

CHEMISTRY

CHE 111 INTRODUCTION TO CHEMISTRY I

3 Lecture 2 Lab 4 Credit Hours(s)

This course gives an introduction to chemical concepts and principles. Topics covered: basic definitions, chemical symbols, conversion factors, simple chemical calculations, chemical and physical properties and changes, atomic structure, chemical bonding, molecular geometry, kinetic theory of gases, chemical kinetics, chemical equilibrium, solutions and nuclear reactions. The course assumes no previous knowledge of chemistry and serves as an elective or a science elective for students in liberal arts or career programs.

CHE 112 INTRO TO ORGANIC & BIOCHEMISTRY

3 Lecture 2 Lab 4 Credit Hours(s)

A study of organic compounds with emphasis on structure, nomenclature, major reactions and applications. This is followed by an elementary introduction to biomolecules and their metabolism. The laboratory experiments illustrate reactions, synthesis, purification and characterization of organic or biomolecules. The student is encouraged to use the library as a resource.
Prerequisite: CHE 111.

CHE 121 GENERAL CHEMISTRY I

3 Lecture 3 Lab 4 Credit Hours(s)

A study of the fundamental facts, laws, theories and concepts of chemistry. Major topics covered include: classification of matter, theory of atomic structure, bonding theory, molecular structure, periodic properties of the elements, stoichiometry, chemical equations, inorganic nomenclature, gas laws and kinetic molecular theory. Problem solving is emphasized. The laboratory stresses quantitative results. This course serves as an elective or science elective for liberal arts students. A scientific calculator is required.

Prerequisites: High school chemistry or CHE 111 or PHS 114 with a grade of B or better, AND Math Placement Level 3 (see DCC Math Placement table)

CHE 122 GENERAL CHEMISTRY II

3 Lecture 3 Lab 4 Credit Hours(s)

A continuation of CHE 121. Major topics covered include: molecular geometry, equilibrium, kinetics, electrochemical principles, acid-base theory and its application. The laboratory includes a brief introduction to qualitative analysis. Other experiments stress quantitative results using the spectrophotometer and pH meter.

Prerequisite: CHE 121 with a grade of C or better.

CHE 231 ORGANIC CHEMISTRY I

3 Lecture 3 Lab 4 Credit Hours(s)

A study of the structure, nomenclature, physical properties and reactivity of organic compounds. Reactions are studied from a mechanistic viewpoint. The laboratory introduces the theory and fundamental techniques of: refractive index, density, micro-boiling points, melting points, distillation, recrystallization, extraction, gas chromatography and their utilization in synthesis. Students are encouraged to use the library as a resource.
Prerequisite: CHE 122 with a grade of C or better.

CHE 232 ORGANIC CHEMISTRY II

3 Lecture 3 Lab 4 Credit Hours(s)

A continuation of CHE 231. A continued study of the structure, nomenclature, physical properties and reactivity of organic compounds. Reaction mechanisms are emphasized as an aid in predicting the path and direction of reactions. The laboratory includes preparative and mechanistic experiments and modern techniques of spectrophotometry and chromatography. Students are introduced to the chemical literature and are required to use the literature in written reports.

Prerequisite: CHE 231 with a grade of C or better.

CHE 271 SPECIAL STUDY PROJECT I

1 Lecture 0 Lab 1 Credit Hours(s)

A special learning experience designed by one or more students with the cooperation and approval of a faculty member. Proposed study plans require departmental approval. Projects may be based on reading, research, community service, work experience or other activities that advance the student's knowledge and competence in the field of chemistry or related areas. The student's time commitment to the project will be approximately 35-50 hours.

CHE 272 SPECIAL STUDY PROJECT II

2 Lecture 0 Lab 2 Credit Hours(s)

Similar to CHE 271, except that the student's time commitment to the project will be approximately 70-90 hours.

CHE 273 SPECIAL STUDY PROJECT III

3 Lecture 0 Lab 3 Credit Hours(s)

Similar to CHE 271, except that the student's time commitment to the project will be approximately 105-135 hours.