

# Chemistry (CHM)

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## Courses

### CHM-105. Forensic Science. 4 Credits.

LECT 45 hrs LAB 45 hrs

Designed for the non-science major. An introduction to the applications of the physical and biological sciences in analyzing and evaluating physical evidence as related to crime and the law.

**Additional Fees:** Course fee applies.

### CHM-117. Introductory Chemistry Lecture. 3 Credits.

RECI 15 hrs LECT 45 hrs

An introduction to the basic concepts of inorganic, organic and biochemistry. The emphasis is on the relationship of these concepts to physiological chemistry and living systems. All remedial courses listed must be completed prior to taking this course.

**Prerequisites:** Placement basis or MAT-016 (minimum grade of C) or MAT-026

**Additional Fees:** Course fee applies.

### CHM-118. Introductory Chemistry Laboratory. 1 Credit.

LAB 45 hrs

Laboratory experiments illustrate principles studied in CHM 117 (Introductory Chemistry Lecture).

**Prerequisites:** Placement basis or MAT-016 (minimum grade of C) or MAT-026

**Corequisites:** CHM-117

**Additional Fees:** Course fee applies.

### CHM-125. General Chemistry I - Lecture. 3 Credits.

RECI 15 hrs LECT 45 hrs

A study of the fundamental principles of chemistry and their application to chemical reactions. Topics include the structure of the atom, concepts of matter, mass relationships for pure substances and chemical reactions, solutions, electronic structure, the chemical bond, nuclear reactions and gases.

**Prerequisites:** Placement College Level Math test or MAT-110 (minimum grade of C)

**Corequisites:** CHM-126.

### CHM-126. General Chemistry I - Laboratory. 1 Credit.

LAB 45 hrs

Laboratory experiments illustrate principles studied in CHM-125.

**Prerequisites:** Placement College Level Math test or MAT-110 (minimum grade of C)

**Corequisites:** CHM-125

**Additional Fees:** Course fee applies.

### CHM-127. General Chemistry II - Lecture. 3 Credits.

RECI 15 hrs LECT 45 hrs

A continuation of General Chemistry I with emphasis on chemical equilibrium and energy changes in chemical reactions. Also included are acids, bases, buffers, chemical thermodynamics, kinetics, qualitative analysis and electrochemistry.

**Prerequisites:** CHM-125 (minimum grade of C)

**Corequisites:** CHM-128.

### CHM-128. General Chemistry II - Laboratory. 1 Credit.

LAB 45 hrs

Laboratory experiments illustrate principles studied in CHM-127.

**Prerequisites:** CHM-125 and CHM-126 (minimum grade of C required for both)

**Corequisites:** CHM-127

**Additional Fees:** Course fee applies.

### CHM-210. Essentials of Organic Chemistry. 4 Credits.

LECT 45 hrs LAB 45 hrs

This course is the study of the basic principles of structure, reactivity and nomenclature in organic chemistry. The laboratory develops basic work skills in the types of experiments performed in a typical organic chemistry laboratory with emphasis on the safe handling of laboratory chemicals and the proper presentation of experimental results.

**Prerequisites:** CHM-117 and CHM-118 or CHM-125 and CHM-126 (minimum grade of C for all prerequisites)

**Corequisites:** ENG-111 or ENG-111CL or ENG-111CW

**Additional Fees:** Course fee applies.

### CHM-212. Biochemistry. 4 Credits.

LECT 45 hrs LAB 45 hrs

An introduction to physiological chemistry. Lectures cover amino acids, proteins, lipids, nucleic acids, carbohydrates, molecular genetics, energetics and metabolic pathways. Lab reinforces concepts covered in lecture. All remedial courses listed must be completed prior to taking this course.

**Prerequisites:** CHM-117 (minimum grade of C) or CHM-125 (minimum grade of C)

**Corequisites:** ENG-111 or ENG-111CL or ENG-111CW

**Additional Fees:** Course fee applies.

### CHM-218. Analytical Chemistry - Instrumental Analysis. 4 Credits.

LECT 45 hrs LAB 45 hrs

Spring Semester only. This survey course covers theory and applications of modern instrumentation utilized to solve problems in chemical analysis. Laboratory work involves hands-on experience utilizing instruments such as gas (GC), liquid (HPLC) and ion chromatography; spectrophotometric methods including visible, ultraviolet, infrared (FTIR) and atomic absorption; ICP and other methods, including ion selective electrode methods; and electrophoretic methods including capillary electrophoresis (HPCE). Emphasis is placed on the comparison of methods, the collection and interpretation of laboratory data, technical report writing and record keeping. All remedial courses listed must be completed prior to taking this course.

**Prerequisites:** ENG-111 or ENG-111CL or ENG-111CW and CHM-127 or equivalent (minimum grade of C)

**Additional Fees:** Course fee applies.

**CHM-229. Internship Work Experience - Chemistry. 3 Credits.**  
COOP 135 hrs

This comprehensive course provides selected students enrolled in the Chemical Technology or Chemistry Major with job-oriented laboratory training and practical work experience in a paid or unpaid work environment prior to career employment. Students work a minimum of 135 hours. The course requires a detailed description of the proposed internship, workplace attendance, regular communication with the faculty advisor, an oral presentation, a written final report, and a closing interview describing the student's work experience. Students desiring to participate in this experience should make their interest known to the department chairperson by the end of their second semester. This course is a technical elective for Chemical Technology majors and a free elective for Chemistry majors.

**Prerequisites:** Permission of department chair.

**CHM-230. Internship Work Experience - Chemistry 2 Credits. 2 Credits.**  
COOP 90 hrs

This intermediate-level course provides Chemical Technology or Chemistry majors with career-oriented laboratory training and practical work experience in a paid or unpaid work environment. The course requires a detailed description of the proposed internship, workplace attendance, frequent communication with the faculty advisor, a written final report, and a closing interview describing the student's work experience. Students work a minimum of 90 hours. Chemical Technology majors can take this course as a technical elective and Chemistry majors may take it as a free elective. Students desiring to participate in this experience should make their interest known to the department chairperson by the end of their second semester.

**Prerequisites:** Permission of department chair.

**CHM-231. Organic Chemistry I - Lecture. 3 Credits.**  
LECT 45 hrs

This course is an introduction to the chemistry of carbon compounds. Topics include a study of the fundamental concepts of structure and stereochemistry, physical properties of organic compounds and a functional approach to the interpretation of organic reactions. This course is designed for majors in Biology, Chemistry, Pharmacy, and for students preparing for medical, dental and veterinary schools.

**Prerequisites:** CHM-127 (minimum grade of C) and CHM-128 (minimum grade of C)

**Corequisites:** CHM-232 and ENG-111 or ENG-111CL or ENG-111CW.

**CHM-232. Organic Chemistry I - Laboratory. 1 Credit.**  
LAB 45 hrs

This course performs laboratory experiments to illustrate principles taught in CHM 231, which stress techniques involved in the analysis, synthesis, and purification of typical organic compounds.

**Prerequisites:** CHM-127 (minimum grade of C) and CHM-128 (minimum grade of C)

**Corequisites:** CHM-231 and ENG-111 or ENG-111CL or ENG-111CW

**Additional Fees:** Course fee applies.

**CHM-233. Organic Chemistry II - Lecture. 3 Credits.**  
LECT 45 hrs

A continuation of the study of organic compounds with further study of functional groups, reaction mechanisms including nucleophilic substitution and elimination reactions, and infrared and nuclear magnetic resonance spectroscopy. All remedial courses listed must be completed prior to taking this course.

**Prerequisites:** CHM-231 (minimum grade of C) and CHM-232 (minimum grade of C)

**Corequisites:** CHM-234.

**CHM-234. Organic Chemistry II - Laboratory. 1 Credit.**  
LAB 45 hrs

Laboratory experiments involve the multi-step synthesis of organic compounds, which illustrate the principles of CHM-233, using macroscale and microscale techniques. All remedial courses listed must be completed prior to taking this course.

**Prerequisites:** CHM-231 (minimum grade of C) and CHM-232 (minimum grade of C)

**Corequisites:** CHM-233

**Additional Fees:** Course fee applies.

**CHM-235. Independent Study in Chemistry. 3 Credits.**  
LECT 45 hrs

This course is an opportunity for selected students to participate in independent research under close supervision of a Chemistry faculty member. Interested students should make their interest known early in the prior semester to the department chair who will detail the criteria for selection.

**Prerequisites:** Permission of department chair

**Additional Fees:** Course fee applies.

**CHM-236. Internship Work Experience - Chemistry Credits. 1 Credit.**

COOP 45 hrs

This introductory course offers interested students enrolled in the Chemical Technology or Chemistry Major with preprofessional laboratory training and practical work experience in a paid or unpaid work environment prior to career employment. The course requires a detailed description of the proposed internship, workplace attendance, frequent communication with the faculty advisor, and a written final report describing the student's work experience. Students desiring to participate in this experience should make their interest known to the department chairperson by the end of their second semester. Students work a minimum of 45 hours.

**Prerequisites:** Permission of department chair.

**CHM-295. Special Topics in Chemistry. 4 Credits.**  
LECT 45 hrs LAB 45 hrs

An examination of selected topics or issues in chemistry. Topics may differ each time the course is offered. Students should consult the department chair for further information.

**Prerequisites:** An introductory course in Chemistry and permission of department chair

**Additional Fees:** Course fee applies.

**CHM-296. Special Topics in Chemistry. 3 Credits.**  
LECT 45 hrs

An examination of selected topics or issues in chemistry. Topics may differ each time the course is offered. Students should consult the department chair for further information.

**Prerequisites:** An introductory course in Chemistry and permission of department chair.