

CHEM 111: General Chemistry I

Fall 2012 Semester

Sections 1-5 and 18

Lecture: MWF 9-9:50 AM. IRC 3.

Lab: Various times in Physical Sciences 201 and 202.

Course Website: <http://employees.oneonta.edu/viningwj/chem111>

OWLBook Access: <http://c-owl.umass.edu> Click on OWLBook

Laboratory Manual:

http://employees.oneonta.edu/viningwj/chem111labs2012/General_Chemistry_I_Lab_Manual.pdf

Instructor: Bill Vining, 232 Physical Sciences Building, 607-436-2698, viningwj@oneonta.edu

Office Hours: I generally have an open door policy.

Required Materials:

Textbook: We will be using an on-line OWLBook (an electronic book). You will get a paper copy of the book along with goggles at the Bookstore. The electronic book and HW system is free, but student surveys in 2011 indicated that most still wanted a paper book and many of you will need one to study for MCATs, etc. Also, consider that there are many things in General Chemistry that go along with other disciplines (such as kinetics and thermodynamics for meteorology, geology or water resources majors).

Clicker: TurningPoint or TurningTechnologies clicker. Any version.

Calculator: A good quality scientific calculator (usually costing about \$10-15 is sufficient).

Phones, PDAs, iPods, etc. may not be used for an exam.

Laboratory: Laboratory experiments may be downloaded and printed by you (URL above). You will be required to have safety goggles. These are sold as a packet with the book. A duplicating laboratory notebook, available at the Bookstore just like the goggles, is required. Unless you have a physical complication (see me), please try and use the safety goggles you will buy from the bookstore.

Absolutes:

The Student Code of Conduct (consult the SUNY Oneonta website), covers the ordinary rules regarding academic honesty, use of computer resources, etc. Chemistry & Biochemistry department course guidelines are also part of this syllabus. In addition, I have a few absolute rules that I do not waiver on.

- No telephoning and no text messaging (just Twitter during lectures, please). No iPods, MP3 players, etc. Put phones on vibrate and, don't answer them. If you have something important to attend to, leave the room and handle it outside.
- No makeups, no early exams, etc. With the exception of College-approved (in advance) instances (athletics, religious holidays, serious illness, etc.). It is imperative that you touch base with me if something comes up or you foresee a problem approaching.
- Students with SDS accommodations should be sure to see me in a timely manner (in accordance with SDS guidelines). It will be my pleasure to facilitate the accommodations.

Grading (out of 700 points):

Item	Points
OWL Assignments	150
Three Hour Exams	300
Laboratory	100
Cumulative Final Exam	150

# Points	Minimum Letter Grade (+/- to be determined)
>630	A
560	B
490	C
430	D
<430	E

OWL Grades:

Your OWL grades come in two parts: OWLBook interactive reading assignments and Section Mastery assignments. OWLBook reading assignments will generally be due before that material is covered in class. Therefore, full credit for these modules is awarded for 75% completion. Section Mastery assignments will be due well after material has been covered in class and full credit is awarded for 90% completion of these. So, you are given 25% free allowance on the OWLBook readings and 10% on the Section Mastery.

Special Lab Grade Rule:

Be aware that the policy of the Department of Chemistry & Biochemistry is to require a C- or higher grade in pre-requisite courses. As a result, you will need a C- or higher in order to enroll in CHEM 112, CHEM 226 or any other CHEM course with 111 as a pre-requisite. **You will also need to pass the laboratory, by earning 60 points or more (60%) in order to pass the class (regardless of any other achievements). If you fail the lab, you fail the course.**

OWLBook Access and Use:

Refer to the OWLBook Student Quick Start Guide (emailed to you or available on my course website). OWL is a CRITICAL part of the course, both the book and the homework system (which are integrated). In Fall 2011, roughly 20% of the students taking General Chemistry got D & E grades (which means that CHEM 111 will not count as a pre-requisite for other CHEM courses). Most of the students who received D & E grades did not complete or spend much time on the OWL assignments. Some OWL hints:

1. Until the due date for an assignment, you may repeat the assignments as many times as you like without penalty. So, there is no reason to think you can't get all or most of the OWL points.
2. OWL really is at the center of learning in this course. OWL allows you to work on homework almost anywhere and at almost anytime. Also, you can get immediate feedback through the system that I might not be able to get to you right away. Your primary out-of-course work for the lecture should be reading the OWLBook, doing the tutorials in it and the OWLBook assignments. Expect 6-8 hours/week of work outside the lecture.
3. You should do OWL assignments in a notebook (at least scratch work). The reason for this is to make notes, and process the problem through your brain and into your hands while writing out at least some of the problems. A notebook can also help me help you if you come to my office or have questions in class. I suggest a cheap composition notebook

(one that is \$1-\$3), so all of the pages stay together. Notebook work is important, because exams will be given in the “classical manner”, combining mostly multiple choice with a little short answer.

Topic/Schedule:

Note that specific dates for specific topics/exams are tentative and will be modified as the course progresses. The best way to have accurate information and to be prepared is to attend every lecture. I will be taking attendance from time to time using your clickers.

Week	Date(s)	OWLBook Chapter & Topics
1-2	8/22-8/31	Chapter 1: Introduction, General Principles of Chemistry, Calculations and Mathematics Chapter 2: Elements and Compounds
3	9/3-9/7	Chapter 2: Elements and Compounds
4	9/10-9/14	Chapter 3: Stoichiometry
5	9/17-9/21	Chapter 3: Stoichiometry
5	9/21	Exam #1 in Class on Friday
6	9/22	Chapter 4: Chemical Reactions and Solution Stoichiometry
7	10/1 – 10/5	Chapter 4: Chemical Reactions and Solution Stoichiometry
8	10/8 – 10/12	Chapter 4: Chemical Reactions and Solution Stoichiometry Chapter 5: Thermochemistry
9	10/15 - 10/19	Chapter 5: Thermochemistry
10	10/22-10/26	Chapter 5: Thermochemistry
10	10/26	Exam #2 in Class on Friday
11	10/29-11/2	Chapter 6: Electromagnetic Radiation and Atomic Structure
12	11/5-11/9	Chapter 7: Electronic Configurations and Atomic Properties
13	11/12-11/16	Chapter 8: Covalent Bonding and Molecular Structure
	11/16 - 11/26	Break
14	11/26-11/30	Chapter 8: Covalent Bonding and Molecular Structure
14	11/30	Exam #3 in Class on Friday
15	12/3 - 12/7	Chapter 9: Theories of Chemical Bonding
	12/12	Final Exam Wednesday Dec. 12, 8:00 AM in IRC#3

Everyone must take the comprehensive final exam.

Laboratory Notes (Labs Start the Week of 8/27/12):

The lab manual is provided at no cost and will really only take a little from your print quota. Each week, on Monday, I will discuss the upcoming laboratories briefly. A tentative schedule of laboratories is seen here (this will be updated as the semester progresses):

Week	Experiment	Page
August 27	Viewing Moles/Growing Crystals	12
September 3	Analysis of a Mixture	17
September 10	Synthesis of Alum	21
September 17	Molar Mass of an Unknown Acid	30
September 24	Break- No Labs	
October 1	Analysis of Silver Group Cations	25
October 8	Net Ionic Equations	34
October 15	Spectroscopic Aspirin Analysis	43
October 22	Thermochemistry	51
October 29	Copper Complex Analysis I	59
November 5	Copper Complex Analysis II	63
November 12	Periodic Properties of the Elements	75
November 19	Break- No Labs	
November 26	TBD	
December 3	Clean up and Check Out	

Chemistry & Biochemistry Program Student Learning Outcomes:

Some of these are emphasized more in CHEM 111 and some less. The outcomes are a general list of how you may be evaluated on the specific topics we will consider, and not an indication of any specific question you would be asked at any given time.

Student Learning Outcome
Students will demonstrate an understanding of chemical elements and inorganic compounds, their properties, reactions and uses.
Students will demonstrate an understanding of organic compounds, their properties, reactions and uses.
Students will demonstrate an understanding of what controls chemical stability and reactivity, reaction kinetics and how to detect and analyze chemical reactions.
Students will learn and practice basic laboratory safety and chemical hygiene procedures.
Students will exhibit a working knowledge of classical and modern analytical techniques and instrumentation, and understand their uses and limitations.
Students will gain experience in the use of computers for chemical simulation and computation, data acquisition, and data analysis.
Students will demonstrate knowledge of the models chemists use to understand matter and energy at the atomic, molecular and macromolecular dimensions.
Students will exhibit an understanding of the process of science as inquiry, including the role of collaboration and the evolving nature of scientific knowledge as it applies to chemistry.
Students will demonstrate competence in analytical thinking and critical analysis of chemical literature.

General Education NL2 Attribute Student Learning Outcomes:

These student learning outcomes are germane to all NL2 General Education attribute courses at SUNY Oneonta.

Students will demonstrate:

- Understanding of the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical analysis; and
- Application of scientific data, concepts, and models in one of the natural sciences.

Emergency Evacuation/Shelter-in-Place Procedures:

In the event of an emergency evacuation (i.e., fire or other emergency), our laboratory classes meeting in the physical sciences building are directed to reassemble at the Chase Gymnasium so that all persons can be accounted for. Evacuation from our lecture hall in IRC is to the Fine Arts Theater. Complete details of the emergency evacuation, shelter-in-place, and other emergency procedures can be found at <http://www.oneonta.edu/security>.

Department of Chemistry and Biochemistry

Policy on Course Attendance, Performance, Participation and Behavior

1. Students are expected to attend all scheduled course sessions and should be prepared by reading in advance any relevant material assigned or provided. Participation (defined by interacting with the instructor, working problems at the board, individually or in groups, using personal response "Clicker" systems and other mechanisms defined in the syllabus) is expected.
2. Students are reminded that instructors are not required to accept assignments submitted late, except in instances allowed according to College policies. College Policies as defined in the Student Code of Conduct apply to lecture, recitation and laboratory portions of all courses.
3. Laboratories are an integral part of education in chemistry courses. As a result, participation in all laboratories scheduled for a course is expected. Unless alternate activities are scheduled, students can expect that their laboratory section will meet each week, and failure to attend laboratories may lead to failure in the course.
4. The minimum acceptable grade for a chemistry course prerequisite is a C-. For example, a student with a D+ in General Chemistry I may not enroll in General Chemistry II. This standard applies to all Chemistry prerequisites for all Chemistry courses.
5. **The laboratory for a course must be passed**, normally by earning 60% of the available score or points for the laboratory, in order to pass the course. Exceptions may be noted in the course syllabus.
6. Students are expected to bring to laboratory the laboratory manual (or printout of the experiment), a laboratory notebook (if required), a calculator, ruler or other materials as specified by the instructor or in the syllabus.
7. Students are not allowed to work in the laboratory without direct faculty supervision.
8. Unless announced in advance, **SAFETY GOGGLES (WHICH PROVIDE A COMPLETE SEAL AROUND THE EYES AND ARE EQUIPPED WITH INDIRECT VENTS) ARE REQUIRED TO BE WORN AT ALL TIMES IN THE LABORATORY. STUDENTS ARE REQUIRED TO PROVIDE THEIR OWN SAFETY GOGGLES.**
9. Open-toed shoes (e.g. sandals, "Birkenstocks", flip-flops, etc), unrestrained long hair, excessively loose clothing and other items, which may be easily ignited or snag on apparatus are not allowed.
10. Food, drink, candy, cosmetics, tobacco products, etc. are not allowed in the laboratory.
11. Students are expected to be attentive to the material and any experiments and apparatus in the laboratory. The following must be turned off and stored away from the laboratory bench while in laboratories:
 - Portable music players (e.g. iPods, MP3 players and the like)
 - Cellular telephones, pagers, text messaging devices and the like
 - Other portable electronic devices as defined by the laboratory instructor
12. Horseplay, practical jokes, "goofing around" or interfering with other students' work is not allowed in the laboratory.
13. Students should not expect to be able to makeup missed laboratory sessions or experiments. If a makeup session is possible, it will be at the discretion of the laboratory instructor and will normally be during the same week as the missed laboratory section.
14. Students will not be permitted to work in any laboratory section other than that they are registered for unless they have the **written approval** of both their regular instructor AND the instructor in the section they wish to enter.

Course instructors may modify these guidelines as necessary to meet the requirements of individual courses or chemical specialties in consultation with the Department Chairperson. Students should expect to receive a copy of these guidelines in their course syllabus or be given a copy by the course instructor (either in paper form or by electronic mail).