

Chemistry 182H – Honors Chemistry II

Instructor Contact Information

Professor Benjamin G. Levine

levine@chemistry.msu.edu (Please include “CEM 182H” at the beginning of the subject line.)

215 Chemistry Building

Teaching Assistant:

Ilias Magoulas

magoulas@chemistry.msu.edu

Office Hours

Professor Levine: Monday 9:00-10:00 am and Wednesday 4:00-5:00 pm in 215 Chemistry Building or by appointment

Ilias Magoulas: Monday 2:00-3:00 pm and Wednesday 9:00-10:00 am in 83 Chemistry Building or by appointment

Meeting Time and Place

Lecture Sessions – Tuesday, Thursday 10:20-11:40 am, 136 Chemistry Building

Discussion Sessions – 1) Monday 10:20-11:10 am, 110 Chemistry Building

2) Monday 12:40-1:30 pm, 110 Chemistry Building

Online Resources

This syllabus, the course schedule, and course assignments will be posted on the course website:

http://levinegroup.chemistry.msu.edu/?page_id=203

Course Content and Objectives

The objective of CEM 182H is to develop the students’ understanding of how the microscopic behavior of atoms and molecules determines the behavior of macroscopic chemical systems. Qualitative and quantitative descriptions will both be developed. Upon completing this course, students will:

- Understand how the properties of macroscopic solids, liquids, and gases arise from the microscopic properties and arrangement of individual atoms and molecules.
- Understand how the laws and concepts of thermodynamics can be used to predict the behavior of macroscopic chemical systems.
- Understand equilibrium as a general concept, and be able to apply it to quantitatively describe a variety of chemical systems, including acid/base solutions and electrochemical systems.

- Understand the factors determining the rates of chemical reactions, and how to describe the rate of chemical reactions quantitatively.

Course Topics

Lectures will cover the following topics in approximately this order:

- Gases
- Solids, Liquids, and Phase Transitions
- Solutions
- Thermodynamic Processes and Thermochemistry
- Spontaneous Processes and the Second Law of Thermodynamics
- General Chemical Equilibrium
- Acid-Base Equilibrium
- Electrochemistry
- Chemical Kinetics

Grading Policy

The semester grades will break down as follows:

15% Exam 1

15% Exam 2

15% Exam 3

25% Final Exam

20% Homework Assignments

10% Class Participation

The grade scale for this class will be decided after final grades are calculated. However if you earn certain percentages in this class, you are guaranteed minimum grades:

Earned Percentage	Guaranteed Minimum Grade
> 87.0%	4.0
> 70.0%	3.0

In addition, if you earn less than 50.0%, you are guaranteed a 0.0 for the semester.

Homework assignments will be made weekly and a subset of the assigned problems will be graded for correctness. Assignments are due at the start of class on the stated due date. Assignments must be submitted in hard copy. Late assignments turned in two weeks late or less receives half credit. After two weeks no credit will be given for late work.

Absence from an exam due to illness requires a doctor's note.

Exam Schedule

Exam 1: Thursday, February 9

Exam 2: Tuesday, March 14

Exam 3: Thursday, April 6

Final Exam: Thursday, May 4, 7:45-9:45 am

Collaboration and Plagiarism

Your classmates are excellent resources to learn from. I encourage you to discuss chemistry with each other. However, every student in the class is responsible for doing and understanding their own work in the end. Passing off the work of another as your own is plagiarism and will not be tolerated. Plagiarism may result in failure of the course. If you are in doubt about whether your actions constitute plagiarism, please ask. Additional information about academic dishonesty at MSU can be found at <https://www.msu.edu/unit/ombud/dishonestyFAQ.html>

Attendance and Participation

Attendance at all lecture periods is expected. Participation in clicker exercises will be used to determine attendance. Participation in these exercises will affect your class participation grade, and excessive absence may result in the further reduction of your grade.

Participation in in-class clicker exercises will require a pen/pencil and paper and discussion with your classmates.

Reading Assignments

Readings from the textbook (and possibly outside sources) are intended to prepare you for the lectures, and should be done as scheduled. It is strongly suggested that you also re-read the sections after the lecture.

Email Policy

Except when I note otherwise, I will answer emails related to this class once per business day, and I cannot guarantee what time that will be. Please plan accordingly by addressing questions to me far enough in advance of the exam/due date that they will be answered in time. Also, please include the phrase "CEM 182H" at the beginning of the subject line to make emails related to this course easy to identify.

Course Materials

Principles of Modern Chemistry, 8th editions by Oxtoby, Gillis, and Butler. (Note that the sections and problems in the 7th edition are not identical to those in the 8th. We will do our best to inform you of any difference, but please do not hesitate to ask questions if you have any.)

Clicker

Notebook and pencil or pen