

## **CURRICULUM OVERVIEW: ELEVENTH GRADE CHEMISTRY**

### **INTRODUCTION**

This is an introductory course in general chemistry with an emphasis on understanding the fundamental nature of matter and its interactions. The course is sufficient preparation for introductory college chemistry, covering topics up to and including reaction rates and equilibria, and touching on biochemistry and nuclear chemistry. Electrochemistry will not be covered. A two-hour laboratory every other week is an integral component of the course. A background in algebra and geometry is required, as is an understanding of exponential and logarithmic functions (requiring, at minimum, concurrent enrollment in Precalculus).

### **DAILY/WEEKLY RHYTHM**

Class begins with prayer and/or a scripture reading. There are frequent “quick quizzes”, typically covering recent material, and generally at the beginning of class, during which students may use notes but not textbooks. This is followed by instructor lecture, class discussion, and/or demonstration of relevant learning material. Time may be spent on student experiments/projects as well. There are frequent reading assignments and approximately two to three times per week question/problem assignments as well.

### **CONTRIBUTION TO LEARNING GOALS**

Explicit recognition and emphasis of God’s power and creativity in producing an ordered, structured world encourages and cultivates individuals’ relationships with Christ. Through reading, discussion, exploration, and experimentation, and subsequent critical thinking about the fundamental laws of chemistry and the ways in which matter interacts, students further develop inductive reasoning abilities, and use their knowledge to better understand the world around them. Use of the scientific method develops the utilization of critical thinking skills in working from particular to general/universal and back to the particular.

### **LEARNING OBJECTIVES**

More detailed discussion of learning objectives is found in the Curriculum Guide for Chemistry. In brief, some of the major objectives include the following: Students will be familiar with key events and persons in the history of science, with particular attention to chemistry; they will use the techniques of scientific investigation and academic reading and research in attaining deeper understanding of the natural world; students will understand that there is order to the universe that reflects the mind of a Creator, and that this order can be identified and described by formulation of physical and chemical laws; students will

demonstrate understanding of basic theory of the structure of matter, and the ways in which types of matter interact.

## ASSESSMENT

Both formative and summative assessment of learning occurs in class. Assessment tools include homework problems, experiment reports, quizzes, review questions, and tests. Grades are determined by weighted averages of homework (10%), class engagement (10%), quizzes (20%), labs (20%) and tests (40%).

## PARENTAL INVOLVEMENT

Education of students, especially in the middle school/junior high years, remains as always, a joint endeavor of teachers and parents. Parents can help their students by reminding them of the need for organization and diligence in approach, demonstration of how to access RenWeb to check assignments and grades, and providing a consistent, encouraging environment regarding schoolwork and activities. Communication with the teacher is encouraged, by means of email or phone call as desired or necessary, and during parent-teacher conference opportunities (both during the routinely scheduled dates for same and at any other time of necessity).