

## CHEM 178 | General Chemistry II

3 credits. ON-LINE (normally Mon/Wed 3:20-4:10pm)

### Prerequisites:

CHEM 177, CHEM 177L, or CHEM 167

**Instructor:** Thomas Holme

**E-mail:** [chem178q@iastate.edu](mailto:chem178q@iastate.edu)

**Phone:** 515-294-9025

**Office:** 0211 Gilman Hall (please do not come to this office)

**Online Office Hours:** Available via WebeX

- Mon/Wed 3:20-4:10pm  
(<https://iastate.webex.com/iastate/j.php?MTID=m38e3ed08cf70f74a61d7523740a6af7f>)

NOTE: There may be occasion(s) when the instructor is not available at one of these times. If that happens, the instructor will send out a message to the class.

Individual visits via [Webex](#) must be set up by appointment - please communicate via e-mail at least 24 hours (48 hours on week-ends) and indicate at least two scheduling options.

**Head TA:** ([chem178q@iastate.edu](mailto:chem178q@iastate.edu))

**Head TA Online Office Hours -**

- TBD

**Contacting the Instructors/Head TA:** We encourage you to contact the Instructor or Head TA whenever you need help with the course material or you have other questions or concerns related to the course. Response time is approximately 24 hours.

- **Use the Help Forum on the Canvas course page to ask questions/concerns about the course** (navigating Canvas, lecture videos, quizzes, exams, how to approach a homework problem, etc.)
- **Use email ([chem178q@iastate.edu](mailto:chem178q@iastate.edu).) for questions/concerns that are personal in nature** (scheduling an appointment; SAAN, etc.)

**Tech Support Email:** [elotech@iastate.edu](mailto:elotech@iastate.edu) (Colleges of Engineering and LAS Online Learning (ELO)). Please go to [Canvas Help](#) for more information on finding help with Canvas.

## Course Catalog Description

(3-0) Cr. 3. F.S.SS.

*Prereq: CHEM 177, CHEM 177L, or CHEM 167*

Continuation of 177. Recommended for physical or biological science majors, chemical engineering majors, and all others intending to take 300-level chemistry courses.

## Learning Objectives and Outcomes

**By completing this course,** students will be able

- to recognize kinetic and thermodynamic features of chemical reactions.
- to evaluate the important characteristics of chemical and physical equilibria.
- to recognize acid-base reactions.
- to recognize reduction-oxidation (redox) reactions.
- to recognize the connections of chemistry to other sciences and ultimately to sustainability

For module-specific learning objectives, please see the CHEM 178 Canvas website.

## Course Format

Online only, primarily asynchronous. All materials (topic videos, notes, slides) and all assessments are available on Canvas. The instructor and head TA will hold on-line office hours/Q&A sessions via Webex.

There are 7 modules, each one lasting roughly two weeks during the semester.

## Required Technology

- A reliable Internet connection,
- Access to Iowa State University computer system and your Learning Management System (Canvas etc.).
- Access to a computer with a microphone and audio capability.

## Required Textbook and Supplies

- *Chemistry* (10<sup>th</sup> Edition), S.S. Zumdahl, S.A. Zumdahl, D.J. DeCoste, G. Adams (2018), Cengage Learning: Boston. (ISBN: 978-1-305-95740-4).
- OWLv2 online homework.
- A scientific calculator with basic functions including logarithms and exponential functions.

### Immediate Access Program

This course is enrolled in the Iowa State University Immediate Access Program, which is a collaborative affordability initiative between the ISU Book Store, faculty and publishers. The courseware is required to complete online homework assignments and includes access to the eBook.

### ***What digital content is required for this course?***

The following Cengage Learning OWL V2 courseware is required for this course:

- **Title:** OWLv2 with MindTap Reader, 4 terms (24 months), for Zumdahl/Zumdahl/DeCoste's, Chemistry, 10th Edition
- **Author:** Steven S. Zumdahl; Susan A. Zumdahl; Donald J. DeCoste
- **Publisher:** Cengage
- **ISBN:** 978-1-305-95757-2
- **Price to Student:** \$41.20
- **Duration:** 180 days

### **IMPORTANT**

If you took CHEM 177 during the Fall 2019 or Spring 2020 term, your charge at that time was intended to cover BOTH CHEM 177 AND 178 OWL usage. Immediate Access for CHEM 177 and 178 has now changed to per semester based billing for the Fall 2020 term. If you took CHEM 177 during the Fall 2019 or Spring 2020 term and did not drop or opt out and received a credit at that time, make sure you opt out of this CHEM 178 course to receive credit for the Fall 2020 billing (see below to opt out). We will be working with Cengage Learning to make sure you won't lose access to the OWL content when you opt out.

### ***How do I access the required digital content?***

Cengage Learning's OWL courseware is required to do online homework for this course. To access OWL in Canvas for CHEM 178:

1. Go to **Modules** and select a link that reads Cengage/OWLv2.
2. Register for OWL using your Iowa State email. Once you register for the course, you should have access to the OWL platform. There is no access code to register. If you are prompted to enter an access code or pay for a code, please email *Immediate Access* at [immediateaccess@iastate.edu](mailto:immediateaccess@iastate.edu). Do not pay for a new code.

3. An ebook is included and accessed within the OWL Courseware only. There is no ebook accessible through the RedShelf Course Materials tool.

**How is Immediate Access billed?**

You will be automatically charged on your u-bill for this digital content. The billing description on your Ubill will appear as CHEM 178 IMMEDIATE ACCESS 7589. The amount charged on your Ubill will be the same as the amount listed as the "Price to Student" listed above in the digital content requirements.

**What if I drop the course?**

Students who drop the course within the first 10 days of class will receive a refund on their u-bill. YOU DO NOT HAVE TO NOTIFY THE BOOKSTORE IF YOU DROP THE COURSE. This is an automated process.

**Can I opt out of Immediate Access?**

Students may choose to opt out of the program. Opting out does not mean you are dropping the course. It simply means you are choosing not to receive the digital content from the bookstore and you must find another way to acquire it in order to complete required homework assignments. Students have within the first 10 days of class to opt out and receive a refund to their u-bill. The last day to opt out is August 28th, 2020, 11:59PM EDT.

To opt out during the first 10 days of class:

1. Click on the RedShelf Course Materials tool on the Canvas Course navigation menu.
2. After agreeing to terms of use, click on "View Course Materials".
3. On the next page, click on the gray opt out bar on the bottom of the page.

For further questions about Immediate Access please email [immediateaccess@iastate.edu](mailto:immediateaccess@iastate.edu)

## Library

**To login from off-campus:** When you are off ISU campus and would like to access one of ISU's subscription databases or licensed full text resources (such as journal articles, e-books, and journals) from the [Library website](#), you will be prompted to login using the last 11 digits of your ISU University ID (9-digit University ID plus the following 2-digit Security Code) and [the Library password \(Borrower ID password\) you set](#).

Even if you do not have a physical ISUCard, you do have an ISU University ID number. If you don't remember that number, you can login to [AccessPlus](#) using your social security number and verify your University ID number.

Login questions or problems? Contact Circulation Desk staff: Phone (515) 294-3961 or email [CircDesk@iastate.edu](mailto:CircDesk@iastate.edu)

See also the Library's [Distance Learning Support](#) guide for more information on access, how to find and search helpful databases, and how to get articles and books you need sent to you.

## Course Resource on Canvas

There are 7 Modules, each spanning two weeks. For each Module, the following resources are available for you to examine, study, and review.

**Chemistry content resources:**

- **Video Presentations:** Topic videos lasting approximately 15 minutes (some shorter; some longer). Each video used Powerpoint and begins with a brief summary of learning goals for the video, then provides some background material, and includes problem solving - both word problems and

multiple-choice questions - to prepare you for assessments. Some video topics span two videos (labeled as “a” and “b”).

- **Video (Powerpoint) Slides:** in PDF and PPS format. You can run through each presentation on your own (at your own speed) using the PPS format slides.
- **Video Notes:** A summary of the material presented on every video. You may use these to complement the Powerpoint slides.

#### **Chemistry connection resources:**

An important part of a course like general chemistry is how the chemistry ideas connect to other sciences or larger societal issues. Thus, in addition to the core chemistry content, this course will have activities that are designed to help make those connections. Resources will include:

- **Video Presentations:** Connection videos lasting approximately 15 minutes that connect to sustainability and systems thinking aspects of the chemistry content of the course. Each video used Powerpoint and begins with a brief summary of learning goals for the video, and provide detail connections between the larger issue and the general chemistry content to which it is connected.
- **Video (Powerpoint) Slides:** in PDF format with 3 slides per page to assist with organizing note taking as you watch the presentations.

## Assignments and Grading

For each module, the following types of assessments must be completed:

- **Video Questions:** (11% of final grade). Multiple-choice questions for each video topic (3 questions per video topic). These questions must be completed by the end of each module. You are allowed two attempts for each question. Students should complete the Video Questions as they move through the videos and not wait for the end of the module - please see the Schedule to plan completion of these questions.
- **Textbook Homework (“mastery”; HW) Problems:** (11% of final grade). Login to the OWL homework system through the Canvas CHEM 178 course page. HW assignments are due on Friday mornings at 11:00am; late homework will receive a 20% penalty until the following Monday mornings at 11:00am. (NOTE: see Schedule for due date for the end of semester, Module 7 HW #2). *Homework is designed to help you master a topic before moving on to the next topic; thus, you should complete each HW by the scheduled deadline.* There are no exceptions to this policy and no extensions or make-ups for OWL HW assignments will be granted.
- **Module Exams** (35% of Final Grade). Each Module Exam (Modules 1-6) will be available online from 8am - 8pm on the Monday *immediately following the completion of a module* - see Schedule. Module 7 will have its exam on the final Friday of the semester. Each exam is 12 multiple-choice questions. Once you begin a Module Exam, you have 1 hour (60 minutes) to complete it. You must work independently. If you have a valid, serious reason to miss an exam, you need to immediately contact the instructor to schedule such make-up exams. Make-up exams will have a different, long-answer format if they are set.

Overall aspects of the course that provide components of the grade but are not linked to individual modules include the following three things.

- **Written paper:** (15% of final grade). Communication skills are routinely listed by companies who hire scientists and engineers as one of the most important and yet often underdeveloped skills that they seek in new employees. Therefore, Prof. Holme has at least one short writing assignment in all of his classes, even ones as large as Chem 178. The topic for the paper is the creation, use and aging of concrete and the role this widely used material plays in sustainability. The types of questions that can be addressed include (1) how does the production of cement/concrete interact

with climate and global warming? (2) how does concrete compare with alternative materials in terms of impacts in earth and societal systems? (3) are there emerging research advances that may affect the impacts of concrete on societal sustainability? The writing assignment **will be brief**, because Prof. Holme must read them all to grade them. **Therefore, these written assignments may not be any longer than 500 words.** You need to include a bibliography, and those words do not count in the 500-word maximum. An important part of this assignment is deciding on an appropriate topic under the general heading of the impact of concrete on earth and societal systems, one that will be capable of being described reasonably in such a short paper. The paper will be due on **March 18**.

- **Engagement Activities:** (8% of final grade). There will be roughly 7 weeks during the semester where different activities that use WebEx to provide some synchronous opportunities to engage with the content of the course. In many cases these will include connections between chemistry and larger societal issues associated broadly. These activities will be held at the normal course time of Mon/Wed 3:20-4:10pm, and participation at either the Monday or Wednesday event will be allowed to obtain the points. *In addition, students who wish to “make-up” a missed engagement activity can sign up to participate in a problem solving technology interview to help us improve our teaching tool development process.*
- **Final Exam** (20% of Final Grade). The final exam (due date to be determined) will be comprehensive for all content in the course, and the format will be announced when the time of the exam is set by the Registrars office. The final exam will be designed to be a 1 hour exam, using the same timing technology at the module exams..

### Grade Distribution

Assessments	Total Points	Percent Contribution
Video Questions	65 pts	11% (out of ~80 pts)
Textbook HW Assignments (OWL)	65 pts	11% (out of ~80 pts)
Engagement activities	50 pts	8% (based on best 5 top activities)
7 Module Exams (30 pts each)	210 pts	35%
Paper (Due March 18)	90 pts	15%
Final Exam	120 pts	20%
Total	600 pts	

Students will retain all points accumulated for Video Questions and Textbook HW Assignments, which may result in bonus points toward the final grade.

### Grading Scale

Letter Grade	% Range
“A” (= A, A-)	88-100
“B” (= B+, B, B-)	74-88
“C” (= C+, C, C-)	60-74
“D” (= D+, D, D-)	48-60
“F”	0-48

+/- Grading will be applied, but the instructor cannot give firm numerical assignments for +/- grades until all scores for the academic semester are entered.

## Course Policies

### Late Assignments and Exams

Textbook homework assignments and Video Questions are designed to help you master a topic as we go along. It is very important that you complete the work by the scheduled deadline.

- Late submissions for textbook HW assignments are accepted on OWL with 20% penalty (see above).
- Missing both of the synchronous engagement times for particular activity will result in a score of zero for that activity. (Note, however, that the scoring anticipates allowing 2 such missed activities during the course of the semester.)
- Missing the window to take a module exam will result in an automatic score of zero.

Therefore, please contact the instructor/head TA should you have had extraordinary circumstances that prevented you from completing any assignment no later than by 10:00 AM the day after the deadline.

### Deadline Extensions

Deadlines are firm. Communication is important: if you know you will be unable to complete an assignment because of illness or another emergency, contact your instructor in advance. If the illness or other emergency happens on the day the assignment is due, you must contact the instructor ASAP and by 10:00 AM the day after the deadline.

### Cheating and Plagiarism

Please review the information under Academic Misconduct (see below).

### Expected Online Behaviors

- All communication within the course should adhere to university standards of [Netiquette at ISU](#). Specifically, communication should be scholarly, respectful, professional, and polite.
- You are expected to follow [ISU's Principles of Community](#).
- You are encouraged to disagree with other students, but such disagreements need to be based upon facts and documentation. It is the instructor's goal to promote an atmosphere of mutual respect during our interactions. Please contact the instructor or head TA if you have suggestions for improving the interactions in this course.
- Professional and respectful tone and civility are expected when communicating with fellow learners and the instructor at all times.
- Video interactions must reflect a respectful tone in verbal communications and body language.
- Use correct spelling and grammar in all written communications.

### Expectations for assignments and examinations

- **You must work independently.**
- **You are permitted to use the following authorized resources to complete any assessment:**
  - Scientific or graphing calculator, Excel (for calculations)
  - Paper and pens/pencils (any work on scratch paper will not be graded)
  - Your course notes, HW assignments, Video questions, Worksheets
  - CHEM 178 Canvas course content
- **You are NOT permitted to do the following:**
  - You may NOT communicate with anyone else about the Module exams.
  - You may NOT have someone else help you solve the Module exam questions.

- You may NOT post questions about the assessment to the Help Forum on Canvas.
- You may NOT post and/or consult unauthorized aids, including paid-for subscriptions to Chegg, Scribd, or tutoring services.
- You may NOT search the questions in a search engine (e.g. Google).

## Scores

Video questions, textbook HW assignments, and Module exams in this course are automatically graded either directly on Canvas (video questions and exams) or in OWL (HW).

The papers will be read and graded by Dr. Holme. With ~300 papers to read, this process may take 4-5 weeks to complete. Papers will be read in the order they are received on-line.

Textbook HW scores are synched into Canvas automatically. Errors may occur: OWL may experience a glitch and not import the correct score.

If you believe that an error occurred, you must inform the instructor immediately, and by one week after the assignment/exam due date. It is each student's responsibility to check his/her/their grades on Canvas.

## Final Grades

Once the final exam has been taken, there are no further opportunities to obtain points in the course. Final grades are based solely on graded work and are NOT negotiable; **no single student will be offered make-up assignments or extra credit points**. By completing all video questions and textbook HW assignments, there is an opportunity to receive bonus points.

## Grading Policies regarding Incomplete Marks

<https://catalog.iastate.edu/academiclife/gradingsystem/#gradepolicies>

## ISU Academic Calendar

<https://www.registrar.iastate.edu/calendar/>

## Additional Learner-Centered Information

- **Take time to familiarize yourself** with the course structure and layout in the learning management system being used such as Canvas or other technology used in the course.
- **Read** the essential documents – course syllabus and course schedule.
- **Identify and establish** the **communication channels** provided – Help Forums/online meetings/Email/groups discussion forums
- **Confirm technical requirements** – so that you can access all the materials
- Be patient and **respectful of the response time** indicated.
- **Plan your time** – have a personal schedule, establish and maintain a consistent study time, and stay organized. **DO NOT WAIT UNTIL THE LAST MOMENT TO WORK ON ANY ASSIGNMENT.**
- **Make connections** with fellow classmates and the instructor.
- **Ask Questions** – Don't wait. Ask questions regarding expectations/content/policies. Follow the mentioned protocols for the course.
- Become familiar with [the way the To Do list works in Canvas](#) to help you stay organized.
- **Log-in to the course at least 3 times** in a day.

## Academic Misconduct

All acts of dishonesty in any work for this course constitute academic misconduct. Online courses are no exception. Academic Integrity, based on the values of honesty, trust, fairness, respect, and responsibility, is a fundamental principle of scholarship in higher education. Iowa State's Academic and Research Misconduct Policy prohibits: plagiarism (using another person's writing or copying any work without proper citation); falsification; unauthorized collaboration during a test or on an assignment or substitution for another student to take an exam, course or test; and other forms of academic dishonesty. If you are to benefit from this class and be properly evaluated for your contributions, it is important for you to be familiar with and follow Iowa [State's Academic Dishonesty and Research Misconduct policies](#). Students are also encouraged to review these [Student Resources](#). Work that violates this policy will not be tolerated. Students who are found responsible for a violation of the Academic Misconduct Policy will have both a university process sanction and an academic outcome that could include a failing grade on the assignment or exam, or a failing grade for the course.

### Plagiarism

Plagiarism is the act of representing directly or indirectly another person's work as your own. It can involve presenting someone's speech, wholly or partially, as your own; quoting without acknowledging the true source of the quoted material; copying and handing in another person's work with your name on it; and similar infractions. Even indirect quotations, paraphrasing, etc., can be considered plagiarism unless sources are properly cited. Plagiarism will not be tolerated, and students could receive an F grade on the test/assignment or an F grade for the course. The Iowa State University policy for academic misconduct can be found in the Student Disciplinary Regulations.

### 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, or by looking at your notes or other written work during an examination when not specifically permitted to do so.

### Tendering of Information

Students may not give or sell their work to another person who plans to submit it as his or her own work. This includes giving their work to another student to be copied, giving someone answer(s) to exam question(s) during an 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. The following are examples: purchasing a paper from a term paper service; reproducing another person's paper (even with modifications) and submitting it as their own; having another student do their computer program or having someone else take their exam.

### 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.

## University Policies

### Accommodations and 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](http://www.sas.dso.iastate.edu), by contacting SAS staff by email at [accessibility@iastate.edu](mailto: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.

### 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 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.

### Prep Week

This class follows the Iowa State University Prep Week policy, as noted in the ISU Policy Library and section 10.6.4 of the Faculty Handbook. Visit the [ISU Policy Library website](#) for policy wording

### Harassment and Discrimination

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 non-discrimination 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](mailto:eooffice@iastate.edu).

### Free Expression

Iowa State University supports and upholds the First Amendment protection of [freedom of speech](#) and the principle of [academic freedom](#) in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate.

**Contact Information for Academic Issues:** If you are experiencing, or have experienced, a problem with any of the above issues, email [academicissues@iastate.edu](mailto:academicissues@iastate.edu)

## Canvas for Students at ISU

### Getting Started

1. Be sure to have an ISU NetID. If you do not, please visit Passwords and Accounts (<https://www.it.iastate.edu/services/accounts>)
2. Login to [Canvas](#) with your ISU NetID and password and look for your course for this semester.

### Canvas Help

General help with Canvas can be found under the Help link in the global navigation menu on the left side of your Canvas page. You will find:

- [Canvas Live Chat – 24/7 live chat with Canvas specialists](#)
- [Canvas Guides-a repository of how-to's](#)
- [Ask the Canvas Community-Online support forum for canvas users. Log in using ISU credentials.](#)
- ISU Canvas Support Line: Call 515 294 4000, press 2 and then press 1. [Hours of operation.](#)
- Go to [Lynda.com](#) and log in with your ISU credentials. Search for the desired tutorial.

### Basic Troubleshooting (if Canvas is not working)

- Username/Password not working?
  - The login information (username and password) for Canvas is the same as for your ISU email account.
  - For help with Username and Password, please visit [University Accounts](#) or contact Solution Center at 515-294-4000 or [solution@iastate.edu](mailto:solution@iastate.edu).
- If you get an error message, check for Browser and Java Issues on your computer.
- If you are unable to access course content or activities (e.g., Tests, Discussions, Assignments, etc.), contact your instructor.