

Lassen Community College Course Outline

CHEM-185 Introduction to General Chemistry Discussion Session 0.0 Units

I. Catalog Description

This is a required co-requisite for students enrolled in CHEM 45 who have not taken any basic chemistry courses (including introduction to physical science or equivalent) in the past 4 years. It is strongly recommended for all students enrolled in CHEM 45. Students will use quantitative strategies to solve chemistry in topics of atomic theory, periodic properties, chemical bonds, stoichiometry, gas laws, kinetics and equilibrium of chemical reactions, acids and bases, redox reactions, and thermodynamics. This course has been approved for online delivery. This course has been approved to be web-enhanced. Access to a computer with internet access is required. This course has been approved for open entry/ open exit.

Diversity Statement

Our commitment to diversity requires that we strive to eliminate barriers to equity and that we act deliberately to create a safe and inclusive environment where individual and group differences are valued and leveraged for the growth and understanding as an educational community.

Corequisite(s): CHEM 45 must be taken concurrently.

Additional Course Information

Transfer Status:

Does not transfer to CSU/UC

17 Hours Lecture, 34 Outside Class Hours, 51 Total Student Learning Hours

Scheduled: Fall, Spring

II. Coding Information

Repeatability: Not Repeatable, take one time

Grading Option: Pass/ No Pass

Credit Type: Non-Credit

TOP Code: 4930.62

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

Demonstrate a basic understanding of fundamentals of chemistry including the language, laws, theories and processes of chemistry.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Algebra concepts related to stoichiometric calculations in chemistry: Unit conversions, mole concept, stoichiometry, density, specific heat, gas laws, energy changes, molarity, dilution, colligative properties, and acid-base chemistry.
2. Further discuss topics in atomic structure, nomenclature, types of reaction, predicting products and solubility, balancing an equation, energy, the physical and chemical changes, acid-base chemistry, equilibrium, bond polarity, and difference between ionic and covalent bonds.
3. Develop own rules and strategies for problem solving that are effective in solving new sets of problems.

IV. Course Content

A. Outline of Topics

1. Matter and its properties
 - a. Elements
 - b. Structure of atoms
 - c. Electronic structure and properties
2. Nomenclature
3. Measurement
4. Bonding in compounds
5. Chemical reactions and equations
6. Energy and States of matter
7. Gas Laws
8. Stoichiometry
9. Solutions
10. Chemical equilibrium
11. Acids and bases

V. Assignments

A. Appropriate Readings

1. Read and study college-level textbook sections assigned in CHEM 45 and read problems from supplemental handouts.

B. Writing Assignments

1. Write a short answer to a problem and solve calculation problems.

C. Expected Outside Assignments

1. Reading Assignments – read a section or sample problem from a handout. Be prepared to use the content to participate in the classroom and to complete assigned problems from the textbook and handout.
2. Writing Assignments – write short answer and solve calculation problems assigned.

D. Specific Assignments that Demonstrate Critical Thinking

1. This course emphasizes observation, synthesis of information to arrive at generalizations, and use of these generalizations as a basis for prediction. Problem solving and critical thinking skills are required to solve the appropriate problems.

VI. Methods of Evaluation

Traditional Classroom Instruction

Each student will be given a syllabus at the start of the class that indicates the evaluation tools to be used in the course. The course may include but not constrained to evaluation tools such as homework, quizzes, examinations, essays, laboratory reports, and presentations.

Hybrid Evaluation

All quizzes and exams will be administered during the in person class time. Students will be expected to complete online assignments and activities equivalent to in class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous will be evaluated for participation and to maintain effective communication between instructor and students. There will also be assignments and activities that students are required to complete in addition to the online assignments and activities.

Online Evaluation

A variety of methods will be used, such as: research papers, asynchronous and synchronous (chat/forum) discussions, online quizzes and exams, posting to online website and email communications.

Web-Enhanced Course Delivery

Same as face to face with additional information and resources made available to students online, and students may be required to do research and complete and/or submit assignments online. Quizzes may be administered online, but exams and summative assessments must be administered face-to-face.

VII. Methods of Delivery

Check those delivery methods for which this course has been separately approved by the Curriculum/Academic Standards Committee.

- X Traditional Classroom Delivery
Correspondence Delivery
- X Hybrid Delivery
- X Online Delivery

Traditional Classroom Instruction

Lecture, demonstration, multi-media presentation, in-class problem sets, and discussion.

Online Delivery

Participation in forum-based discussions. Online exercises/assignments. Online lecture notes and web links will comprise the method of instruction.

VIII. Representative Texts and Supplies

McMurry et al, "*Fundamentals of General, Organic, and Biological Chemistry*". Online edition: [Fundamentals of General Organic and Biological Chemistry \(LibreTexts\) - Chemistry LibreTexts](#)

A Laboratory Manual Book will be prepared and delivered by the instructor.

IX. Course Status

1. Current Status: Pending
2. Original Approval Date: 04/19/2022
3. Course Originator:
4. Board Approval Date:
5. Chancellor's Office Approval Date:
6. Revised By: Theresa Wilson
7. Curriculum/Academic Standards Committee Revision Date: 09/03/2024