa.uiowa.edu) for drop/add signatures, make-up laboratory and exam scheduling, course handouts, alternate textbooks, section changes, or tutor lists. Hours are M-F, 8:00-12:00 & 1:00-4:30.

Special Needs
Students with disabilities requiring modification of seating, testing, or other course arrangements should first contact the Office of Student Disability Services, 3101 Burge Hall (335-1462), and then go to Ms. Jessica Alberhasky, Room 231 CB (phone: 335-1341), jalberha@iowa.uiowa.edu. (See also: www.clas.uiowa.edu/faculty/teaching/classroom_p&p/disabilities.shtml)

Complaints
Complaints and appeals regarding this course, its instructors, or TAs can be filed with the Departmental Executive Officer at the Department of Chemistry administrative offices, Room 305 CB (335-1350).

College of Liberal Arts & Sciences Policies and Procedures

Administrative Home of the Course
The administrative home of this course is the College of Liberal Arts and Sciences, which governs academic matters relating to the course such as the add/drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various graduation requirements. Different colleges might have different policies. If you have questions about these or other CLAS policies, visit your academic advisor or 120 Schaeffer Hall and speak with the staff. The CLAS Academic Handbook also contains important CLAS academic policy: www.clas.uiowa.edu/students/handbook/

Electronic Communication
University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Students should use this account for correspondences with faculty and teaching assistants. In addition, general notices concerning the course may be sent to students at this e-mail address. (www.uiowa.edu/~our/opmanual/iii/15.htm#152; scroll down to k.11.)

Accommodations for Disabilities
The University upholds actions of diversity and inclusion. A student seeking academic accommodations should first register with Student Disability Services (3015 Burge Hall, 335-1462, www.uiowa.edu/~sds/) and meet with a counselor in that office who reviews documentation and determines eligibility for services. A student approved for accommodations should then go to the Chemistry Center, Room E225 CB, to arrange particular accommodations.

Academic Fraud
Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is a serious matter and is reported to the departmental DEO and to the Associate Dean for Undergraduate Programs and Curriculum. Instructors and DEOs decide on appropriate consequences at the departmental level while the Associate Dean enforces additional consequences at the collegiate level. See the CLAS Academic Fraud section of the Student Academic Handbook: www.clas.uiowa.edu/students/handbook/x/#2.

CLAS Final Examination Policies
Final exams may be offered only during finals week. No exams of any kind are allowed during the last week of classes. Students should not ask their instructor to reschedule a final exam since the College
does not permit rescheduling of a final exam once the semester has begun. Questions should be
addressed to the Associate Dean for Undergraduate Programs and Curriculum.

Making a Suggestion or a Complaint
Students with a suggestion or complaint should first visit the instructor, then the course supervisor if
appropriate, and then the departmental DEO. All complaints must be made as soon as possible and
always within six months of the incident. (www.clas.uiowa.edu/students/handbook/x/#5)

Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students,
faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to
contribute to a safe environment that enhances learning. Incidents of sexual harassment should be
reported immediately. See the UI Comprehensive Guide on Sexual Harassment for assistance,
definitions, and the full University policy:
www.uiowa.edu/~eod/policies/sexual-harassment-guide/index.html

Reacting Safely to Severe Weather
If a tornado or other severe weather is indicated by the UI outdoor warning system, members of the
class should seek shelter in rooms and corridors in the innermost part of a building at the lowest level,
staying clear of windows, corridors with windows, or large free-standing expanses such as
auditoriums and cafeterias. The class will resume, if possible, after the UI outdoor warning system
announces that the severe weather threat has ended. For more information on Hawk Alert and the
siren warning system, visit the Public Safety website:
http://police.uiowa.edu/stay-informed/emergency-communication/

Student Classroom Behavior
The ability to learn is lessened when students engage in inappropriate classroom behavior, distracting
others; such behaviors are a violation of the Code of Student Life. When disruptive activity occurs, a
University instructor has the authority to determine classroom seating patterns and to request that a
student exit immediately for the remainder of the period. One-day suspensions are reported to
appropriate departmental, collegiate, and Student Services personnel (Office of the Vice President for
Student Services and Dean of Students). (http://dos.uiowa.edu/code-of-student-life-2010-11-
academic-year-2/)

Resources for Students:
• Supplemental Instruction, 335-3555, http://cde.uiowa.edu/index.php/si.html
• College of Engineering Tutoring Program, www.engineering.uiowa.edu/sdc/tutoring.php
• University Housing Tutoring, 335-3700,
  http://housing.uiowa.edu/departments/reslife/academic.Initiatives.html
• Tutor Referral Service, Campus Information Center, Iowa Memorial Union, 335-3055,
  http://imu.uiowa.edu/cic/
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<tr>
<th>Date</th>
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<th>CS &amp; Lab</th>
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