

GENERAL CHEMISTRY I
Chemistry 211 Lecture Syllabus

Instructor: Gregory D. Foster
Course: Chemistry 211-H01,
Office: Room 317 Planetary Hall
Telephone: 703-993-1081
Email: gfooster@gmu.edu

Items Required

- **Textbook: OpenStax, Chemistry, Open Stax College (<https://openstax.org/details/chemistry>).** Electronic version of **Chemistry** is free of charge. Printed copies can be obtained from GMU bookstore.
- **Sapling Learning online homework (<http://bit.ly/saplinginstructions>)**
- **i>Clicker handset (i>Clicker+ or i>Clicker2) Items Recommended**
- **Workbook: Preparing for your ACS examination in general chemistry. The official guide. American Chemical Society, ISBN 0-9708042-0-2**

Course Prerequisite: Algebra 2

I. Schedule

Week	Chapter	Topic	Pages
1	1	Introduction, Properties & Measurements	10-51
2	2	Atoms, Molecules and Ions	67-113
3	3	Composition of Substances and Solutions	129-162
4	4	Stoichiometry of Chemical Reactions	175-213
5	5	Thermochemistry	231-270
6	6	Electronic Structure & Periodic Properties	281-333
7	7	Chemical Bonding & Molecular Geometry	345-391
8	8	Advanced Covalent Bonding	413-450
9	9	Gases	459-510
	1-3	Exam I	
	4-6	Exam II	
	7-9	Exam III	
	1-11	ACS Final	

II. General Comments

The purpose of Chemistry 211 and 212 is to introduce students to the properties, structure, and reactions of matter. Knowledge of chemistry is vital to understanding the fundamental and basic principles governing our natural world at the molecular level of organization, and to broadly and accurately interpret the importance of science in human society. Chemistry 211 is the first semester course of a two semester sequence that provides a foundation of chemical concepts by (1) introducing the basics of chemistry (atomic structure, the nature and expression of chemical reactions, gas theory, and heat flow in chemical reactions), (2) describing

the atomic and molecular properties of matter (atomic and subatomic structure, electronic configuration of atoms, bonding and geometry), and (3) defining important properties of the states of matter (esp. properties of liquids and solids). Chemistry 211 is a challenging course. If you approach it correctly and with a firm understanding of the demanding requirements, I hope you will find Chemistry 211 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), online homework assignments and 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. Exam Policy & Graded Homework

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 given in this course. If one exam is missed, for any reason, then the point values of the other two 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 has provided the instructor with adequate documentation covering the excuse (e.g., note from a physician for an emergency doctor's visit) and further 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. Changing 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 are eleven graded homework (HW) problem sets assigned throughout the semester. The HW is available online from the source described by the instructor. All online HW counts as part of the overall grade. You must complete the HW assignments before the assigned deadlines.

IV. Quizzes

In-class quizzes will be administered approximately each day of lecture. To complete the quizzes you will need an i>clicker response device, using a separate i>clicker handset (i>clicker+ or higher). It is your responsibility to make sure you bring your i>clicker with you each day. A response device will not be provided to you by the instructor.

V. Laboratory

The laboratory component of Chem 211 (Chem 213) is **mandatory** and must be taken concurrently.

VI. Course Grading

The final grade in Chem 211 is based on the outcome of **three** in-class midterms, **one** final exam, **nine** homework assignments, and **M&W** in-class quizzes (i>clicker). The allocation for the exams, final, homework and laboratory in this class is listed below. The final grade is based on the sum of the weighted percentages assigned to each of the categories above to obtain the total percentage. As a rule, the following percentile scale is applied to the total percentages for the class when determining final grades: 100-94%tile (A); 93-90% (A-); 89-87%tile (B+); 86-84%tile (B); 83-80%tile (B-); 79-77%tile (C+); 76-70%tile (C); <69%tile (C-, D and F). The final grade scale can be adjusted slightly based on the class average.

Exams	40%
Final	25%
Homework	20%
Quizzes	15%
Total	100%

VII. 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 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 211 are provided below as a series of steps the student should follow for the material in each chapter. Success in chemistry 211 may be aided by following these steps.

1. Before lecture read the assigned pages from the textbook.
2. Be prepared to answer the quiz questions in class.
3. Work the 10 end-of-chapter text practice problems listed in Bb to develop skill and strategy. (Try to avoid looking at the answers until you have completed your first attempt of the problem.)
4. Take the online HW for the first time on the appropriate chapter. Repeat as needed.
5. A pre-test will be completed at the end of each chapter in groups. Your group will be assigned a pretest problem to present to the class as a solution. It is important that you present the solutions in an organized and detailed fashion.
6. Practice midterms are available through MGH Connect that follow the format of the in class exams. This is critical preparation for the exam.
7. For each problem you miss, return to the textbook to refresh yourself on the subject theory and refer to an in-chapter example problem related to the missed question.

VII. Other Policies

- Religious Holidays. The calendar of religious holidays and observations can be found at <http://ulife.gmu.edu/calendar/religious-holiday-calendar/>. It is up to the student to speak to the instructor by the third week of the semester to avoid any conflicts according to Mason policy AP.1.6.1.
- Honor Code. During exams cell phones, hats and drinks are not permitted. These items must be stored in book bags in the front of the classroom.
- Office of Disability Services (ODS). Any special arrangements for an exam must be made through the ODS. The instructor must be provided documentation one week in advance of the exam.
- Privacy. To comply with privacy laws, faculty and students need to use their GMU email accounts when corresponding.
- Student Support Services: Mason has a number of academic support and other resources to facilitate student success, including the [Chemistry Tutoring Center](#) and [Learning Services](#).