

Normal and abnormal metabolic processes and the role of ATP. Not open to science majors other than physical science and nursing. Three 1-hour lectures and one 3-hour laboratory period/week.

111. General Chemistry (4) F, W

Prerequisite: high school chemistry or PHY 111. A strong mathematics background (especially in algebra) is recommended.

A comprehensive study of the fundamental experiments, principles, and theories of chemistry with emphasis on the quantitative relationships. The structure and properties of matter with their energy relationships are stressed. Three lectures and one 3-hour laboratory/week.

112. Chemical Equilibrium (4) W, S

Prerequisite: CHE 111.

Detailed study of the principles of equilibrium in chemical systems. The laboratory is qualitative analysis. Three lectures and one 3-hour laboratory period/week.

113. Survey of Chemical Instrumentation (2) W

Prerequisite: CHE 111

An introduction to chemical instrumentation used in industry, including titrations, spectroscopy and chromatography. One lecture and one 3-hour lab/week.

211. Analytical Chemistry (3) S

Prerequisite: CHE 112; Corequisite: CHE 221.

A continuation of the study of fundamental principles including topics in statistics, gravimetric analysis, titrimetric analysis (neutralization, precipitation, complex formation, oxidation-reduction), and spectrophotometric analysis.

66 221. Analytical Chemistry Laboratory (2) S

Prerequisite: CHE 112; Corequisite: CHE 211.

The application of gravimetric, titrimetric and spectrophotometric quantitative analysis to the study of chemistry. Two 3-hour laboratory periods/week.

300. Chemical Safety and Health (1) S

Survey of safety policies and procedures associated with the use of hazardous chemicals. Topics: safety awareness, routes of chemicals into the body, personal safety apparatus and its use; identification, types and literature on chemical hazards; and proper ways to label, handle, store, and dispose of hazardous chemicals.

301. Perspectives in Science (4) F, W

See PHY 301 for course description.

314. Organic Chemistry I (3) F

Prerequisite: CHE 112; Corequisite: CHE 324.

An introduction to the compounds of carbon, with emphasis on the relationship between structure and properties. Applications of bonding theory, reaction mechanism, and stereochemistry are included. Some functional groups containing halogen and oxygen will be examined in detail.

315. Organic Chemistry II (3) S

Prerequisite: CHE 314; Corequisite: CHE 325.

An in-depth examination of the common oxygen and nitrogen functional groups with respect to structure and chemistry. Continued application of basic theory is included. Heterocyclic and biomolecules will also be examined. Three lectures/week.

317. Physical Chemistry I (3) F

Prerequisites: CHE 211, MAT 212, and PHY 232.

Application of physical techniques to chemical systems with emphasis on thermodynamics. The laws of thermodynamics will be derived and applied to phase and chemical equilibria, electrochemical cells, and surface phenomena.

318. Physical Chemistry II (3) S

Prerequisite: CHE 317.

A continuation of CHE 317 with emphasis on dynamics and quantum chemistry. Includes kinetics, mechanisms, and photochemistry. Quantum chemistry includes atomic and molecular electronic structure and their application to spectroscopy.

319. Biochemistry (4) F

Prerequisite: CHE 315, CHE 325, and BIO 112.

Introduction to the organic chemistry of living systems. Topics: structure and function of proteins, enzymic control of chemical reactions, catabolism, anabolism, bioenergetics, biosynthesis, and molecular biology. Three lectures and one 3-hour lab/week.

324. Organic Chemistry I Laboratory (2) F

Corequisite: CHE 314.

Introduction to the basic techniques for the physical characterization and isolation of organic compounds. Use of spectrometric methods as applied to the determination of structure is included, as are some synthetic methods. Two 3-hour labs/week.

325. Organic/Inorganic Synthesis Laboratory (2) S

Prerequisite: CHE 314 and CHE 324; Corequisite: CHE 315.

Application of laboratory techniques in synthesis and characterization of organic and inorganic compounds. Two 3-hour laboratory periods/week.

327. Physical Chemistry Laboratory (2) S

Corequisite: CHE 318.

The application of physical methods in the study of chemical compounds. Two 3-hour labs/week.

335. Intermediate Inorganic Chemistry (3) S

Prerequisite: CHE 315.

Introduction to inorganic compounds with an emphasis on coordination, bioinorganic, nuclear, and organometallic chemistry. The relationships between structure, physical properties and reactivity will be examined in detail.

405. Environmental Chemistry (4) S

Prerequisite: CHE 315.

Study of the rapid changes in the earth's atmosphere, water and soil caused by the activities of humankind. Attention to the ozone layer, air quality and water cycles at the surface of the earth. The vectors, fate, and treatment/removal strategies for organic and heavy metal pollutants will be discussed. Three lectures and one 3-hour lab/week.

424-5. Introduction to Research (1-3) 424—F, 425—S

The student's knowledge is integrated by application of a simple piece of original work. Prerequisite: 20 hours of chemistry and a junior/senior standing. Each course will be three hours per week per credit hour.

440. Principles of Management and Ethics (0)

Preparation for the the medical graduate for positions of leadership as supervisors and instructors.

180-280-380-480. Study Abroad Programs (1-4) As Needed

All courses and their application must be defined and approved prior to travel.

195-6-7. Special Studies (1-4) On Demand

Lower-level group studies which do not appear in the regular departmental offerings.

395-6-7. Special Studies (1-4) On Demand

Upper-level group studies which do not appear in the regular departmental offerings.

495-6-7. Seminar (1-3)

To be used at the discretion of the department for majors only.