

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Chemistry</u>
COURSE RUBRIC AND NUMBER	<u>CHEM 1111</u>
COURSE TITLE	<u>General Chemistry Laboratory I</u>
COURSE CREDIT HOURS	<u>1 0 : 3</u> Credits Lecture Lab

I. **Catalog Description**

Provides a basic laboratory experiments supporting theoretical principles presented in CHEM 1311; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. **Corequisite: CHEM 1311. (0:3). Lab fee.**

II. **Course Objectives**

Upon satisfactory completion of this General Chemistry laboratory I section, the student will be able to:

- A. Learn the use of common, simple laboratory equipment. Identify metric units used in measurement, correctly read a meter stick, balance, graduated cylinder, and burette. State the correct number of significant figures in a measurement and calculations. Round off a calculated answer to the correct number of significant figures. Determine areas and volumes of solids by direct measurement. Determine metric and metric to -U. S. - unit equalities and corresponding conversion factors. Use conversion factors in calculations. Calculate the density of a substance from measurements of its mass and volume. Become familiar with procedures used in evaluating physical properties and the use of these properties to identify substances. Be familiar with methods of separating substances using, decantation, extraction, and sublimation techniques.
- B. Be able to write formulas and names of covalent and ionic compounds. Be able to determine an empirical formula and molecular formula. Write the electron configuration for an element. Compare physical properties of a compound with the properties of the elements that formed it. Observe chemical reactions, identify the products and summarize the chemical changes in terms of balanced equations. Become familiar with the relative activities of metals in chemical reactions. Obtain net ionic equations in metathesis reactions.
- C. Using a calorimeter measure the energy changes and heat of neutralization. Distinguish between a calorie, kilocalorie, and nutritional Calorie. Use the specific heat of water to calculate heat lost or heat gained. Calculate the specific heat in $\text{cal/g}^{\circ}\text{C}$ and $\text{J/g}^{\circ}\text{C}$ of a metal.
- D. Observe how changes in temperature and pressure affect the volume of a fixed amount of gas. Determine the molar mass of a gas knowing its mass, temperature, pressure, and volume. Understand Gas Laws, interpret graphs using different relationships among pressure, temperature and volume of a gas. Interpret Dalton's Law
- E. Become familiar with Lewis structures, the principles of the VSEPR model, and the three-dimensional structures of covalent molecules. Predict the polarity of a molecule.

III. THECB Learning Outcomes (ACGM)

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

IV. Evaluation

- A. Pre-assessment
Instructors should check each student's co-requisites the first week of class; those who do not qualify should be sent back to Admissions.
- B. Post-assessment
 2. The instructor will maintain a continuous record of each student's progress on an institutionally approved grade sheet or computerized substitute from each experiment report. All instructors must keep records in such a way that information would be clear to a second party having to check grade computation in special cases. An explanatory legend should be provided on the grade sheet.
 3. Two exams will be given: the mid-term and the final exam. In addition to reading assignments, the instructor may require quizzes and exercises according to the experiment.

It is essential that students commit themselves to the assignments throughout the semester.

Number and Types of Examinations: The course will include one mid-term written examination and one final examination.

The student has to read the experiment in advance to be able to do it.

The following approaches may be involved; however, instructors should stress the possible overlap of these strategies.

1. Process analysis
2. Critical thinking
3. Comparison/contrast
4. Classification
5. Definition
6. Description
7. Causal analysis
8. Analogy
9. Problem/solution

- D. Final Examination
A final examination is required in all Chemistry 1111 labs. The exam should consist of all material covered on the experiments during the semester in the scheduled two-hour final examination period.
- E. Grading Percentages
60% will be obtained from the average of the reports
20% will be obtained from the mid-term examination
20% will be obtained from the final exam
- F. Remediation
There will be no remediation. Since the lowest exam grade is dropped, there are no make-up examinations.
- G. Grading Scale:
A = 90 – 100 I = Incomplete
B = 80 - 89 W = Withdrew or withdrawn
C = 70 - 79
D = 60 - 69
F = below 60

V. Disability Statement (American with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located:
VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024)

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.