

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

CHEMISTRY 020 – STRATEGIES FOR SUCCESS IN CHEM 120

3 hours laboratory, 1 unit

Catalog Description

The purpose of this course is to review and reinforce the skills and knowledge necessary for success in CHEM 120 (Preparation for General Chemistry). Students will strengthen their abilities related to critical thinking strategies, time management skills, coupled with unique features of effective reading strategies in science, technical writing skills and mastery of basic chemistry skills critical to CHEM 120. **Pass/No Pass only. Non-degree applicable.**

Prerequisite

None

Corequisite

Concurrent enrollment in CHEM 120

Entrance Skills

Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed:

- 1) Computing and simplifying using the basic operations on real numbers, polynomials, logarithms, variables with rational exponents, algebraic expressions involving radicals, and numerical expressions involving absolute value.
- 2) Factoring using the greatest common factor.
- 3) Solving linear equations with one or two variables, systems of linear equations in two variables, and quadratic equations with real solutions.
- 4) Solving word problems and applications by translating verbal expressions into algebraic expressions. Solving numerical and measurement problems and word problems involving linear equations.
- 5) Graphing and interpreting graphical data related to points, lines, slope-intercept form of the equation of a line; graphing relations.

Course Content

- 1) Overview of STEM fields: careers and academic paths
- 2) Studying for, Reading and Writing in STEM; resources at Cuyamaca College
- 3) Nomenclature review
- 4) Chemical Reaction review
- 5) Chemical Calculation review
- 6) Atomic Structure & Bonding review
- 7) Solutions review
- 8) Acid/Base Chemistry review
- 9) Gas Law review

Course Objectives

Students will be able to:

- 1) Build their knowledge of careers in STEM & academic transfer requirements in STEM disciplines of interest
- 2) Become familiar with Cuyamaca College student resources

- 3) Improve time management, study skills, and learn aspects of effective note taking
- 4) Successfully identify and employ various aspects of technical reading and writing in the writing of lab reports for a chemistry class
- 5) Review & reinforce knowledge of chemical nomenclature skills
- 6) Review & reinforce knowledge of algebra related to dimensional analysis calculations
- 7) Review & reinforce knowledge of chemical calculations, including stoichiometry problems
- 8) Review & reinforce knowledge of Chemical reactions
- 9) Review & reinforce knowledge of concepts & problems related to atomic structure and bonding
- 10) Review & reinforce knowledge of the topic of chemical solutions and related problems
- 11) Review & reinforce knowledge of concepts and problems in acid-base chemistry
- 12) Review & reinforce knowledge of gas law calculations

Method of Evaluation

A grading system will be established by the instructor and implemented uniformly. Grades will be based on student effort and demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which will be essay writing, skills demonstration or, where appropriate, the symbol system.

- 1) Level of student engagement in problem-solving workshops exhibited by group and individual worksheet & board work
- 2) Written reflections related to (1) careers and the courses of study in STEM disciplines, (2) reading assignments, among other
- 3) Written lab report rough drafts

Special Materials Required of Student

- 1) Scientific calculator, CHEM 120 textbook & lab manual
- 2) Highlighters, three-ring binder
- 3) Academic Planner (provided)

Minimum Instructional Facilities

- 1) Smart classroom with a number of writing boards, wall-sized periodic table, and overhead projector/screen

Method of Instruction

- 1) Mini-lectures
- 2) Guest presentations
- 3) Textbook and supplementary materials are required reading and are essential to successful solution of homework problems
- 4) Students are strongly encouraged to form study groups as well as to seek help through peer tutoring and instructor office hours
- 5) Individual & group work done at board

Out-of-Class Assignments

- 1) Reading and homework problems, as assigned in CHEM 120 course, used as class discussion topics
- 2) Formal lab reports, as assigned in CHEM 120 course, used as class discussion topics
- 3) Written reflections which may involve internet research related to (2) careers and the courses of study in STEM disciplines, (2) reading assignments, and (3) personal study habits, among others

Texts and References (*These textbooks are required in CHEM 120)

- 1) Required (representative examples):
 - a. *Tro, *Introductory Chemistry*. 6th edition. Pearson, 2018.
 - b. *LeBlanc, *Chemistry 120 Lab Manual, 3rd ed.* Morton Publishing, 2019.
- 2) Supplemental: None

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- 1) Achieve the learning outcomes for CHEM 120 and earn a passing grade in that course.
- 2) Develop & utilize organizational, technical, and study skills obtained in this course to succeed in CHEM 120 assignments, quizzes and exams.
- 3) Produce clear, articulate, complete lab reports that demonstrate a mastery of technical, reading, and writing skills.