Course Objectives

Chem 1070 provides students with an introduction to chemistry and is designed for students who have not had an advanced chemistry course in high school. Students will develop concepts and learn specific chemical information that will be applied within the context of a variety of chemistry related applications. Through participation in course activities, each student should expect to improve her/his knowledge of chemistry, to develop improved qualitative and quantitative problem-solving skills, and to learn the attitudes and practices of scientific investigators, including logic, precision, experimentation, tentativeness, and objectivity. This course is part of the General Education Program (GEP) in the College of Liberal Arts and Sciences (CLAS) and can be used to fulfill part of the requirement in the Natural Sciences category.

We live in a complex world that is being constantly transformed by science and technology. In the course of your life, you are constantly making choices about which products to buy, for whom to vote, and whether you should support various policies and programs. Chemical knowledge will allow you to make informed decisions about the risks and benefits and interpret much of the information you encounter. You should also understand that science is not a static collection of information, but a body of knowledge that is constantly changing to reflect our current understanding of the world around us.

Course Content and Prerequisites

**Content:** measurement and units, matter and energy, stoichiometry and chemical equations, gases, thermochemistry, electronic structure of atoms, periodic trends, molecular bonding and structure, intermolecular forces, solution chemistry, equilibrium, oxidation-reduction reactions and nuclear chemistry.

**Approved GE:** natural sciences.

**Prerequisites:** proficiency with elementary algebra.

Course Structure

Chem 1070 consists of three components (lecture, discussion, & exams).

1. Lecture – Prof. Cole
2. Discussion – a graduate teaching assistant (coordinated by Prof. Cole)
3. Exams – Prof. Cole

Attendance is expected at all components of the course. Students should also expect to devote at least six hours per week to out-of-class studying for this course (3 credits x 2 hours out-of-class time/credit). This course has been designed and organized to help you learn chemistry, but no course or instructor can learn for you. **Learning is something only you can do.**

Important Note:

You are expected to be an active participant in learning chemistry in this course. The instructor does
not give grades; you earn them throughout the entire semester. If and when you realize that you are doing poorly, you should SEEK HELP QUICKLY … DO NOT FALL BEHIND. The instructor and TAs are very willing to provide help; make good use of office hours.

People often mistake familiarity for understanding. They open the textbook after getting home from a lecture, and they recognize the material. They think: I get this. Then they take a test—and bomb it. (http://chronicle.com/article/Youre-Distracted-This/138079/ “You’re Distracted. This Professor Can Help” by Marc Parry – Chronicle of Higher Education, March 24, 2013) You should go through the learning objectives and make sure you can work through problems unassisted.

Office Hours
Dr. Cole’s Office Hours

<table>
<thead>
<tr>
<th>Monday 11 am – 12 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday 3 - 4 pm</td>
</tr>
<tr>
<td>Wednesday 10 – 11 am</td>
</tr>
<tr>
<td>(or by appointment)</td>
</tr>
<tr>
<td>in W331 or location posted on ICON</td>
</tr>
</tbody>
</table>

Discussion and Laboratory Section teaching assistants have scheduled office hours in Room E208 of the Chemistry Building (around the corner from the Chem Center). TA office hours are Monday-Thursday 8:30 am -6:30 pm and Fridays 9:30 am - 3:30 pm. TAs for chemistry courses other than Chem 1070 may also be able to assist you. The TA schedule is posted outside the door.

<table>
<thead>
<tr>
<th>TA</th>
<th>email</th>
<th>Office hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jennifer Bjorkland</td>
<td><a href="mailto:jennifer-bjorklund@uiowa.edu">jennifer-bjorklund@uiowa.edu</a></td>
<td>Th 10:30-12:30</td>
</tr>
<tr>
<td>Hansol Lee</td>
<td><a href="mailto:hansol-lee@uiowa.edu">hansol-lee@uiowa.edu</a></td>
<td>T/Th 9:30-10:30 am</td>
</tr>
</tbody>
</table>

Additional tutoring services are listed on the Department website. (http://www.chem.uiowa.edu/undergraduate/for-current-students/tutoring)

Course Materials
- *Mastering Chemistry/Learning Catalytics Access*
  Access code provided as part of course fees
  e-text version available at http://store.vitalsource.com/search?q=9781119080268&search.x=49&search.y=16&search=search

Course Website
Chemistry 1070, Iowa Courses Online (ICON) website URL = http://icon.uiowa.edu/. Use your Hawk ID and Hawk ID password to log in to ICON. This website includes a link to the Mastering Chemistry (homework) website.

Course Administration
Go to the Chemistry Center, Room E225 Chemistry Building, for drop/add signatures, section changes, make-up exam request forms, course handouts, alternate textbooks, and tutor lists. Hours are Monday-Thursday, 8:00 AM-12:00 PM & 1:00-5:00 PM and Friday, 8:00AM-12:00PM & 12:30-4:30PM. The Chemistry Center Manager is Ellie Keuter (335-1341 or <ellie-keuter@uiowa.edu>).
Accommodations for Disabilities

Under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, instructors must provide reasonable academic accommodations for qualified students with disabilities. Students seeking academic accommodations (i.e. modification of seating, testing, or other course arrangements) first register with Student Disability Services and meet with a counselor in that office who reviews documentation and determines eligibility for services. Students approved for accommodations then are required to notify the Chemistry Center, CB E225. Of course, students may always arrange to meet privately with course instructors. Visit Student Disability Services at http://www.uiowa.edu/~sds/.

Course Evaluation

Grades will be determined by performance on three 1.5-hour unit exams, a 2-hour final exam, homework, participation in discussion section activities, and participation in lecture activities.

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Unit Exams</td>
<td>450</td>
</tr>
<tr>
<td>Final Exam</td>
<td>180</td>
</tr>
<tr>
<td>Discussion sessions</td>
<td>70</td>
</tr>
<tr>
<td>Mastering Chemistry Homework</td>
<td>200</td>
</tr>
<tr>
<td>Total</td>
<td>900</td>
</tr>
</tbody>
</table>

Letter Grade Points Percent

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Points</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A range (A+, A, A-)</td>
<td>765 - 900</td>
<td>85 – 100%</td>
</tr>
<tr>
<td>B range (B+, B, B-)</td>
<td>675 – 764</td>
<td>75 – 84.9%</td>
</tr>
<tr>
<td>C range (C+, C, C-)</td>
<td>585 – 674</td>
<td>65 – 74.9%</td>
</tr>
<tr>
<td>D range (D+, D, D-)</td>
<td>495 - 584</td>
<td>55 – 64.9%</td>
</tr>
<tr>
<td>F range</td>
<td>0 - 494</td>
<td>0 – 54.9%</td>
</tr>
</tbody>
</table>

Plus and minus grades will be assigned. Those grades will not necessarily be evenly split among the three categories (for example, # B- ≠ # B ≠ # B+). The grade of A+ is occasionally assigned to reward exceptional achievement. Minor adjustments may be made at the end of the semester if necessary to avoid significant deviation from the CLAS recommended grade distributions. If you achieve the minimum number of points required for a given letter grade, you will not receive a lower grade regardless of the distribution.

Homework

There is generally a direct correlation between success in chemistry courses and the time spent working problems, reading, and discussing chemistry with other students in the class. Homework will be assigned using Mastering Chemistry, an online homework and tutorial program. The access code for Mastering Chemistry for this semester is DSCEWQ-ACCAD-HAIRY-ATMAN-PATHS-ROPES. Homework problems will be assigned after each class period and will be due one week later unless otherwise indicated. Homework over material on an exam will always be due before the exam. Homework is designed to both build your skills and provide the opportunity to assess deeper learning than can be done in a unit exam. Each assignment will have the opportunity for bonus points. In effect, the “extra points” on the assignment can serve to “make-up” for small point losses elsewhere in the assignment, but you cannot earn more than 200 homework points total. Additional information and a link is provided on ICON.

Discussion

Discussion sections are limited to ~28 students and are a very helpful, more personal complement to lectures. These sessions provide students with the opportunity to ask questions and gain problem-solving experience. Graduate teaching assistants will facilitate learning teams and efficient problem-solving strategies. Attendance and participation are expected throughout the entire semester. For
each week, five points are awarded for participation in graded discussion activities, including a quiz. You will need a web-enabled device to connect to Learning Catalytics for the quiz. This grade is based on your quiz score and active participation and contributions to your group. You cannot participate in guided inquiry activities and class discussion if you are not present. For discussion section meeting times and room assignments, please visit the ISIS website: http://isis.uiowa.edu/. If you miss discussion for a university approved reason, you will need to arrange to either attend an alternate discussion section (if there is one later in the week) or make arrangements with Prof. Cole to submit your answers for the completed activity.

**Lecture Participation**
This course uses an interactive lecture format, guided inquiry learning activities, and cooperative learning teams. You will be expected to actively engage in the course materials and use a student response system during class. If you actively participate in each class period before an exam, bonus points will be awarded.

**Examinations**
Exams consist of a combination of multiple-choice and free response questions. There is no penalty for guessing. Students should bring a #2 pencil with eraser, their University ID, and a basic calculator to each exam. Graphing calculators, programmable calculators, or data transmitting devices (e.g., PDA, laptop, and especially cell phone) will not be allowed in the examination room under any circumstances. Room assignments will be announced in class and listed on the ICON 4:007 website. Out of fairness to other students, exams cannot be re-scheduled to accommodate personal holiday or other travel plans.

**Exam #1:** Wednesday Feb 10 Chapters 1 – 4; 6:30-8:00 PM, W290 CB or W128 CB  
**Exam #2:** Wednesday Mar 9 Chapters 6 – 9; 6:30-8:00 PM, W290 CB or W128 CB  
**Exam #3:** Wednesday April 20 Chapters 10-14; 6:30-8:00 PM, W290 CB or W128 CB

**Comprehensive Final: Covers chapters 1 - 17**  
The Registrar uses scheduling software to schedule final examinations. The new scheduling software depends on accurate student registration information and thus an examination schedule cannot be created until student schedules are confirmed. The final examination schedule therefore will not be announced until the fifth or sixth week of the semester. An undergraduate student who has two final examinations scheduled for the same period or more than three examinations scheduled for the same day may file a request for a change of schedule before the published deadline at the Registrar's Service Center, 17 Calvin Hall, 8:00 AM - 4:30 PM M-F, (384- 4300).

**Make-Up Examinations**
To qualify for a make-up examination, the exam absence must be due to illness, religious obligations, recognized University activities, unavoidable circumstances or have prior instructor permission. Excused absence forms are required and are available on the ICON website. Proper written documentation must be submitted to the Chemistry Center before 5 PM of the day prior to the make-up exam. Spring break travel or other vacation/travel plans are NOT recognized as a valid excuse for the purpose of taking a make-up exam. Penalties to be assigned by the instructor, up to and including a zero score on the exam, will apply for absences not meeting these requirements. Makeup exams booklets will not be returned to the students, but are available for review by contacting the course instructor. The make-up exams will be held in locations indicated below, any changes will be posted on the ICON website.

**Make-up Exam #1:** Friday, Feb 19, 6:30-8:00 PM, W290 CB  
**Make-up Exam #2:** Friday, Mar 25, 6:30-8:00 PM, W290 CB  
**Make-up Exam #3:** Friday, Apr 29, 6:30-8:00 PM, W290 CB
There is no Make-up for the Final

**Resources for students:**
Tutoring services are listed on the Department website. [(http://www.chem.uiowa.edu/undergraduate/for-current-students/tutoring)](http://www.chem.uiowa.edu/undergraduate/for-current-students/tutoring)

**Academic Misconduct**
- The College of Liberal Arts & Sciences academic misconduct policy is available at: [www.clas.uiowa.edu/students/academic_handbook/ix.shtml#1](http://www.clas.uiowa.edu/students/academic_handbook/ix.shtml#1)
  
  Academic misconduct may result in a grade reduction and/or other serious penalties, up to and possibly including expulsion from the University of Iowa.
  
  - **Examinations:** Cheating will not be tolerated. You are expected to work alone. To ensure fairness for all students, the instructors may employ sophisticated statistical software to examine answer sheets and identify copying on exams.
  
  - **Mastering Chemistry (homework):** You must complete your own Mastering Chemistry homework. For your ultimate benefit in terms of exam performance, we encourage you to discuss problem-solving strategies in groups, but questions must be answered individually. TAs and faculty office hours are resources that are available to help you gain an understanding of the assigned problems.

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**The College of Liberal Arts and Sciences: Important Policies and Procedures**

**Administrative Home** - The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at [http://clas.uiowa.edu/students/handbook](http://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). Faculty and students should use this account for correspondence ([Operations Manual, III.15.2, k.11](http://clas.uiowa.edu/students/handbook)).

**Accommodations for Disabilities** - A student seeking academic accommodations should first register with Student Disability Services and then meet privately with Prof. Cole to make particular arrangements. See [www.uiowa.edu/~sds/](http://www.uiowa.edu/~sds/) for more information.

**Academic Honesty** - All CLAS students have, in essence, agreed to the College's [Code of Academic Honesty](http://clas.uiowa.edu/students/academic_handbook/ix.shtml#1): "I pledge to do my own academic work and to excel to the best of my abilities, upholding the [IOWA Challenge](http://clas.uiowa.edu/students/academic_handbook/ix.shtml#1). I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS [Academic Policies Handbook](http://clas.uiowa.edu/students/handbook)).

**CLAS Final Examination Policies** – The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final
examination period. **No exams of any kind are allowed during the last week of classes.** All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar’s web site and will be shared with instructors and students. It is the student’s responsibility to know the date, time, and place of the final exam.

**Making a Suggestion or a Complaint** - Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS [Academic Policies Handbook](#)).

**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.

**Reacting Safely to Severe Weather** - In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the [Public Safety website](#).

**Student Classroom Behavior**

The ability to learn is decreased when students engage in inappropriate classroom behavior, distracting others; such behaviors are a violation of the Code of Student Life. When disruptive activity occurs, an instructor has the authority to determine classroom seating patterns and to request that a student exit the classroom, laboratory, or other instructional area immediately for the remainder of the period. One-day suspensions are reported to Departmental, Collegiate, and Student Services personnel (Office of the Vice President for Student Services and Dean of Students).