

CHEMISTRY (CHE)

CHE 107. General Chemistry I. 4 Credits.

This course provides the student with an understanding of the fundamental principles of matter and energy. The course includes atomic and molecular structure, the periodic table, patterns of chemical reactivity, solution chemistry, stoichiometry, thermochemistry, and chemical bonding. A mathematical approach to chemical problems is used to develop problem solving skills as well as a conceptual understanding. Laboratory work is correlated with class discussion. Lab sessions will be hands-on experiences revolving around and applying the topics listed in the lab section of the syllabus. Prerequisites: ENG 098, FYE 101, MAT 162 (or corequisite), RDG 098 or placement; NOTE: MAT 142, Math for Meds, may be substituted for MAT 162 for Vet Tech Students only; Recommended: High school chemistry or other previous chemistry classes.

CHE 108. General Chemistry II. 4 Credits.

A continuation of CHE 107 General Chemistry I, this course covers such topics as intermolecular forces, behavior of gases, liquids and solutions, chemical kinetics, equilibrium, oxidation-reduction and electro-chemistry. A mathematical approach to chemical problems is used to develop problem solving skills as well as a conceptual understanding. Laboratory work is correlated with class discussion. Lab sessions will be hands-on experiences revolving around and applying the topics listed in the lab section of the syllabus. A grade of C or better in this course is required for advancement to CHE 207. Prerequisite: CHE 107; MAT 162.

CHE 120. Environmental Chemistry. 4 Credits.

This course is an introduction to the principles of chemistry with an emphasis on the environmental chemistry of air, energy, water and soil. It is recommended as a general science elective or as a foundation for continued study in the sciences, particularly natural resources. The following basic chemical topics will be introduced: matter classification, atomic structure, periodic table, chemical bonds, chemical formulas and names, spectroscopy, solutions, concentration, pH, moles and the use of energy. The course emphasizes an understanding of current environmental problems, such as air and water pollution, the ozone layer and energy issues. The relationships between science, technology and society are also discussed in the context of environmental issues. Lab sessions will be hands-on experiences revolving around and applying the topics listed in the lab section of the syllabus. The lab and lecture portions of this course frequently take place in one of our many outdoor instructional spaces. Students are to refer to the applicable semester's course syllabus for specifics and expectations. Prerequisites: ENG 098, FYE 101, MAT 092 or MAT 096, RDG 098 or placement. Spring.

CHE 207. Organic Chemistry I. 4 Credits.

Organic chemistry is the study of carbon and its compounds. In the first semester, the structures and properties of the basic hydrocarbons and their simple substitution products will be studied. This will allow us to explore the following fundamental topics in organic chemistry: isomers, nomenclature, basic reaction mechanisms, spectroscopy (IR, NMR and MS). The functional groups will be introduced. Laboratory work will develop basic skills and techniques and be correlated with class discussion. Lab sessions will be hands-on experiences revolving around and applying the topics listed in the lab section of the syllabus. Prerequisites: CHE 108 with a grade of C or higher; MAT 163 (or corequisite). Fall.

CHE 208. Organic Chemistry II. 4 Credits.

Organic chemistry is the study of carbon and its compounds. In the second semester, the structures and properties of the substituted hydrocarbons (functional groups) will be studied. This will include their synthesis and their reactions. The use of spectroscopy (IR, NMR and MS) will be further developed. Multistep synthesis of complex organic compounds will be introduced. Laboratory work will develop more advanced skills and techniques, and be correlated with class discussion. Lab sessions will be hands on experiences revolving around and applying the topics listed in the lab section of the syllabus. A formal research lab report that incorporates previous scientific learning will be required in this course as a capstone experience. Prerequisites: CHE 207; MAT 163 or higher (or corequisite). Spring.