

CHEMISTRY 325
CHEMICAL THERMODYNAMICS

GENERAL INFORMATION

Instructor: **Wenyu Huang**, 2124 Hach, Ph: 4-7084, e-mail: whuang@iastate.edu
Section 3: **M W F 08:50-09:40am Gilman 1104**
Office Hours: MWF 11:00-noon (by appointment).

Teaching assistant: **Minda Chen**, 2255 Hach Hall, e-mail: mchen@iastate.edu
Office Hours: W 1:00-3:00 pm (by appointment).

LEARNING OUTCOMES

By the end of this course students can apply thermodynamics and chemical equilibrium concepts in their professional lives.

LEARNING OBJECTIVES

- Understanding the concepts of 1st, 2nd, and 3rd law of thermodynamics, and applying them to solve problems that may be encountered in their professional lives.
- Understanding the concepts of chemical equilibrium, and applying them to solve problems related to chemical reactions and phase transformations of materials.

TEXT BOOK

McQuarrie & Simon, Molecular Thermodynamics, 1999, University Science Books, in bookstore.
Class notes will generally be posted on Canvas. You are welcome to download and print them.

GRADING

Homework & Quizzes	~30%
First Exam	~20%
Second Exam	~20%
Final Exam	~30%

A nonprogrammable scientific calculator is required for the exams. The grading system will be used. Grades will be assigned based on the normal curve using the total number of points accumulated. Examples of the grading curve will be given after each exam. One-week notice will be given for exams. The final exam will be given in the scheduled period during finals week. Graduating seniors must take the final exam.

TENTATIVE CLASS SCHEDULE

Lectures 1-11 Ch. 2/5/D/C/E
Lectures 12-13 QM review

Lectures 14-16 Ch. 3
Lectures 17-18 Ch. 4
Lectures 19-22 Ch. 6
Lectures 23-24 Ch. 7
Lectures 25-27 Ch. 8
Lectures 28-30 Ch. 9
Lectures 31-33 Ch. 10
Lectures 34-35 Ch. 11
Lectures 36-38 Ch. 12
Lectures 39-40 Review

(a more detailed schedule is available on Canvas)

COVID-19 health and safety requirements

Students are responsible for abiding by the university's [COVID-19 health and safety expectations \(dso.iastate.edu/guidance-for-supporting-community-expectations-during-covid-19-pandemic\)](https://dso.iastate.edu/guidance-for-supporting-community-expectations-during-covid-19-pandemic). All students attending this class in-person are required to:

- properly wear a face covering and/or face shield, covering the nose and mouth, while in classrooms, laboratories, studios, offices, and other learning spaces. It is important to remember that a face covering and/or face shield is required to be worn whenever you are on campus, in the presence of others, and unable to maintain physical distance.
- practice physical distancing to the extent possible;
- assist in maintaining a clean and sanitary environment;
- not attend class if you are sick or experiencing symptoms of COVID-19;
- not attend class if you have been told to self-isolate or quarantine by a health official.
- follow the faculty member's guidance with respect to these requirements. Failure to comply constitutes disruptive classroom conduct. Faculty and teaching assistants have the authority to deny a non-compliant student entry into a classroom, laboratory, studio, conference room, office.

COURSE POLICIES

Academic Dishonesty. The class will follow Iowa State University's policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the [Dean of Students Office \(https://www.studentconduct.dso.iastate.edu/academic-misconduct\)](https://www.studentconduct.dso.iastate.edu/academic-misconduct).

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.

Disclaimer about Freedom of Speech and Academic Freedom

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 manner.

Prep Week. This class follows the Iowa State University Prep Week policy as noted in section 10.6.4 of the [Faculty Handbook](#), (<https://www.provost.iastate.edu/faculty-and-staff-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 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

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](#) (<https://www.studentassistance.dso.iastate.edu/>) at 515-294-1020 or the [Office of Equal Opportunity](#), (<https://www.eoc.iastate.edu/>) at 515-294-7612.

Contact Information for Academic Issues. If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu

ADDRESS STUDENTS WITH SPECIAL NEEDS

Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. All students requesting accommodations are required to meet with staff in Student Disability Resources (SDR) to establish eligibility. A Student Academic Accommodation Request (SAAR) form will be provided to eligible students. The provision of reasonable accommodations in this course will be arranged after timely delivery of the SAAR form to the instructor. Students are encouraged to deliver completed SAAR forms as early in the semester as possible. SDR, a unit in the Dean of Students Office, is located in room 1076, Student Services Building or online at www.dso.iastate.edu/dr/. Contact SDR by e-mail at disabilityresources@iastate.edu or by phone at 515-294-7220 for additional information.

RELATED TO ISU'S PRINCIPLES OF COMMUNITY: Students are responsible for living the tenets established in ISU's Principles of Community: Respect, Purpose, Cooperation, Richness of Diversity, Freedom from discrimination, and the Honest and respectful expression of ideas. Visit [ISU's Principles of Community](#) website (<http://www.diversity.iastate.edu/principles-of-community>)

REGARDING A STUDENT'S NAME, GENDER IDENTITY AND/OR GENDER EXPRESSION:

Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me accordingly early in the semester so that I may make appropriate changes to my records.

PROMOTING STUDENT HEALTH AND WELLNESS: Iowa State University is committed to proactively facilitating the well-being of all students. We welcome and encourage students to contact the following on-campus services for assistance regarding their physical, intellectual, occupational, spiritual, environmental, financial, social, and/or emotional needs:

- Student Wellness call (515) 294-1099 or website (<http://studentwellness.iastate.edu>);
- Thielen Student Health Center call (515) 294-5801 (24/7 Medical Advice) or via the website (<http://www.cyclonehealth.org>);
- Student Counseling Services (515) 294-5056 or website (<https://counseling.iastate.edu>);
- Recreation Services call (515) 294-4980 or via the website (<http://recservices.iastate.edu>).

Students dealing with heightened feelings of sadness or hopelessness, thoughts of harm or suicide, or increased anxiety may contact the ISU Crisis Text Line (Text ISU to 741-741) or contact the ISU Police Department (515) 294-4428.

FOSTERING A SAFE COMMUNITY:

Green Dot Project: A green dot is any choice, behavior, word or attitude that promotes safety for everyone and communicates utter intolerance for power-based personal violence in our Iowa State University community. A green dot is anything you do to make our community safer. What is your Green Dot? Visit the [Green Dot – Student Wellness](http://www.studentwellness.iastate.edu/greendot/) website (<http://www.studentwellness.iastate.edu/greendot/>).

Title IX Reporting Responsibilities: [Download Equal Opportunity's Sample Syllabi Language for Title IX Regarding Reporting Responsibilities \(PDF\)](https://www.eoc.iastate.edu/sites/default/files/uploads/Sample%20TIX%20Syllabi%20Language.pdf), (<https://www.eoc.iastate.edu/sites/default/files/uploads/Sample%20TIX%20Syllabi%20Language.pdf>)

ABOUT MUTUAL RESPECT AND PROFESSIONALISM: You are expected to treat your instructor and all other participants in the course with courtesy and respect. Your comments to others should be factual, constructive, and free from harassing statements. You are encouraged to disagree with other students, but such disagreements need to be based upon facts and documentation (rather than prejudices and personalities). It is the instructor's goal to promote an atmosphere of mutual respect in the classroom. Please contact the instructor if you have suggestions for improving the classroom environment. It is preferable if students discuss issues directly with the instructor, however, students may also leave a note in the instructor's mailbox.

RELEVANT TO THE ISU INCLUSIVE LANGUAGE POLICY: All university publications and communication, whether oral or written, shall use inclusive language and illustrations. Inclusive language refers to language that makes every attempt to include comprehensively all groups in the community. Whenever possible, selection of academic materials will also reflect efforts to uphold this university policy." Visit the [Policy Library's Inclusive Language](#) website.

RELATED TO USABILITY, DISABILITY AND DESIGN: I am committed to creating a course that is inclusive in its design. If you encounter barriers, please let me know immediately so that we can determine if there is a design adjustment that can be made or if an accommodation might be needed to overcome the limitations of the design. I am always happy to consider creative solutions as long as they do not compromise the intent of the assessment or learning activity. You are also welcome to contact the Student Accessibility Services (515-294-7220) to begin this conversation or to establish accommodations for this or other courses. I welcome feedback that will assist me in improving the usability and experience for all students.