General Chemistry II        Chem 178        Spring 2020

Monday & Wednesday 1:10-2:00 pm, Troxel 1001

Instructor: Dr. Julia Zaikina, Assistant Professor

Office Hours: Mon & Wed 2:00 pm – 3:00 pm, Troxel 1001, or by appointment.

Head TA: Sangki Hong

Office Hours: TBA, or by appointment.

<table>
<thead>
<tr>
<th>Section</th>
<th>TA</th>
<th>Time of Recitation</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gabriela Keeney</td>
<td>Friday, 8-8:50 am</td>
<td>GILMAN 2104</td>
</tr>
<tr>
<td>4</td>
<td>Utsav Dey</td>
<td>Friday, 9-9:50 am</td>
<td>GILMAN 0611</td>
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<tr>
<td>5</td>
<td>Gabriela Keeney</td>
<td>Friday, 10-10:50 am</td>
<td>GILMAN 1114</td>
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<tr>
<td>6</td>
<td>Jason Thon</td>
<td>Friday, 10-10:50 am</td>
<td>GILMAN 1813</td>
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<tr>
<td>8</td>
<td>Richard Lancaster</td>
<td>Friday, 11-11:50 am</td>
<td>GILMAN 1811</td>
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<tr>
<td>10</td>
<td>Jason Thon</td>
<td>Friday, 11-11:50 am</td>
<td>GILMAN 1813</td>
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<td>12</td>
<td>Utsav Dey</td>
<td>Friday, 12:10-1 pm</td>
<td>GILMAN 2104</td>
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<tr>
<td>13</td>
<td>Richard Lancaster</td>
<td>Friday, 1:10-2 pm</td>
<td>GILMAN 1312</td>
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Chem 178 is the second semester of a full-year rigorous introduction to and overview of fundamental chemical principles. This course will help you understand everyday observations from a chemical point of view, how chemistry is indeed the “central science,” and how a solid understanding of chemistry helps to improve our lives and the life of our planet. You will continue to acquire and enhance your chemical vocabulary, develop skills of using the language and formulae of chemistry to perform quantitative calculations, and will be able to apply fundamental chemical concepts to estimate and predict various phenomena. Current research topics and applications will be explored to help demonstrate the relevance of chemistry. The problem-solving and analytical skills utilized in this course will help prepare you for critical thinking and problem solving in your college and professional career. This course will prepare you for your future chemistry and science coursework.

Course Objectives

- Students will learn to use the language of chemistry: symbolic representation, nomenclature, and terminology.
- Students will learn to think about chemical reactions and chemical and physical properties at the particulate level and will be able to visualize and depict the structure of matter and its reactions at the microscopic (atomic and molecular) level.
Students will enrich their understanding of the significance of the periodic table and will use it to predict chemical and physical properties of elements and compounds, and as a resource for problem-solving.

Students will gain a conceptual understanding of and will be able to perform qualitative and quantitative problem-solving skills in atomic structure, stoichiometry, gas laws, thermochemistry, thermodynamics, chemical equilibria, chemical kinetics, and electrochemistry.

Students will gain an appreciation for and understanding of the importance of chemistry and a chemical perspective of the world.

Students will be able to use their knowledge to analyze and construct solutions for new and unfamiliar problems.

**Grading Policy**

<table>
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<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Exams (3 total; 100 points each)</td>
<td>30%</td>
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<tr>
<td>In-class quizzes (Top Hat)</td>
<td>7%</td>
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<td>Recitation quizzes (7 out of 11 total)</td>
<td>14%</td>
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<td>Homework assignments (11 total)</td>
<td>22%</td>
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<td>Final Exam</td>
<td>27%</td>
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<td><strong>Total</strong></td>
<td>100%</td>
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Plus-minus grading will be used for the final grade. The final exam will be cumulative. There will be no optional assignments offered.

Tentative letter grade assignments will be as follows:
“A,” 90-100%; “B,” 80-90%; “C,” 70-80%; “D,” 60-70%; “F”, 0-60%. Important: final grades are based solely on graded work and are NOT negotiable; no single student will be offered make-up or extra credit points.

**Required Materials**


This is the same book that was used in Chem 177 during the Fall semester 2019 and prior access should still be active. For students who did not take Chem 177 using this book: this text is part of the Inclusive Access program at Iowa State, which means that by enrolling in this course you will have the e-book version and on-line homework system (OWL-v2) included as part of your U-Bill. **We will be using OWL-v2 for homework assignments.**

- **Top Hat license.** You may purchase a Top Hat license from the ISU Book Store or online. Please visit the ISU IT Top Hat support page: [https://www.it.iastate.edu/services/tophat](https://www.it.iastate.edu/services/tophat)

Please read the instructions below carefully. You must bring a device to each lecture in order to be able to submit answers with Top Hat. This device can be a smart phone, a tablet, or a personal computer. A regular phone can be used to submit answers to multiple choice, word, or numeric questions; however, it
cannot be used to answer “click on target”, “sorting”, or “matching” questions. CELT can lend you a Top Hat ready device at no additional cost – please contact Lesya Hassall, lesya@iastate.edu.

An email invitation has been sent to you by email, but if don’t receive this email, you can register by simply visiting our course website: https://app.tophat.com/e/319677

Our Course Join Code is 319677

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in app support button, or by calling 1-888-663-5491.

- An inexpensive, non-programmable (no data storage) calculator is required, one with ln x, log x, 10x, ex, and yx functions. Programmable/graphing calculators without connection to the internet are permitted during tests.

- This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.

Find our class page at: https://piazza.com/iastate/spring2020/s2020chem1781/home

*PLEASE check the syllabus or previous posts on Piazza before asking questions.*

**Weblinks:**
- TopHat: https://www.it.iastate.edu/services/tophat
- TopHat Course website: https://app.tophat.com/e/319677
- Cenage/OWL-v2: https://www.cengage.com/coursepages/Start_CHEM
- Piazza: https://piazza.com/iastate/spring2020/s2020chem1781/home
- Immediate Access: https://www.isubookstore.com/immediate-access
- Periodic Table: http://www.webelements.com/
- Interactive simulations: https://phet.colorado.edu/en/simulations/category/chemistry

**Course details**

**General:** Chem 178 requires your participation in the following areas: lectures, recitations, homework, and exams. **Chem 178L students must be enrolled in or have credit for 178.** Students are expected to participate actively during lecture and recitation. To show proper respect to your colleagues and the instructors, put aside the ISU Daily, do not use iPads, iPods, laptops, or other PDA devices for messaging, Facebook, internet browsing, streaming videos, etc. during lectures and recitations.

**Drops and audits:** Students who drop or audit the Chem 178 lecture will be required to drop the Chem 178L laboratory. The deadline to audit a course is **January 17th.** Auditing a course does not count toward full-time student status. **January 17th** is a last day to drop a course without the drop appearing on the permanent record or counting toward the limit of dropped courses; last day to process schedule changes without fee.
To add, drop, or switch recitation or lab sections before January 17, use AccessPlus; 
**After Friday, Jan. 17**, please go to the Undergraduate Chemistry Office in 1608 Gilman (hours 8:00 am – 12:00 pm and 1:00 – 4:00 pm). The last day to drop a class without extenuating circumstances is **Friday, March 27th**.

**Lectures:** You are expected to attend classes and to **read the text material before lecture**. You will learn more in lecture by arriving prepared for class. Not everything in the text will/can be covered in lecture.

Please refrain from any disruptive activities in the classroom, which might affect other students or distract the instructor. This includes reading newspapers, browsing the internet, playing games, watching videos, talking, etc. Research studies have shown a clear correlation between the use of laptops for entertainment in large lecture settings and LOWER student learning in the lecture environment; students around a laptop user also pay less attention to the content of the lecture. Your instructors and classmates are permitted and encouraged to ask you to discontinue distracting behavior. To help promote a good learning environment for all, please be respectful in your behavior toward your fellow students and your instructors.

The use of smart phones, tablets, and laptops is permitted only as a means of submitting answers during in-class quizzes.

**Top Hat:** We will be using the Top Hat ([www.tophat.com](http://www.tophat.com)) classroom response system in class. You will be able to submit answers to in-class questions using smartphones, tablets, laptops, or through text messaging.

You can visit the Top Hat Overview page ([https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide](https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide)) within the Top Hat Success Center which outlines how you can register for a Top Hat account; this page also provides a brief overview about getting you up and running with the system.

You will be required to purchase a Top Hat license from the ISU Book Store or online in order to access any quizzes or questions your instructor creates in the Top Hat system. To register, you must use your ISU email address. Failure to register correctly will result in receiving no credit.

An email invitation has been sent to you by email, but if don’t receive this email, you can register by simply visiting our course website: [https://app.tophat.com/e/319677](https://app.tophat.com/e/319677)

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Bring your device to all lectures; failure to bring a device to class will result in 0 points for that day. **Absolutely no exceptions.** Sharing the attendance code with classmates who are absent from class, having a classmate give you the attendance code while you are absent from class, submitting answers while absent from class, sharing answers with students who are not in class, etc. constitute **academic misconduct**.

**In-class Quizzes (Top Hat):** Quizzes will be given during class using Top Hat. You must purchase a Top Hat license and register for your course by 1 pm on Monday January 13th; in-
class quizzes will count for credit starting on the first day of class, Monday, January 13th. Lecture quizzes are worth 7% toward your course grade. Each question counts as 1 point (0.5 for correctness + 0.5 for participation). Typically, you may monitor your performance directly on the Top Hat app. To receive full credit at the end of the semester you must have a cumulative score of 75% or higher. For example, if you obtain 75% or higher you will receive 7% toward your course grade, if you obtain 60% you will receive 5.6% toward your course grade, etc. TopHat lecture quizzes scores will be uploaded on the Canvas gradebook only at mid-term and at the end of the semester, after last lecture on April 29th. Make sure to monitor your performance on the Top Hat app.

https://www.it.iastate.edu/services/audience-students

Recitation: Recitation/discussion sessions meet on Fridays; attendance is required. Students are encouraged to ask questions and work in groups to improve their understanding of concepts and of their problem-solving skills. A quiz will be given in the recitation session on materials covered in lecture and assigned homework. Quizzes will be given at the recitation except the weeks of exams and dead week. Out of 11 recitation quiz scores, the best 7 will be counted up to 14% toward your course grade (2% per each quiz). This grading policy gives flexibility to miss a couple of recitations in case of conflicts and illness. There are no make-up quizzes.

If no teaching assistant shows up for your recitation/laboratory section, send one student to 1608 Gilman to find a substitute teaching assistant. The department will find a substitute as soon as possible.

Exams: In addition to the Final Examination, three 50-min exams are scheduled to be given during lecture time on Wednesdays: February 12, March 11, April 15, 1:10-2:00 pm. Add these dates and times to your planner to avoid schedule conflicts. Tentatively, exams will be given at the same location as lectures (Troxell 1001), but you will be promptly informed, if there are any changes in the location. There are no make-up exams. If you have a valid reason to miss an exam, you must immediately contact instructor (not your TA). You will be asked to drop the course if you miss more than one exam. Exams accommodation requests must be made a minimum of 4 business days prior. An early exam will be scheduled for those students having a valid course conflict. Athletes and students who are away from campus for ISU games, matches, or club trips may request alternate arrangements for taking the exam. However, course policies and rules will prevail. No cell phones, PDA devices, etc. may be used during exams and in the lectures. The practice exam will be posted on Canvas one week before actual exam takes place. Review session will take place on Monday, a week of exam, after 6pm. Exact time and location: TBA.

Part of the exams are in multiple-choice format, another part will require showing your work. TA will grade the exams, and exams will be returned to students during the recitation session on the Friday following each exam. Any request for a regrade should be clearly given in writing on the back of the back of the exam sheet before leaving the recitation room. Any
attempt of tampering with the answers in order to improve your score constitutes academic misconduct and will be reported.
The General Chemistry Office will not give out individual exam scores. A Periodic Table, appropriate equations, and physical constants will be provided on the back sheet of each exam.

**Final exam:** The final examination is scheduled for Wednesday, May 4, at 12:00 PM. Date and time of the final exam is determined by the Registrar’s Office. Finals week starts Monday, May 4 and ends Thursday, May 7. Do not schedule any travel until you have all your final exam dates confirmed. Alternative final exam times will only be scheduled for students with a conflicting final exam time or those with three or more finals scheduled for the same day. **There will be no exceptions.** The last day to request an alternative time for the final exam is 2 pm on **Wednesday April 24th**.
The ISU final examinations policy will be followed absolutely: [https://www.registrar.iastate.edu/students/exams](https://www.registrar.iastate.edu/students/exams)

**Periodic Tables:** Prior to the first exam, you will be issued a periodic table on card stock paper during recitation. This periodic table is yours to use throughout the semester, however the periodic tables for exam will be provided. You are welcome to make notes on the periodic table, but you are not allowed to use it during recitation quizzes/exams. If you lose your periodic table, you will NOT receive a replacement; however, each exam and quiz will have a periodic table attached. So, don’t lose your periodic table.

**Homework:** The course will utilize the OWL-v2 an online homework system. OWL stands for Online Web-based Learning and is an integrated, online course system for teaching and learning chemistry disciplines. You are encouraged to work in the groups, however, every student must complete online homework assignments individually. **A total of 11 homework assignments** will be given each week, except the first week of classes and the weeks of exams. Each assignment is worth of 2% toward your course grade, 22% total. **Homework assignment in OWL-v2 are due on Friday, 8 am, and will become available a week before it is due.** Any modifications to the due dates will be announced in class/Canvas/Piazza. All homework assignments must be submitted on-line. Printed out or e-mailed answers will not be graded. There is a 10% penalty for the submission after due date. Note: the last homework assignment is due on dead week, Friday, May 1.

**OWL Registration and eBook access:**
1. Log into your Canvas account and click on the link for this course (you will not need a course key to register for OWLv2)
2. Click the **CHEM178** link from Modules tab in Canvas (Course menu/Modules/CHEM178). For initial registration, your OWL assignments must be accessed through that link.
3. Your Cengage course materials will open in a new tab or window. Be sure to enable pop ups!
4. Link your Cengage account with your Canvas account. If you do not have an account, you can create one from this page by clicking on ‘Don’t Have an Account?’ Use your ISU email address for registration.
This is a one-time process. If you have previously completed this step you will be taken directly to the course materials.

In OWLv2:
- Click on assignments tab on the top.
- Select one of the assignments available and start working on it.
- During sign up or throughout the term, if you have any technical problems or grading issues, visit support.cengage.com to get the issues resolved. The Cengage support team is almost always faster and better able to resolve issues than your instructor.

If you need any technical assistance with OWL-v2, please contact Sandy Gradoville, Executive Learning Consultant, sandy.gradoville@cengage.com

**How to contact instructors and TAs:** If you have a course/material related question, post your question on Piazza. This way everyone benefits! You will get your question answered in a timely manner, and an answer to it became available to your fellow students, so instructor and TAs do not have to answer the same question over and over.
If you have a personal issue/question, email instructor and/or TA using Canvas course page email.

**Resources and academic support:** The department of chemistry provides help to all general chemistry students in the Martha E. Russell Chemistry Help Center in 1761 Gilman Hall. It is open MTWR from 9 am to 5 pm and Fridays from 9 am to 1 pm. The Help Center is staffed by general chemistry teaching assistants. Solutions manuals and general chemistry textbooks, study guides, and workbooks are available. Resources in the Help Center may not be removed from the room. Students are encouraged to form study groups and meet on a regular basis.

**Supplemental Instruction (SI):** SI will be offered to help students in Chem 178; the SI schedule will be posted at: http://www.dso.iastate.edu/asc/supplemental/homepage.html. Students who are struggling to succeed in Chem 178 or any of their courses are encouraged to take advantage of support available to them: instructor office hours, Help Centers, Supplemental Instruction, and the Academic Success Center (http://www.dso.iastate.edu/asc). Students should work closely with their academic adviser to implement a plan for success.

**Important Course Policy:** It is the student’s responsibility to check grades and announcements on the Canvas course webpage and Piazza. Teaching assistants are responsible for entering scores for exams and quizzes; your teaching assistant will have scores recorded within one week of the exam, homework or quiz. Any student who discovers an error in a grade MUST bring the graded work to their teaching assistant within 1 week of receiving the returned graded work to have the grade corrected.

**Academic misconduct:** Academic misconduct is a violation of the behavior expected of a student in an academic setting as well as a student conduct violation. A student found responsible for academic misconduct is subject to the appropriate academic penalty, determined by the instructor of the course, as well as sanctions under the university Student Disciplinary Regulations. Depending on the act, a student could receive an F grade on the test/assignment, F grade for the course, and could face suspension from the University.
You are expected to practice academic integrity in every aspect of this course and all other courses. Familiarize yourself with the ISU Student Disciplinary Regulations (Student Conduct Code), especially the section on academic misconduct, at http://www.policy.iastate.edu/policy/SDR. Students who engage in academic misconduct are subject to university disciplinary procedures, as well as consequences with regard to this course.

Some forms of academic dishonesty includes but not limited to:

- Obtaining unauthorized information. Information is obtained dishonestly, for example, by copying graded homework assignments from another student, by working with another student on a take-home test or homework when not specifically permitted to do so by the instructor, by looking at your notes or other written work during an examination when not specifically permitted to do so, or obtaining work from an online homework or exam warehouse.

- Tendering of information. Students may not give or sell their work to another person who plans to submit it as his or her own. This includes giving their work to another student to be copied, sharing work when the instructor’s directions were that work be completed independently, giving someone answers to exam questions during the exam, taking an exam and discussing its contents with students who will be taking the same exam, or giving or selling a term paper to another student.

- Misrepresentation. Students misrepresent their work by handing in the work of someone else. Examples include: purchasing a paper from a term paper service; reproducing another person's paper, project, research, or examination (even with modifications) and submitting it as their own; having another student do their computer program, complete their design project, or complete their online quiz.

- Bribery. Offering money or any item or service to a faculty member or any other person to gain academic advantage for yourself or another is dishonest.

- Plagiarism. Unacknowledged use of the information, ideas, or phrasing of other writers is an offense comparable with theft and fraud, and it is so recognized by the copyright and intellectual work laws. Offenses of this kind are known as plagiarism.

- Copying or sharing answers on tests or assignments;
- Entering student response data (Top Hat) for another student or having another student enter student response data for you;
- Not following the guidelines regarding the cardstock periodic table;
- Using an inappropriate calculator during a quiz or exam,
- Having someone else do your academic work;
- Altering the bubble sheet before submitting a regrade request will result with a zero on the exam.

Depending on the act, a student could receive an F grade on the test/assignment, F grade for the course, and could be suspended or expelled from the University. If misconduct involves Top Hat, the student could receive a score of 0 for all in-class questions over the entire semester. See Academic Regulations at https://www.studentconduct.dso.iastate.edu/academic-misconduct/armstu for more details and a full explanation of the Academic Misconduct policies. All cases that come to our attention must be reported to the Dean of Student Office.

Accessibility Statement: Accessibility Statement: Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to work directly with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes before accommodations will be identified. After eligibility is established, SAS staff will create and issue a Notification Letter for each course listing approved reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations.
Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information or assistance is available online at www.sas.dso.iastate.edu, by contacting SAS staff by email at accessibility@iastate.edu, or by calling 515-294-7220. Student Accessibility Services is a unit in the Dean of Students Office located at 1076 Student Services Building.

**Dead Week:** This class follows the Iowa State University Dead Week policy as noted in section 10.6.4 of the Faculty Handbook [http://www.provost.iastate.edu/resources/faculty-handbook](http://www.provost.iastate.edu/resources/faculty-handbook).

**Discrimination and Harassment:** Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. Veteran. Inquiries regarding nondiscrimination policies may be directed to Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515-294-7612, Hotline 515-294-1222, email eooffice@iastate.edu

**Religious Accommodation:** Iowa State University welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request the reasonable accommodation for religious practices. In all cases, you must put your request in writing. The instructor will review the situation in an effort to provide a reasonable accommodation when possible to do so without fundamentally altering a course. For students, you should first discuss the conflict and your requested accommodation with your professor at the earliest possible time. You or your instructor may also seek assistance from the Dean of Students Office at 515-294-1020 or the Office of Equal Opportunity at 515-294-7612.

If you are experiencing, or have experienced, a problem with disability accommodations, academic misconduct, dead week policies, harassment and discrimination, or religious accommodations, email academicissues@iastate.edu
# (Tentative) Examination Schedule and Reading Assignments

<table>
<thead>
<tr>
<th>Lecture number</th>
<th>Chapter, Topic</th>
<th>Week</th>
<th>Date</th>
<th>Homework</th>
<th>Events &amp; Comments</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>1</td>
<td>Mon, Jan. 13</td>
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<td>Wed, Jan. 15</td>
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<td>2</td>
<td><strong>Chapter 12: Chemical Kinetics</strong></td>
<td>2</td>
<td>Mon, Jan. 20</td>
<td>HW#1</td>
<td>University holiday: No classes</td>
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<td>Mon, Jan. 27</td>
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<td>Mon, Feb. 10</td>
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<td><strong>Chapter 13: Chemical Equilibrium</strong></td>
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<td>Wed., Feb. 12</td>
<td>Exam 1</td>
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<td>7</td>
<td>Mon, Feb. 17</td>
<td>HW#4</td>
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<td>Wed, Feb. 19</td>
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<td>8</td>
<td><strong>Chapter 14: Acids and Bases</strong></td>
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<td>Mon., March 2</td>
<td>HW#5</td>
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<td><strong>Chapter 15: Acid-Base Equilibria</strong></td>
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<td>Mon., March 16</td>
<td>Spring Break: No classes</td>
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<td><strong>Chapter 16: Solubility and Complex ion Equilibria</strong></td>
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<td><strong>Chapter 17: Spontaneity, Entropy, and Free Energy</strong></td>
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<td>Mon., March 30</td>
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<td><strong>Chapter 18: Electrochemistry</strong></td>
<td>15</td>
<td>Mon, April 20</td>
<td>HW#11</td>
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<td>Wed, April 22</td>
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<td>16</td>
<td>Mon, April 27</td>
<td>HW#12</td>
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<td>Wed., April 29</td>
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Final Examination, May 4
Attendance Policy:

All students are expected to attend lecture, be prepared and fully participate in the in-class activities. Absences due to documented illness, deaths in the immediate family and other documented crises, call to active military duty or jury duty, religious holidays, and official University activities will be accommodated by the instructor. Consideration will also be given to students whose dependent children experience serious illness. All students are expected to abide by this class attendance policy.

Students are required to provide a letter from the person responsible for the activity/event 10 days prior to missing class unless it is impossible to meet the 10 day notification period. Students must also provide, when possible, advance notice of absences as well as relevant documentation regarding absences to the instructor as soon as possible following the illness or event that led to an absence. Regardless of whether an absence is excused or unexcused, the student is responsible for making up all work that is missed and following the announcements made in missed class. Only university excused absences, however, will grant a student the chance of making up a missed exam.