

CHEM 1670 Syllabus

Course Information

CHEM 1670 | Spring 2025 | Hybrid (in-class lectures & online content)

Section 1 | Monday Wednesday Friday at 8:50am-9:40am | 1002 Gilman

Recitations: on Tuesday - check your schedule for time and location

Department: Chemistry

Credit Hours: 4

Course Prerequisites: *MATH 1400 or high school equivalent and 1 year of high school chemistry or CHEM 500.*

Principles of chemistry and properties of matter explained in terms of modern chemical theory with emphasis on topics of general interest to the engineer.

Instructor Information

Name: Dr. Caleb Thompson

Email: chem1670tq@iastate.edu

Phone: email preferred

Office Address: 2760 Gilman Hall

Office Hours: TBD in Gilman 2760 (my office). These times are subject to change.

Course Learning Objectives

Upon completing this course, students will be able to do the following:

1. **By completing the course, the students will be able to interpret and explain** the connection between symbolic representations (the microscopic level) and the amounts of substance (the macroscopic level) when given a qualitative or quantitative problem involving a chemical system. To achieve this goal, students will learn about atoms, bonding, and chemical reactions.
2. **By completing the course, the students will be able to assess, describe, and ultimately predict** the chemical and physical properties of elements and compounds (gaseous, liquid, and solid materials). To achieve this goal, students will learn about structure, bonding, and inter-molecular interactions.

3. **By completing the course, the students will be able to recognize** the importance of energy in chemical and physical processes and will **assess** and **describe** the feasibility and energetic implications of any process under specific conditions. Students will learn about energy and thermodynamics.
4. **By completing the course, the students will be able to evaluate** chemical reactivity kinetically and thermodynamically. The latter goal will culminate in the profound understanding of the fundamental concept of equilibrium.
5. **By completing the course, the students will be able to make connections** between topics seen within this course as well as between chemistry and other disciplines such as physics, natural sciences, engineering.

Course Materials



Textbook and Homework System (OWL)

- **Chemistry for Engineering Students**, 4th Edition - by Brown and Holme, Cengage. This is an eBook.
- **OWLv2** online homework.

Provided to you via the [Immediate Access ONE](https://www.isubookstore.com/immediate-access-one-students)  (<https://www.isubookstore.com/immediate-access-one-students>) program.

For detailed information and instructions, visit [Required Textbook, OWL \(homework\), Immediate Access](https://canvas.iastate.edu/courses/114862/pages/required-textbook-owl-immediate-access-one) (<https://canvas.iastate.edu/courses/114862/pages/required-textbook-owl-homework-immediate-access-one>).

Top Hat

Top Hat is available to all Iowa State faculty, staff, and students, with no need to purchase an individual license. See the Top Hat section below in Learning Activities and Assessments.

Scientific Calculator

A scientific calculator with basic functions including logarithms and exponential functions. The use of scientific/graphing calculators is permitted during tests (quizzes and exams), but students must not use the calculator for purposes other than calculations during the test (for example, do not store formulas and other information pertaining to the chemistry content on the device).

Proctors reserve the right to inspect and confiscate the calculator. Spare calculators are provided during exams.

Card-stock Periodic Table

Prior to the first exam, you will be issued a periodic table on card-stock paper in recitation. This periodic table is yours to use throughout the semester and during exams and recitation quizzes. You may add notes to the periodic table with one rule - it must be written in **non-erasable ink** (pen, marker). Instructors and TAs will make spot checks of these periodic tables throughout the semester. If you lose your periodic table, you will not receive a replacement. Each exam will contain a formula sheet with a periodic table and relevant equations, so losing the card stock version will only mean you lose access to your notes. So, don't lose your periodic table.

Producing a replacement periodic table to subvert this rule constitutes academic misconduct.

Course Technologies

1. A reliable Internet connection.
2. Access to Iowa State University computer system and your Learning Management System (Canvas etc.).
3. An internet-ready device for in-class quizzes (Top Hat).
4. Access to a computer with a microphone and audio capability.

Learning Activities & Assessments

+ -

Homework 

Recitations & Recitation Quizzes 

Top Hat 

Exams 

Final Exam 

Grading

Grade Distribution

Your grade in this course includes the following participation areas:

Course Component	Percentage
Homework Assignments (OWL)	20%
Recitation Quizzes	20%
Exams	40%
Final Exam	20%
Total	100%


Table 1. Grade Distribution

Grading Scheme

The following grading scheme will be used to assign a letter grade:

Grade	Range
A	93% to 100%
A-	90% to < 93%
B+	87% to < 90%
B	83% to < 87%
B-	80% to < 83%
C+	77% to < 80%
C	73% to < 77%
C-	70% to < 73%
D+	67% to < 70%
D	63% to < 67%
D-	60% to < 63%
F	0% to < 60%

Table 2. Grading Scheme

 Final grades are based solely on graded work and are NOT negotiable; **no single student will be offered make-up assignments, retakes, or extra credit points.**

Course Policies



Late or Missing Assignments

Lecture quizzes, homework, and recitation quizzes assignments are designed to help you master a topic before we move on to the next topic; thus, **you must complete the work by the scheduled deadline.**

Late submissions are accepted on OWL (see above). The grading policies outlined for recitation quizzes and homework assignments give significant flexibility for you to miss a lecture, recitation, or assignment without hurting your overall grade. These policies are designed to allow for absences or missed assignments due to illness, emergency, or other unavoidable conflict. This said, please contact your instructor and/or TA if you would like to discuss your absence. You must contact us as soon as possible, see next section.

Deadline Extensions

Deadlines are firm. This said, communication is important: if you know you will be unable to complete an assignment because of illness or another emergency, please 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.

Missing an exam will affect your grade significantly: if you have a valid, serious reason to miss an exam, you need to **immediately** contact the instructor (not your TA). You will be asked to drop the course if you miss more than one exam.

Accessibility

Visit the link under University Policies below for the official University accessibility statement.

Additionally, carefully read [Academic Accommodations](#) (<https://canvas.iastate.edu/courses/114862/pages/academic-accommodations>) for more information on how to implement academic accommodations in this course, especially how to take our exams at the Exam Accommodation Center.

Expected online and classroom behavior

- All communication within the course should adhere to university standards of [Netiquette at ISU](#) (<http://www.celt.iastate.edu/wp-content/uploads/2015/09/netiquetteatISU.pdf>). Specifically, communication should be scholarly, respectful, professional, and polite.
- You are expected to follow [ISU's Principles of Community](#) (<https://www.diversity.iastate.edu/connect/principles>).
- You may disagree with other students, but such disagreements need to be based upon facts and documentation. It is my goal to promote an atmosphere of mutual respect in our interactions. Please contact me if you have suggestions for improving the interactions in this course.
- Professional and respectful tone and civility are used in communicating with fellow learners and the instructor, whether the communication is by electronic means or by phone or face-to-face.
- Video interactions reflect a respectful tone in verbal communications and body language.
- Use correct spelling and grammar.

Ground rules for exams and recitation quizzes

You must work independently.

You are permitted use the following authorized resources to complete the exams:

- Scientific or graphing calculator.
- Paper and pens/pencils (any work on scratch paper will not be graded.)
- The issued card-stock periodic table.

You are NOT permitted to do the following:

- You may NOT communicate with anyone else about the exam.
- You may NOT have anything else but the items mentioned above on your desk.
- You may NOT use any electronic devices (except for a calculator) and notes/textbooks.
- You may not use any other resources but your mind!

We actively monitor for illicit behavior.

Ground rules for homework assignments

- Scientific or graphing calculator, Excel (for calculations.)
- Paper and pens/pencils (any work on scratch paper will not be graded.)
- Your course notes and book.
- CHEM 1670 Canvas course content and any links to external webpages that are provided therein.
- You may post questions about HW on the Help Forum and/or ask your TA; you will not receive a direct answer (e.g. the solution to the problem) but you will be advised on how to proceed in the solution.
- Group work is encouraged at this stage in your learning, but you must also practice solving independently.

You are NOT permitted to do the following:

- You may NOT have someone else solve the questions for you.
- 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

Recitation quizzes are graded manually by the TA and the scores posted on Canvas within one week. OWL (homework) is automatically graded directly on the OWL site and the scores are synced into Canvas periodically. Errors may occur: OWL may experience a glitch and not import the correct score; a grader may make a grading mistake. If you believe that an error occurred, you must inform the instructor and/or TA immediately, and by one week after the assignment due date. It is the student's responsibility to check grades on Canvas.

Final Grades

Final grades are based solely on graded work and are NOT negotiable; **no single student will be offered make-up assignments, retakes, or extra credit points.**

Conflict resolution

If you have questions or concerns about our course policies and/or if you have a problem in class or recitation, this is the recommended course of action: you should promptly write an email or

Speak in person detailing your concerns to your instructor, starting with the TA; if the problem is not solved, contact the course instructor; if a resolution cannot be reached, the professor will refer you to the proper channels for [filing a complaint \(https://www.complaints.iastate.edu/\)](https://www.complaints.iastate.edu/).

Many issues can be resolved if a student makes an appointment with a faculty or staff member and communicates their concerns in person.

Academic dishonesty course-specific information ▲

In addition to the general guidelines found in the University Policies, the following constitutes academic misconduct: copying or sharing answers on tests or assignments, consulting unauthorized resources during tests or assignments (e.g., phone, tablet, computer, notes, book, etc.), not following the guidelines regarding the card-stock periodic table, having someone else do your academic work, altering graded work prior to submitting for a regrade request, and in particular, tempering with the graded exam bubble sheet.

University Policies

Visit the Syllabus Statements page for the official list of University Policies.

[ISU Syllabus Statements \(https://canvas.iastate.edu/courses/114862/pages/isu-syllabus-statements\)](https://canvas.iastate.edu/courses/114862/pages/isu-syllabus-statements)

Canvas Technical Assistance

- Receive 24/7 support from Canvas live chat by clicking the ⓘ Help option on the Canvas global navigation to your left and opting to chat with Canvas support.
- Call the 24/7 Canvas support phone line by dialing 515-294-4000 and following the prompts for Canvas support.
- Explore the self-paced [Canvas Student Orientation course \(https://canvas.iastate.edu/courses/104973\)](https://canvas.iastate.edu/courses/104973) to understand standard Canvas functions.
- Check out the [Canvas guide \(https://www.celt.iastate.edu/learning-teaching-technology/canvas-lms/\)](https://www.celt.iastate.edu/learning-teaching-technology/canvas-lms/) for descriptions, accessibility statements, and privacy policies.

How to find help!

[Start Here \(https://canvas.iastate.edu/courses/114862/modules/848099\)](https://canvas.iastate.edu/courses/114862/modules/848099)

[Support and Resources \(https://canvas.iastate.edu/courses/114862/pages/support-and-resources-2\)](https://canvas.iastate.edu/courses/114862/pages/support-and-resources-2)

[Chemistry Help \(https://canvas.iastate.edu/courses/114862/pages/chemistry-help\)](https://canvas.iastate.edu/courses/114862/pages/chemistry-help)

[Supplemental Instruction \(SI\) \(https://canvas.iastate.edu/courses/114862/pages/supplemental-instruction-si\)](https://canvas.iastate.edu/courses/114862/pages/supplemental-instruction-si)

Taking CHEM 1670 for Honors Credit

Students in the Honors Program may contract an Honors Component within CHEM 1670. You may view the established requirements on Canvas. If you decide to proceed, you must follow these steps:

- Go to <https://www.honors.iastate.edu/program/uhp/courses> (<https://www.honors.iastate.edu/program/uhp/courses>), scroll down to “2. Contracting an Honors Component within a regular class” and to **Standing contracts**.
- Click on “Online Honors Credit Contract” and follow the instructions to enroll.
- Write an email to EMAIL to confirm your enrollment.
- Further instructions will come from Dr. Cristina Bonaccorsi who is teaching Sections 1 & 2 as well as managing the Honors credits for ALL CHEM 1670 Sections.

Please note: your instructor does not sign a physical form.

Disclaimer: In extenuating circumstances, the schedule, policies, or procedures are subject to change. All efforts will be made not to alter assignment due dates or scheduled exams. Any modifications will be communicated in writing, verbally in class, and/or published in the Canvas course.