

GENERAL CHEMISTRY II
CHEM 212-004 Lecture Syllabus (2018 Spring)

Instructor: Hao Jing, Ph.D
Lecture: TR 4:30-5:45 pm, ENT 80
Office Hrs: MW 2:30-3:30 pm
Office: Planetary Hall, Room 311
Email: hjing2@gmu.edu

Required Items:

- **Textbook: Silberberg & Amateis (2018) Chemistry: The Molecular Nature of Matter and Change, 8th Edition, McGraw-Hill**
- **MGH Connect subscription for online homework**
- **i>clicker (handset)**

Recommended Items:

- **Workbook: Preparing for your ACS examination in general chemistry. The official guide. American Chemical Society, ISBN 0-9708042-0-2**

I. Spring 2018 Tentative Lecture Schedule

Week	Chapter	Topic
Jan. 23-30	13	Properties of Mixtures
Feb. 1-8	16	Kinetics
Feb. 13	Exam I	Chapter 13 and 16
Feb. 15-20	17	Chemical equilibrium
Feb. 22-Mar. 1	18	Acid-base Equilibria
Mar. 6-8	19	Ionic Equilibrium in Aqueous solution
Mar. 12 - Mar. 18	No Class	Spring Break
Mar. 20	19	Ionic Equilibrium in Aqueous solution
Mar. 22	Exam II	Chapter 17, 18 and 19
Mar. 27-Apr. 3	12	Intermolecular Forces, solid and liquid phases
Apr. 5-12	20	Thermodynamics
Apr. 17-24	21	Electrochemistry
Apr. 26	Exam III	Chapter. 12, 20 and 21
May 1-3	24	Nuclear Chemistry
May 3	Last day of class	
May 15, 2018	Final Exam	4:30 pm – 7:15 pm; ACS Comprehensive Exam; Exam begins exactly at 4:30 pm.

Important Dates: 29 Jan. (last day to add); 23 Feb. (last day to drop); 3 May (last day of classes)

II. General Comments

The purpose of Chemistry 211 and 212 is to introduce students to the properties, structure, and reactions of matter in our universe. Knowledge of chemistry is vital to understanding the fundamental and basic principles of nature and processes used in industry. Chemistry 212 builds on the concepts presented in Chemistry 211, and emphasizes quantitative problem solving in (1) explaining the important properties of solutions, (2) quantifying the rates of reactions, (3) determining the extent to which a chemical process occurs, and (4) using chemical reactions to generate electricity. Chemistry 212 is a challenging course. If you approach it correctly and with a firm understanding of the demanding requirements, I hope you will find Chemistry 212 rewarding and enjoyable. The most important contribution to success in this course will be your own preparation in the form of study, which is achieved through solving the end-of-chapter questions in the textbook (a section on homework is provided below), and through regularly attending lecture. This course is not designed to "weed

you out" from your major, but it requires a firm commitment to hard work and critical thinking. Remember as you continue through your college experience that successful learning enables you to develop new knowledge and understanding through critical reasoning and synthesis.

III. Midterms, Homework, and Quizzes

Exams: Lecture evaluations will be based, in part, on three equally weighted exams given during the semester and one comprehensive final exam. **No test scores will be dropped when determining the final grade.**

Also, there are no make up exams (no exceptions) given in this course. If one exam is missed, for any reason, then the point values of the other exams will be increased proportionately to cover the missed exam. This will only be done for **ONE** excused absence. An absence will be excused **ONLY** if the student provides the instructor with adequate documentation (in writing) covering the excuse (e.g., note from a physician) and contacts the instructor immediately upon knowing the exam will be missed. Excuses such as a mild sickness or car troubles will not be accepted. More than one excused absence from an exam will result in a zero score on the second missed exam. Any non-excused absence will result in a zero score for the exam. The final exam is cumulative and based on the American Chemical Society (ACS) standardized test. The ACS workbook is a recommended preparatory aid for the final. Any attempt to change the time of the final must be authorized by the course instructor **prior to Exam III**. Absence with failure to obtain authorization in advance will result in forfeiture of the final exam score.

Graded Homework: There will be 9 computer-graded homework (HW) assignments throughout the semester, which are available through Blackboard (MGH Connect). The online HW counts as part of the overall grade. You must complete the HW assignments before the assigned deadlines posted on MGH Connect to receive full credit.

Quizzes: i>Clicker quizzes will be given during most of the lecture periods. The quizzes reflect current subject material, often on topics covered the same day in lecture. Reading the text ahead of the lecture schedule is imperative for success on quizzes. There are **NO** make-ups for missed quizzes for any reason.

IV. Course Grading

The final grade in this course will be based on a percentage of points earned relative to total possible points. However, an absolute grading scale cannot be determined until all scores have been compiled and evaluated. Although as a rule of thumb the following scale will apply, it is subject to minor change during the semester: 100-94% (A); 93-90% (A-); 89-87% (B+); 86-84% (B); 83-80% (B-); 79-77% (C+); 76-70% (C); <69% (D or F).

The final grade in Chem 212 is based on the scores of three **exams**, the **final**, nine online **homework** assignments, and in-class i>clicker **quizzes**. The weightings of the exams, final, homework, and quizzes are shown below. To determine your overall score in the course, the overall percentage is determined as $\%Overall = \sum(\%_i * \%W_i/100)$, where $\%_i$ is the (mean) percent score and $\%W_i$ is the weighting factor for the i^{th} category (in the table below).

Exams	45%
Final	25%
Homework	20%
Quizzes	10%
Total	100%

V. Laboratory

The laboratory component of Chem 212 is **mandatory** as a co-requisite. If you drop the lab you will automatically be dropped from lecture. The lab is graded separately.

VI. Exam Preparation

You will be learning chemistry and how to develop critical problem-solving skills in this course. Adequate preparation is an integral part of the learning process and is essential to achieving success in Chem 212, and the online homework is required. Homework is recommended for sharpening students problem solving skills

and for preparation for exams. Answers to end-of-chapter homework problems are located in the back of your textbook (for selected problems). You should obtain a separate notebook for working out homework problems and you need to bring this notebook to the instructor or tutor when you are seeking help. Tips for studying chemistry 212 are provided below as a series of steps the student should follow for the material in each chapter. Success in chemistry 212 may be aided by following these steps.

1. Before lecture read the assigned pages from the textbook.
2. Work out the sample problems posted in Bb.
3. Be prepared to answer the quiz questions in class.
4. Complete the online HW. Repeat as needed.
5. Practice midterms are available through MGH Connect that follow the format of the in-class exams. This is critical preparation for the exam.
6. For each problem you miss, return to the textbook to refresh yourself on the subject theory and refer back to an in-chapter example problem related to the missed question.

VII. Additional Information

ACADEMIC INTEGRITY

Mason is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. Academic integrity in this course means any sharing of information or obtaining or providing assistance on any written assignment unless authorized by the instructor. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

MASON EMAIL ACCOUNTS

Students must use their MasonLive email account to receive important University information, including messages related to this class. See <http://masonlive.gmu.edu> for more information.

OFFICE OF DISABILITY SERVICES

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS. <http://ods.gmu.edu>

OTHER USEFUL CAMPUS RESOURCES:

WRITING CENTER: A114 Robinson Hall; (703) 993-1200; <http://writingcenter.gmu.edu>

UNIVERSITY LIBRARIES "Ask a Librarian"

<http://library.gmu.edu/mudge/IM/IMRef.html>

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS): (703) 993-2380;

<http://caps.gmu.edu>

UNIVERSITY POLICIES

The University Catalog, <http://catalog.gmu.edu>, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at <http://universitypolicy.gmu.edu/>. All members of the university community are responsible for knowing and following established policies.