Application for General Education Credit for Lower Division Science Elective (Area B3)

Course title: Survey of Basic Chemistry for Healthier Living  
Course number: CHEM 1615

Courses approved for general education credit must provide students with explicit instruction in the approved student learning outcomes. Please be as specific as possible, pointing to topics, readings, assignments, activities and assessments that illustrate how the course meets the requirements. Attach the course syllabus and any assignments or assessments needed to support your explanations.

Please use this template as a guide to address ALL of the following learning outcomes.

Purpose of Science GE: The goal of lower division general education in the natural sciences is to gain basic knowledge and learn key principles in the life and physical sciences as essential for an informed citizenry. In addition, students should recognize the experimental and empirical methodologies characteristic of science and understand the modern methods and tools used in scientific inquiry.

1. Students will demonstrate a broad science content knowledge in the physical, life, or interdisciplinary sciences.

   In CHEM 1615, students will learn to describe the atomic structure, the bonding, and the periodic trends of chemical elements (Learning Outcomes 2, 3, and 4). They will also learn the properties of chemical molecules and how to predict the outcome of chemical reactions (Learning Outcomes 6, 7, and 8). In addition, they will learn the properties and reactions of biochemical molecules and how these molecules are related to the functioning of living organisms (Learning Outcome 9).

2. Students will demonstrate the application of quantitative skills (such as statistics, mathematics, the interpretation of graphical data, etc.) to scientific problems.

   In CHEM 1615, students will learn how to solve chemical mathematical problems and do unit conversions (Learning Outcome 1). They will learn to write balanced chemical equations and perform stoichiometric calculations (Learning Outcome 5). In the lab, students will make measurements about the properties and reactions of chemicals, and graph the data or use equations to interpret the results (Learning Outcome 11).

3. Students will demonstrate a general understanding of the nature of science, the methods applied in scientific investigations, and the value of those methods in developing a rigorous understanding of the physical world. Students should be able to identify the difference between science and other fields of knowledge. Students should be able to distinguish science from pseudoscience.

   In CHEM 1615, the methods used to form and test the hypotheses that make up what we now know about chemical properties and reactions will be covered. In the laboratory portion, students will use experimental methods to test hypotheses and reach conclusions. They will learn what makes a valid experiment, what control reactions are necessary, and how to validate their results (Learning Outcomes 10, 11).