

# Chemistry (CHEM)

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## Courses

### **CHEM 100 Preparation for Chemistry (3 Hours)**

This course is designed for students who have never taken high school chemistry, are struggling with their current chemistry course or have anxiety about chemistry. It is intended to prepare students described above for CHEM 122 or CHEM 124; emphasis on study skills, scientific calculations, problem solving and basic chemical concepts. 3 hrs. lecture/wk.

### **CHEM 120 Chemistry in Society\* (4 Hours) †**

**Prerequisites :** (RDG 096 or RDG 126) or College Reading Readiness.

This course is designed for non-science majors who seek an understanding of the concepts of chemistry. Historical foundations of chemistry, applications to society and daily life, controversies of contemporary concern and current research topics are explored. Inquiry-based laboratory experiments will illustrate chemical principles.

### **CHEM 122 Principles of Chemistry\* (5 Hours)**

**Prerequisites :** (RDG 096 or RDG 126) or College Reading Readiness.

This course is an introduction to the fundamentals of chemistry, with emphasis on general concepts of inorganic chemistry and sufficient study of organic chemistry to introduce the student to biochemistry. The student will learn basic definitions and theories of chemistry, solve numerical problems related to chemical principles and apply chemical concepts in laboratory work.

### **CHEM 122H HON: Principles of Chemistry\* (1 Hour)**

**Prerequisites :** Honors department approval.

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

### **CHEM 124 General Chemistry I Lecture\* (4 Hours) †**

**Prerequisites :** (RDG 096 or RDG 126) or College Reading Readiness.

**Corequisites:** CHEM 125.

**Prerequisites or corequisites:** MATH 171 or MATH 173 or placement test.

Students will relate atomic structure to chemical systems, calculate the amount of material used in chemical reactions, use the periodic table as an aid to understanding chemical systems and interpret chemical reactions.

### **CHEM 124H HON: General Chemistry I Lecture\* (1 Hour)**

**Prerequisites :** Honors department approval.

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

### **CHEM 125 General Chemistry I Lab\* (1 Hour) †**

**Prerequisites :** (RDG 096 or RDG 126) or College Reading Readiness.

**Corequisites:** CHEM 124.

**Prerequisites or corequisites:** MATH 171 or MATH 173 or placement test.

Experiments of a qualitative and quantitative nature that support topics from General Chemistry I Lecture will be carried out.

### **CHEM 131 General Chemistry II Lecture\* (4 Hours) †**

**Prerequisites :** CHEM 124 and CHEM 125.

**Corequisites:** CHEM 132.

Chemistry 131 is the second semester of a two-semester course in general chemistry in which the student will develop a working knowledge of some of the fundamental concepts and quantitative relationships involved in the study of chemical reactivity. Topics include solutions, chemical kinetics, chemical equilibrium, acid-base chemistry, chemical thermodynamics, electrochemistry, and nuclear chemistry.

### **CHEM 131H HON: General Chemistry II Lecture\* (1 Hour)**

**Prerequisites :** Honors department approval.

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

**CHEM 132 General Chemistry II Lab\* (1 Hour) ▾**

**Prerequisites :** CHEM 124 and CHEM 125 (Students who withdraw from GENERAL CHEMISTRY II LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY II LABORATORY. Students may not withdraw from the laboratory course GENERAL CHEMISTRY II LABORATORY without withdrawing from CHEMISTRY II LECTURE).

**Corequisites:** CHEM 131

The laboratory consists of qualitative and quantitative experiments designed to parallel and support General Chemistry II Lecture.

**CHEM 140 Principles of Organic & Biological Chemistry\* (5 Hours)**

**Prerequisites :** (BIOL 121 or BIOL 135) and CHEM 122 or (CHEM 124 and CHEM 125) or department approval.

This course covers nomenclature, theory and applications of basic organic chemistry and biochemistry in the area of carbohydrates, lipids, proteins and enzymes. The lab activities reinforce the topics presented in the lecture.

**CHEM 214 Introduction to Teaching Math and Science I\* (1 Hour)**

**Prerequisites :** MATH 171 with a grade of "C" or higher or an appropriate score on the math placement test or department approval.

This course allows math and science students to explore and develop an appreciation for teaching as a career. To support their learning, students will be introduced to the theory and practice that is necessary to design and deliver quality instruction. They will plan and implement lessons of an inquiry-based curriculum in an elementary classroom during the semester. MATH 214, ASTR 214, BIOL 214, CHEM 214, GEOS 214, PHYS 214 and PSCI 214 are the same course; enroll in only one.

**CHEM 215 Introduction to Teaching Math and Science II\* (1 Hour)**

**Prerequisites :** ASTR 214 with a grade of "C" or higher or BIOL 214 with a grade of "C" or higher or CHEM 214 with a grade of "C" or higher or GEOS 214 with a grade of "C" or higher or MATH 214 with a grade of "C" or higher or PHYS 214 with a grade of "C" or higher or PSCI 214 with a grade of "C" or higher.

Students learn about the middle school environment and work on math and science inquiry-based lesson analysis, design and assessment. Student partners will plan and teach three inquiry-based lessons in a middle school. The course emphasizes writing 5E lesson plans with a focus on the importance of using appropriate questioning and assessment strategies throughout the lesson, as well as how to analyze and modify a lesson based on personal reflections and observer feedback. By the completion of the course, students should be able to reflect on their personal suitability/interest in teaching secondary math or science, and develop a feasible pathway to a career in teaching. MATH 215, ASTR 215, BIOL 215, CHEM 215, GEOS 215, PHYS 215 and PSCI 215 are the same course; enroll in only one.

**CHEM 220 Organic Chemistry I\* (5 Hours)**

**Prerequisites :** CHEM 131 and CHEM 132.

Organic Chemistry I is an introduction to the theories and principles of the chemistry carbon compounds. The student will develop an understanding of organic chemistry, which will be useful in the studies of chemistry and related fields such as medicine, engineering and pharmacy. The laboratory is supportive in nature, with a strong emphasis on developing laboratory techniques. Representative compounds will be prepared and used to introduce the student to instrumental analysis.

**CHEM 220H HON: Organic Chemistry I\* (1 Hour)**

**Prerequisites :** Honors department approval.

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

**CHEM 221 Organic Chemistry II\* (5 Hours)**

**Prerequisites :** CHEM 220.

Organic Chemistry II is a continuation of Organic Chemistry I, the nomenclature, principles and theories of organic chemistry, with emphasis on electronic theories and reaction mechanisms. Laboratory is supportive in nature with emphasis on developing laboratory techniques and preparation of representative compounds. Organic Chemistry II completes the study of organic chemistry designed to prepare the student for continued work in chemistry and related fields.

**CHEM 221H HON: Organic Chemistry II\* (1 Hour)**

**Prerequisites :** Honors department approval.

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

**CHEM 250 Biochemistry\* (4 Hours)**

**Prerequisites :** CHEM 131 and CHEM 132 and (CHEM 140 or CHEM 220).

This course is an introduction to the major topics in biochemistry. Topics include the major classes of biological molecules, such as proteins, lipids and nucleic acid; an overview of the major metabolic pathways; and developments and topics relating to molecular biology.

**CHEM 291 Independent Study\* (1-7 Hour)**

**Prerequisites :** 2.0 GPA minimum and department approval.

Independent study is a directed, structured learning experience offered as an extension of the regular curriculum. It is intended to allow individual students to broaden their comprehension of the principles of and competencies associated with the discipline or program. Its purpose is to supplement existing courses with individualized, in-depth learning experiences. Such learning experiences may be undertaken independent of the traditional classroom setting, but will be appropriately directed and supervised by regular instructional staff. Total contact hours vary based on the learning experience.