

HONORS GENERAL CHEMISTRY II
Chemistry 212-H01 Lecture Syllabus

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Required Items:

- Textbook: OpenStax, Chemistry, Open Stax College (<https://openstax.org/details/books/chemistry>).
- Sapling Learning online homework (<http://bit.do/studentinstructions>).
- Clicker handset (i>Clicker+ or i>Clicker2) *Recommended Items:*
- *Workbook: Preparing for your ACS examination in general chemistry. The official guide. American Chemical Society, ISBN 0-9708042-0-2*

I. Schedule

Week	Chapter	Topic	Text Pages
1	10	Intro, Molecular Forces, Liquids & Solids	513-589
2	11	Solutions & Colligative Properties	591-629, 640-646
3	12	Rates and Mechanisms of Chemical Reactions	647-710
	10-12	Exam I	
4	13	Chemical Equilibrium	711-755
5-6	14	Acid & Base Equilibria, Salts, Buffers and Titrations	757-828
6	15	Solubility Equilibria	829-870
	13-15	Exam II	
7	16	Entropy, Free Energy and Thermodynamics	871-904
8	17	Electrochemistry	905-927,937-952
	16 & 17	Exam III	
9	21	Nuclear Chemistry	1139-1175,1190-1200
	Comp.	ACS Final Exam	

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, homework exercises and by 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 midterm 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, the point value of the **FINAL** 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., written diagnosis from a physician) and contacts the instructor immediately upon knowing the exam will be missed. Excuses such as a mild sickness, traffic 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 (SCS) 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. Any conflicts with the final exam (work travel or >2 finals on the same day) must be resolved prior to the third exam, otherwise accommodations **will not** be made.

Graded Homework: There will be 9 computer-graded homework (HW) assignments throughout the semester, which are available online through Blackboard (see required items on page 1). The online HW counts as part of the overall grade. You must complete the HW assignments before the assigned deadlines to receive full credit. All deadlines are at 12:00 pm (noon).

Quizzes: i>Clicker quizzes will be given during many 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.

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 depending on the % distribution of individual assignments: 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 **midterms**, a **final**, nine online **homework** assignments, and the in-class i>clicker **quizzes**. The weightings of the midterms, final, homework and quizzes are listed below.

Midterms	45%
Final	25%
Homework	15%
Quizzes	15%
Total	100%

V. Laboratory

The laboratory component of Chem 212 is **mandatory**. The lab section must be taken concurrently with the lecture, otherwise the student will be automatically dropped from the lecture course. Refer to the laboratory instructor regarding the requirements for laboratory.

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 211, and the online homework is required. Homework is recommended for sharpening student problem solving skills and for preparation for exams. Answers to end-of-chapter homework problems are located online in a student solutions manual (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. Take notes during lecture.
3. Complete all assigned group problems prior to the deadline.
4. Complete the recommended end-of-chapter HW.
5. Complete the online HW. Repeat as needed to achieve a score of >94%.
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.

ATTENDANCE: Because class participation may be a factor in grading, instructors may use absence, tardiness, or early departure as de facto evidence of nonparticipation. Students who miss an exam with an acceptable excuse may be penalized according to the individual instructor's grading policy.

RELIGIOUS OBSERVANCES: It is the obligation of students to provide faculty, within the first **two weeks** of the semester, with the dates of major religious holidays on which they will be absent, and the dates for which they are requesting an excused absence for participation in any university-sponsored activity scheduled prior to the start of the semester, and as soon as possible otherwise.

ACADEMIC LOAD: Employment must not take priority over academic responsibilities. Students who fail to observe these guidelines may expect no special consideration for academic problems arising from the pressures of employment.