

PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

**GENERAL CHEMISTRY I
CHEM 1110**

Class Hours: 3.0

Credit Hours: 4.0

Laboratory Hours: 3.0

Revised: Spring 2013

Catalog Course Description:

Modern atomic theory, chemical bonding, stoichiometry, kinetics. Course includes three hours of lecture and three hours of laboratory applications each week.

Entry Level Standards:

Two years of high school algebra or one year of high school algebra and one year of high school geometry are necessary for entrance to the course. Students must be eligible to enroll in ENGL 1010 and MATH 1130 courses or higher.

Prerequisites:

Two years of high school algebra and completion of Learning Support requirements.

Textbook(s) and Other Course Materials:

Burdge and Overby, Chemistry: Atoms First, McGraw -Hill, 2012.

CHEM 1110 Lab Notebook containing experiments (discussion, procedure, report sheets and homework sheets) and problem sets.

Programmable calculators may not be used on the tests in this course. A non-programmable scientific calculator is required (TI - 30X).

I. Week/Unit/Topic Basis:

Week	Topic
1	The Science of Change, ch. 1.1-1.6, Calorimetry, ch. 10.4
2	Atoms and the Periodic Table, ch. 2.1-2.6
3	Quantum Theory and Electronic Structure, ch. 3.1-3.10
4	Periodic Trends, ch. 4.1-4.6: Ionic and Covalent Bonding, ch. 5.1-5.7
5	Composition Stoichiometry, ch. 5.8-5.10
6	Lewis Structures, ch. 6.1-6.6
7-8	Molecular Structures, ch. 7.1-7.7
9	MIDTERM, Molecular Structures (cont.)
10	Reaction Stoichiometry, ch. 8.1-8.5 / Chemical Reactions, ch. 9.1-9.5
11	Chemical Reactions, ch. 9.1-9.5

- 12 Gases, ch. 11.1-11.8
- 13 Gases, ch. 11.1-11.8 / Equivalent Weight (supplemental material)
- 14 Liquids and solids, ch. 12.1-12.7, Review for final exam
- 15 FINAL EXAM

II. Course Goals*:

- A. Understand the fundamental concepts of atomic structure, molecular structure and bonding. V.3,V.4
- B. Predict properties of elements from the periodic table based on an acquired knowledge of periodic law. V.3,V.4
- C. Apply the laws of chemistry and utilize the necessary mathematics to solve problems in chemical relationships. VI.2, V.1, V.2, V.4
- D. Understand the fundamental concepts of kinetic molecular theory. V.4

*Roman numerals after course objectives reference TBR's general education goals.

III. Expected Student Learning Outcomes*:

The student will be able to:

- 1. Work problems with metric system units and convert units if necessary. C
- 2. Understand the concept of significant figures. C
- 3. Solve density, specific gravity and calorimetry problems. C
- 4. Understand the concepts of atoms, moles and molecules. A
- 5. Calculate atomic weights, formula weights and percent compositions. C
- 6. Derive chemical formulas from elemental composition. C
- 7. Write and balance chemical equations. A
- 8. Calculate percent purity and/or percent yield from a chemical reaction. C
- 9. Understand the concept of limiting reactant. C
- 10. List and describe the fundamental particles of an atom. A
- 11. Write the electronic structure of an atom. A, B
- 12. Write the quantum numbers for a specific electron. A
- 13. Predict properties of the elements using the periodic table. B
- 14. Draw Lewis structures for the elements and for compounds. A, B
- 15. Determine oxidation numbers. A, B

16. Name compounds and/or write their formulas. A, B
17. Label bond type(s) for an element or compound and describe molecular type. A
18. Determine if hybridization is occurring and if so describe. A
19. Classify chemical reactions. A
20. Understand the concept of electrolytes. A
21. Understand kinetic molecular theory and how it relates to gases, liquids, and solids. D
22. Understand and solve problems with gases. C, D
23. Calculate calorimetry problems involved in phase changes. C, D

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

A. Testing Procedures: 75% of grade

Chapter exams and comprehensive midterm--55 %

Comprehensive final examination--20 %

Tests may not be taken later than scheduled date. There will be 5 chapter(s) exams approximately every two weeks (equal points) and ONE may be dropped. If absent, the missed exam is automatically dropped. The departmental midterm (week 9) and final (week 16) will be multiple choice. Midterm (55min.) will cover material from ch.1 - ch.6. Final (110min.) will cover all material with emphasis on ch.8 - ch.12 and equivalent weight.

B. Laboratory Expectations: 25% of grade

Attendance is required for scheduled lab meetings. Labs may NOT be made up! Experiment report sheets are to be completed in ink. No "white-out" allowed! Problem sets and the Lab Final Exam may be completed in pencil. Safety eye wear must be worn during every lab involving an experiment. Shoes covering the entire foot required (no clogs/sandals/ballet flats) to enter the lab. See lab schedule for order/dates of labs and problem sets.

C. Field Work:

N/A

D. Other Evaluation Methods:

Bonus points and/or extra credit given during the lecture portion of the course may not exceed 10% of the total grade earned in the course.

E. Grading Scale:

90 - 100	A	NO plus grades (B+ and C+)
80 - 89.9	B	are given. Percentages may be
70 - 79.9	C	rounded up if > 0.5 at the
60 - 69.9	D	instructor's discretion.
<60	F	

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

C. Accommodations for disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at <http://www.pstcc.edu/sswd/>.

D. Other Policies:

Cell Phone Policy:

Cell phones may not be used during class. Emergency situations must be discussed with the instructor.