

# CHEMISTRY (CH)

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## CH 101 Contemporary Chemistry - 4 Hours

A study of the fundamental principles of chemistry, chemical activity of elements and compounds, principles of organic chemistry, and principles of biochemistry. Material to be studied includes problems of the environment, energy, population, air pollution, water pollution, solid wastes, pesticides, food additives, and drugs. Consideration is given to the moral, ethical and political implications in making decisions concerning these problems. This course is for nonscience majors and cannot be used by Biology, Health Sciences, or Chemistry majors to fulfill major or general education requirements. Laboratory included. Laboratory fee. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 103 Introduction to Chemistry - 4 Hours

A one-semester survey of fundamental concepts, including atomic structure, chemical bonding, periodic properties, the solid, liquid and gaseous states, and solutions. Application of all these concepts to the health sciences will be emphasized. This course is intended primarily for Health Sciences majors but may be used to fulfill the general education requirement for non-majors if the student has had substantial background in chemistry. Laboratory is included. Laboratory fee. Consent of instructor required. Offered fall semester for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 105X Introduction to Forensic Science - 3 Hours

An overview of the many ways evidence is collected through the scientific disciplines of chemistry, biology, and physics. Principles and applications of DNA analysis, explosives analysis, detection of illegal drugs, toxicological analysis, and firearms identification will be discussed. Legal requirements for the collection, storage, and presentation of evidence with a focus on expert testimony and the standards that govern expert testimony will be presented. Offered Fall semester in even-numbered years for Deerfield traditional undergraduate. Cross-listed with CRJ 105X. Delivery mode: Deerfield traditional undergraduate.

## CH 111 General Chemistry I - 4 Hours

First course of a two-course sequence in General Chemistry for science majors. A study of fundamental concepts including atomic structure, bonding, molecular theory, the solid, liquid, and gaseous states, and solutions. Laboratory is included. This course is open to majors in the Division of Science, Technology, and Health only or by consent of the instructor. Prerequisite: proficiency in algebra, high school chemistry. Laboratory fee. Offered fall semester for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 112 General Chemistry II - 4 Hours

A continuation of CH 111. Kinetics, equilibrium, acid base topics, and chemical thermodynamics are studied. Laboratory is included. This course is open to majors in the Division of Science, Technology, and Health only or by consent of the instructor. Prerequisite: CH 103 or CH 111 or consent of instructor. Laboratory fee. Offered spring semester for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 150 Laboratory Methods in Chemistry - 1-3 Hours

This course is designed to meet the need of the student who requires or desires a laboratory experience in chemistry additional to that available as part of the regularly offered coursework. The area of study will vary with the needs of the student. Prerequisite: at least one introductory course in chemistry and consent of the Chair of the Department of Biology and Chemistry. Laboratory fee. Offered each semester. Delivery mode: Deerfield traditional undergraduate.

## CH 203 Essentials of Organic Biochemistry - 4 Hours

A one-semester survey of organic functional groups and reactions. Emphasis will be placed upon those compounds that play an important role in the biochemistry of the living cell. Laboratory is included. Prerequisite: CH 103 or CH 112. Laboratory fee. Offered Fall semester 2018 for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 211 Organic Chemistry I - 4 Hours

A study of the structure, nomenclature, and reactions of the common classes of organic compounds. Laboratory is included. Prerequisite: CH 112. Laboratory fee. Offered fall semester in even-numbered years for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 212 Organic Chemistry II - 4 Hours

A continuation of CH 211. Interpretation of NMR and IR spectra is studied. Laboratory is included. Prerequisite: CH 211. Laboratory fee. Offered spring semester in odd-numbered years for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 305 Scientific Applications - 1-4 Hours

In depth instructional or laboratory experience, including teaching assistantship and laboratory assistantship, designed to enhance the student's expertise, critical thinking, and laboratory and communication skills in any of several areas. May be repeated for credit. Prerequisite: Invitation of instructor. Instructor's consent by signature required. Offered each semester for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 306 Scientific Applications Professional Experience - 1-4 Hours

In-depth instructional or laboratory experience, including teaching assistantship and laboratory assistantship, designed to enhance the student's expertise, critical thinking, laboratory, and communication skills in any of several areas. May be repeated for credit. Prerequisite: invitation of instructor. Instructor's consent by signature required. Satisfies the Professional Experience requirement. Offered each semester for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 311 Quantitative Analysis - 4 Hours

A study of quantitative methods of inorganic analysis. Laboratory is included. Prerequisite: CH 112. Laboratory fee. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 312 Instrumental Analysis - 4 Hours

A study of instrumental methods of chemical analysis with stress on spectral, chromatographic, and electroanalytical methods. Laboratory is included. Prerequisite: CH 311. Laboratory fee. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 320 Biochemistry - 3 Hours

Structure, biosynthesis, and metabolism of common classes of biochemical compounds are studied. Prerequisites: CH 203 or CH 212, and BIO 111, or consent of instructor. Offered fall semester in odd-numbered years for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

## CH 340 Laboratory in Chemistry - 1 Hour

Laboratory courses in inorganic, organic, organic qualitative analysis, and biochemistry. Prerequisite: CH 311 or consent of instructor. Laboratory fee. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 350 Topics in Chemistry - 1-4 Hours**

Selected topics in chemistry. May be repeated for credit with different topics. Prerequisite: CH 112 or consent of instructor. Laboratory fee may be required depending on topic. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 405 Advanced Scientific Applications - 1-4 Hours**

Advanced instructional, clinical, or laboratory experience designed to enhance the student's expertise, critical thinking, and laboratory and communication skills in any of several areas. May be repeated for credit. Prerequisite: Invitation of the instructor. Instructor's consent by signature required. Laboratory fee may be required. Offered each semester for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 406 Advanced Scientific Applications Professional Experience - 1-4 Hours**

Advanced instructional, clinical, or laboratory experience designed to enhance the student's expertise, critical thinking, and laboratory and communication skills in any of several areas. May be repeated for credit. Prerequisite: invitation of the instructor. Instructor's consent by signature required. Laboratory fee may be required. Satisfies the Professional Experience Requirement. Offered each semester. Delivery mode: Deerfield traditional undergraduate.

**CH 410 Chemistry Seminar - 1 Hour**

Reports of current research, selected themes, research methods, and writing in chemistry shall be considered. Prerequisites: chemistry major, CH 112 or consent of the instructor. May be repeated for credit. This course fulfills the IDS 499X Integrative Thought Capstone requirement for students in the Chemistry and Chemistry/Pre-medical majors. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 411 Inorganic Chemistry - 3 Hours**

An introduction to the concepts and chemical systems of inorganic chemistry, including atomic structure, the periodic table, molecular structure and bonding ionic crystals, chemistry of the transition elements, coordination compounds, noble gases, and acid-base theories. Includes a substantial amount of oral presentation. Prerequisites: CH 212, CH 311 or consent of instructor. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 412 Physical Chemistry of Biological Systems - 4 Hours**

This course contains a general overview of the principles of thermodynamics, kinetics, quantum mechanics, and statistical thermodynamics with particular stress on biochemical and biological applications. Laboratory is included. Prerequisites: CH 411, MA 121, and CH 311, or consent of instructor. Laboratory fee. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 421 Physical Chemistry I - 4 Hours**

An introduction to the topics of physical chemistry. Laboratory is included. Prerequisites: CH 411, MA 221, and PHY 112, or consent of instructor. Laboratory fee. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 422 Physical Chemistry I - 4 Hours**

A continuation of CH 421. Laboratory is included. Prerequisite: CH 421. Laboratory fee. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 442 Undergraduate Research - 1-4 Hours**

This is a laboratory course involving investigation of a research problem under faculty supervision. Course requirements include a literature survey, research, a written formal report, and oral presentation of results in Chemistry Seminar CH 410. Prerequisites: CH 340 and instructor's consent by signature required. May be repeated for credit. Laboratory fee may be required. Satisfies the Professional Experience Requirement. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.

**CH 450 Independent Study - 1-4 Hours**

Research and specialized studies designed to meet the needs of individual students. Prerequisite: consent of instructor. Laboratory fee may be required. Offered on demand for Deerfield traditional undergraduate. Delivery mode: Deerfield traditional undergraduate.