

CHEM 105 - GENERAL CHEMISTRY I

Section 002

Spring 2017

Instructor: Dr. Snyder

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Office: 109B Sims

Office Hours: Mondays 9:00-10:00, Wednesdays 1:00-2:00 or by appointment

Course Credit Hours: 4

Lecture: MWF 11:00-12:15 (Sims 105)

Required Materials:

- ❖ **Textbook: *Chemistry: An Atoms-Focused Approach*** by Gilbert, Kirss and Foster, 1st edition
- ❖ Online homework, **SmartWork**, (W.W. Norton Publisher); enrollment key **CHEMAT11149** (case-sensitive)
- ❖ Scientific Calculator (It does not have to be a programmable calculator)

Course Objectives and Student Learning Outcomes: Students completing this course successfully will:

- ❖ Demonstrate competence in fundamental general chemistry topics
- ❖ Develop their problem-solving and critical thinking skills
- ❖ Develop their ability to effectively communicate with other chemists using proper scientific terminology.

Course Outline: In the first semester of general chemistry, we will examine the following topics as time permits:

- ❖ The Structure of the Atom and the Periodic Table
- ❖ Structure and Properties of Ionic and Covalent Compounds
- ❖ Thermodynamics
- ❖ Stoichiometry
- ❖ Intermolecular Forces
- ❖ Chemical Equilibrium
- ❖ Nuclear Chemistry
- ❖ Electrochemistry

Class Preparation: You will get more from a class period if you spend time preparing ahead of time. Therefore, you should:

- ❖ Read assignments before class. This will give you a better understanding of the topics being discussed and you will be able to take better notes.
- ❖ Attend class. If you miss class, it is your responsibility to obtain lecture notes from another student in the class.
- ❖ Devote time to class each day. This is a rigorous course that requires daily preparation.
- ❖ Work homework problems from the textbook daily.
- ❖ Work homework on **SmartWork** daily. Complete each topic by the due date.
- ❖ Take good notes. I highly recommend rewriting your notes as soon as possible after class.
- ❖ **Do not fall behind**

Exams and Grading:

1. There will be three exams worth 150 points. **No make-up exams will be given.** Tentative exam dates are noted on the schedule. If you miss an exam with a **valid excuse**, the missed exam grade will be replaced with your final exam grade scaled to 150 points.
2. There will be a **comprehensive final exam**, worth 250 points. You must take the final exam and make at least a 50% on the final in order to pass the course.
3. There will be 7-8 quizzes given throughout the semester worth 20 points each. See schedule for quiz dates. Quiz formats will include online, in class, take home or a combination of the three. **No make-up quizzes or time extensions will be given.** Online quizzes will be open for 48 hours and must be completed in the allotted time. When taking online quizzes, there is always a possibility that you may lose your responses due to variety of technical issues (electricity goes out, internet goes down, fire alarm goes off and you have to exit the building.....). I suggest when completing the online quizzes to work your problems out on paper so that if you have to start over, you will know how you solved each problem. If you have a technical problem when completing an online quiz (electricity goes out, internet goes down, fire alarm goes off and you have to exit the building.....), I will reset the quiz for you if you contact me before 8:00 pm the night the quiz is due. After 8:00 pm of the due date, I will not reset any quizzes.

Your lowest two quiz grades will be dropped before calculating your final quiz grade. If you miss a quiz for any reason, the missed quiz will be the quiz grade that is dropped. This is a tentative quiz schedule. The maximum point total for quizzes will not exceed 120 points. If for some reason we miss a quiz, the point total for quizzes will be adjusted accordingly.

4. This course fulfills four hours of the general education requirement for the natural sciences which includes a writing component. In order to meet the writing component requirement, this course will include evaluated student written expression from graded exercises that include quizzes, exams and the final cumulative exam. **You will be required to demonstrate a well-documented, organized approach for each problem solved for quizzes, exams and homework. You will be required to effectively express the key mathematical relationships, illustrate steps in equation rearrangement, use and express correct units, document cancellation of units used, and report all mathematical answers with the correct number of significant figures with the proper units.**
5. There will be two homework assignments for most chapters; a graded assignment and an ungraded assignment. Both assignments will be completed in SmartWork. You should complete the ungraded assignment first to help learn the material, and then complete the graded assignment. There will be about 15-18 homework assignments for the semester depending on how many chapters we have time to complete. Each graded homework assignment will be worth 100 points. Your lowest two homework grades will be dropped and the remaining homework grades will be averaged in order to calculate your final homework grade for the semester. **Due dates will be specified at the time the assignment is made and will be indicated in SmartWork.** Late assignments will not be accepted.

You will need to create a SmartWork account at <http://smartwork.wwnorton.com>. When creating an account, use your Winthrop email address and you will need the registration code that came with your textbook and the enrollment key **CHEMAT11149** (case-sensitive). **If you already purchased the *Chemistry: An Atoms-Focused Approach* by Gilbert, Kirss and Foster, 1st edition textbook, you should be able to use the same access code as last semester.**

6. The chemistry department has a tutoring program for CHEM 104, 105, 106, 301, 302, 310 and PHYS 201 and 211. This tutoring program is open to all students in these courses. Tutors are available on Monday, Tuesday and Wednesday evenings from 7-9 in Sims 301A and on Tuesdays and Thursday during common time (11-12:30) in Sims 209. If you attend 3 tutoring sessions throughout the semester, I will replace your lowest quiz grade with a grade of 20 points. Thus, you must sign in when attending tutoring sessions.
7. Letter grades will be assigned as follows: A 100-90%; B+ 89-86%; B 85-77%; C+ 76-74%; C 73-66%; D 65-56%
8. You should carefully read the Winthrop University Student Conduct Code printed in the Winthrop University Student Handbook. As noted in the Student Conduct Code: Responsibility for good conduct rests with students as adult individuals. This policy on student academic misconduct is outlined in the Student Conduct Code Academic Misconduct Policy in the online *Student Handbook* <http://www.winthrop.edu/uploadedFiles/studentconduct/StudentHandbook.pdf>

Total Possible Points

Three Exams	450 points
Final Exam	250 points
Quizzes	120 points (max)
SmartWork	100 points
Total possible points (max)*	920 points

*total number of points for the course may be lower than 920 depending on the number of quizzes.

Graded Exams and Quizzes: You have one week from the time a graded assignment is returned to ask questions about the way it was graded. After a week, I will not change a grade.

Blackboard: We will be using Blackboard this semester. I will post grades and course information in Blackboard. Some lectures will be PowerPoint presentations which will be posted in Blackboard and several of the quizzes will be administered through Blackboard. The web address to log into Blackboard is ***online.winthrop.edu***. **Login instructions and Blackboard tutorials can be found at http://www2.winthrop.edu/webct/Blackboard_Training_Tutorials.html**

Grades: I will not discuss grades through e-mail. If you have a question, please stop by my office.

Recommend class materials: I recommend that you bring your textbook, notes, completed homework problems, and a calculator to every class.

Exams and Quizzes: You will need a calculator for exams and quizzes. Cell phones and pagers are strictly prohibited during exams and quizzes. You cannot use a cell phone as a calculator during exams and quizzes.

Course Withdraw: Wednesday, March 8th, is the last day to withdraw from a full semester course with an automatic N grade issued. *Students may not withdraw from a course after this date without documented extenuating circumstances* as determined by the University.

Communication: If you have any questions, please stop by and see me during office hours. If these hours are not convenient, see me in class or e-mail me to set up an appointment.

Attendance: You are expected to attend all class meetings. You are responsible for all announcements made in class. Absence or lateness does not excuse you from this responsibility.

Lateness: Please be on time. Lateness is disruptive to everyone especially during exams and quizzes. I will lock the door at 11:00 am. If you are late on a regular basis, the door will remain locked.

Homework: You are expected to complete each reading assignment and all assigned homework and practice problems. End of chapter practice problems from the textbook will not be collected or graded.

Course Evaluations: Course evaluations will be completed towards the end of the semester. At that time, you will be able to complete the course evaluation at https://winthrop.qualtrics.com/SE/?SID=SV_8uJt2pJOgArbpxX. You will need your Winthrop student number (for example W12345678) and the course section CRN which is 20124.

Students with Disabilities/Need of Accommodations for Access: Winthrop University is committed to providing access to education. If you have a condition which may adversely impact your ability to access academics and/or campus life, and you require specific accommodations to complete this course, contact the Office of Accessibility (OA) at 803-323-3290, or, accessibility@winthrop.edu. Please inform me as early as possible, once you have your official notice of accommodations from the Office of Accessibility.

Winthrop's Academic Success Center: Winthrop's Academic Success Center is a free resource for all undergraduate students seeking to perform their best academically. The ASC offers a variety of personalized and structured resources that help students achieve academic excellence, such as tutoring, academic skill development (test taking strategies, time management counseling, and study techniques), and group/individual study spaces. The ASC is located on the first floor of Dinkins, Suite 106. Tutoring for this specific course is offered through the office. If you wish to request a tutor, you must attend ONE Tuttee Seminar, offered every Friday until October 21st. Please contact the ASC at 803-323-3929 or success@winthrop.edu if you have any questions. For more information on ASC services, please visit www.winthrop.edu/success

University-Level Competencies: CHEM 105 will contribute to Competency 1 of the University-Level Competencies.

Competency 1: Winthrop graduates think critically and solve problems.

The major focus of this course is to develop student critical thinking through extensive problem solving. Students actively engage in solving problems and developing critical thinking, organization, and skills needed to successfully solve scientific problems.

General Education Requirements: CHEM 105 fulfills four hours of general education requirement for natural sciences. Listed below are the student learning outcomes for natural science courses that CHEM 105 will fulfill as well as examples of how they will be fulfilled.

Students should be:

1. Conversant with a few fundamental concepts from among the three main areas of natural science, including earth, life, and physical sciences.

This course covers the fundamental concepts of chemistry in great detail at a more advanced and in-depth level than CHEM104 and over a much broader range of subjects. The course's content includes the concepts of matter and energy, modern atomic structure; chemical equations and reaction stoichiometry; solutions; acid-base chemistry; thermodynamics, equilibria, and electrochemistry.

2. Able to apply the scientific methodologies of inquiry.

Students will apply scientific methodologies to develop testable hypotheses about molecular structures, photon energies, reaction products, equilibria, thermal energy generation and many other natural processes.

3. Able to discuss the strengths and limitations of science.

Students will develop an understanding of the strengths and limitations of scientific methods. Extensive discussions of energy, energy generation, consumption.

4. Able to demonstrate an understanding of the history of scientific discovery.

Students will be expected to demonstrate an understanding of the history of scientific discovery. For example they will be expected to demonstrate an understanding of subatomic particle discoveries during the early 1900s, atomic line spectra observed during the 1800's, and the discovery of nuclear fission processes during the 1930s.

6. Able to communicate about scientific subjects including (lab courses only) the defense of conclusions based on one's own observations.

Students will be required to communicate on scientific subjects through clearly organized, logical, well-supported, and quantitative student-generated solutions to scientific problems covering a broad range of scientific subjects

General Education Writing Component: This course will include evaluated student written expression from graded exercises that include quizzes, exams and the final cumulative examination. You will be required to demonstrate a well-documented, organized approach to each solved problem. You will be required to effectively express the key mathematical relationships, illustrate steps in equation rearrangement, use and express correct units, document cancellation of units used, and report all mathematical answers with the correct number of significant figures with the proper units.

Note: This is a working document; changes will be made as the semester progresses. I will change errors as needed.

This is a tentative schedule. It will change as necessary. Check Smartwork for Homework due dates.

Date	Quizzes and Exams	Chapter Sections	Reading Assignment
M 1/9		Ch. 1	Chapter 1
W, 1/11		Ch. 1 & Ch. 2	Sections 2.1 - 2.2
	Quiz 1	Part 1 take home quiz due Friday, 1/13 at 11:00 am Part 2 BB quiz opens W, 1/11 at 1:00 pm; due by 11:59 pm on F, 1/13 (Chapter 1)	
F, 1/13		Ch. 2	Sections 2.3 - 2.5
M, 1/16		Ch. 3	Sections 3.1 - 3.3
W, 1/18	Quiz 2	Part 1 take home quiz due Friday, 1/20 at 11:00 am Part 2 BB quiz opens W, 1/18 at 1:00 pm; due by 11:59 pm on F, 1/20 (Chapter 1)	
		Ch. 3	Section 3.4
F, 1/20		Ch. 3	Section 3.5 - 3.7
M, 1/23		Ch. 3	Sections 3.8 - 3.9
W, 1/25	Quiz 3	Part 1 in class, due Wednesday, 1/25 Part 2 online BB quiz due by 11:59 pm on Friday, 1/27 (Chapter 3)	
		Ch. 3	Sections 3.10 - 3.11
F, 1/27		Ch. 4	Sections 4.1 – 4.3
M, 1/30		Ch. 4	Sections 4.4 – 4.7
W, 2/1	Exam 1	Chapters 1-4 4.1-4.2	
F, 2/3		Ch. 4	Sections 4.8 – 4.9
M, 2/6		Ch. 5	Sections 5.1 – 5.2
W, 2/8		Ch. 5	Sections 5.3 – 5.4
F, 2/10	Quiz 4	In class quiz: open notes, open book, group quiz (Chapters 4 & 5)	
		Ch. 5	Sections 5.4 – 5.5
M, 2/13		Ch. 6	Sections 6.1 – 6.3
W, 2/15	Quiz 5	Online BB quiz due by 11:59 pm on Friday, 2/17 (Chapters 4 & 5)	
		Ch. 6 & 7	Sections 7.1 – 7.4
F, 2/17		Ch. 7	Sections 7.4, 7.8
M, 2/20		Ch. 8	Sections 8.1 – 8.2

W, 2/22	Quiz 6	Part 1 in class quiz due Wednesday, 2/22 Part 2 BB quiz opens W, 2/22 at 1:00 pm; due by 11:59 pm on F, 2/24 (Chapters 6 & 7)	
W, 2/22		Ch. 8	Sections 8.3 – 8.4
F, 2/24		Ch. 8	Sections 8.5 – 8.6 to page 337
M, 2/27		Review	
W, 3/1	Exam 2	Chapters 4-8	
F, 3/3		Ch. 9	Sections 9.1 – 9.3
M, 3/6		Ch. 9	Sections 9.6 – 9.7 to page 392
W, 3/8	Withdraw deadline	Ch. 9	Sections 9.7 pages 393 to 395
F, 3/10		Ch. 9	
3/13-3/17	Spring Break- No Class		
M, 3/20		Ch. 9	
W, 3/22		Calorimetry	Sections 9.4 – 9.5
	Quiz 7	Online BB quiz due by 11:59 pm on Friday, 3/24 (Chapter 9)	
F, 3/24		Ch. 12	Sections 12.1 – 12.3
M, 3/27		Ch. 12	Sections 12.4 – 12.6
W, 3/29		Ch. 12	
F, 3/31		Ch. 14	Section 14.1 – 14.2, 14.5 – 14.6
M, 4/3		Ch. 14	Sections 14.8 – 14.9
W, 4/5		Ch. 14	
F, 4/7		Ch. 15	Section 15.1, 15.4
M, 4/10		Ch. 15	Sections 15.2 – 15.3
W, 4/12	Quiz 8	Online BB quiz - Due by 11:59 pm on Wednesday 11/16 (Chapter 14&15)	
		Ch. 21	
F, 4/14		Ch. 21	
M, 4/17		Review Exam 3	
W, 4/19	Exam 3	Chapters 9, 12, 14, 15, 21	
F, 4/21	Review		
M, 4/24	Review		
R, 4/27	Final Exam	8:00 am in Sims 105	

