CHEMISTRY (3150)

3150:100 Chemistry & Society (3 Credits)
Qualitative introduction to chemistry using current world problems and commercial products, such as the ozone layer, nuclear fission, polymers and drugs, to introduce chemical principles.

3150:101 Chemistry for Everyone (4 Credits)
Integrated, hands-on, laboratory instruction in the fundamental concepts of chemistry for general education and middle-level licensure for pre-service and in-service teachers.
Gen Ed: Tier 2 - Natural Science w/LAB

3150:110 Introduction to General, Organic & Biochemistry I (Lecture) (3 Credits)
Sequential. Introduction to principles of chemistry, fundamentals of inorganic, organic and biochemistry. Structure and chemistry of carbohydrates, lipids, proteins; biochemistry of enzymes, metabolism, radiation.
Gen Ed: Tier 2 - Natural Science

3150:111 Introduction to General, Organic & Biochemistry I (Laboratory) (1 Credit)
Prerequisite/Corequisite: 3150:110. Sequential. Laboratory course applying principles of chemistry and fundamentals of inorganic, organic and biochemistry.
Gen Ed: Tier 2 - Natural Science w/LAB

3150:112 Introduction to General, Organic & Biochemistry II (Lecture) (3 Credits)
Prerequisite: 3150:110. Sequential. Introduction to principles of chemistry, fundamentals of inorganic, organic and biochemistry. Structure and chemistry of carbohydrates, lipids, proteins; biochemistry of enzymes, metabolism, radiation.
Gen Ed: Tier 2 - Natural Science

3150:113 Introduction to General, Organic & Biochemistry II (Laboratory) (1 Credit)
Prerequisite/Corequisite: 3150:112. Sequential. Laboratory course applying principles of chemistry and fundamentals of inorganic, organic and biochemistry.
Gen Ed: Tier 2 - Natural Science w/LAB

3150:151 Principles of Chemistry I (3 Credits)
Prerequisite: placement in 3450:149 or higher or permission. Introduction to basic facts and principles of chemistry including atomic and molecular structure, states of matter and thermodynamics. For chemistry majors, pre-medical students and most other science majors. Discussion (day sections).
Gen Ed: Tier 2 - Natural Science

3150:152 Principles of Chemistry I Laboratory (1 Credit)
Pre/Corequisite: 3150:151. Laboratory course applying principles of thermodynamics, chemical analysis and laboratory practice.
Gen Ed: Tier 2 - Natural Science w/LAB

3150:153 Principles of Chemistry II (3 Credits)
Prerequisite: Pre/Corequisite: 3150:151. Continuation of 151, 152, including aqueous solution theory, chemical kinetics, equilibrium, electrochemistry and nuclear chemistry. For chemistry majors, premedical students and most other science majors. Discussion (day sections).
Gen Ed: Tier 2 - Natural Science

3150:154 Qualitative Analysis (2 Credits)
Prerequisite: 3150:152; pre/corequisite: 3150:153. Laboratory course applying principles of chemical equilibrium to inorganic qualitative analysis.

3150:199 Introductory Seminar in Chemistry (1 Credit)
Basic concepts in chemistry practice including written and oral communication skills, computer skills, professional ethics, environmental issues, chemical literature, degree options, and career considerations.

3150:263 Organic Chemistry Lecture I (3 Credits)
Sequential. Prerequisite: 3150:153 or permission. Structure and reactions of organic compounds, mechanism of reactions.

3150:264 Organic Chemistry Lecture II (3 Credits)
Sequential. Prerequisite: 3150:263 or permission. Structure and reactions of organic compounds, mechanism of reactions.

3150:265 Organic Chemistry Laboratory I (2 Credits)
Sequential. Prerequisite: 3150:154; pre/corequisite: 3150:263. Laboratory experiments to develop techniques in organic chemistry and illustrate principles. Discussion.

3150:266 Organic Chemistry Laboratory II (2 Credits)
Sequential. Prerequisite: 3150:265. Laboratory experiments to develop techniques in organic chemistry and illustrate principles. Discussion.

3150:305 Physical Chemistry for the Biological Sciences (4 Credits)
Prerequisites: 3150:264, 3450:223, and [3650:262 or 3650:292]. Chemical thermodynamics, kinetics, molecular structure and spectra. Accepted for the BS degree in Biochemistry.

3150:313 Physical Chemistry Lecture I (3 Credits)
Prerequisites: 3150:264, 3450:223, and 3650:291. Gases, thermodynamics, thermochemistry, solutions, dilute solutions, chemical equilibrium, phase rule, chemical kinetics, electrochemistry, electrolytic equilibria.

3150:314 Physical Chemistry Lecture II (3 Credits)
Prerequisites: 3150:264, and 3450:335, and 3650:292. Atomic and molecular structure and spectroscopy.

3150:370 Biochemistry Laboratory (2 Credits)
Prerequisite: 3150:266. An integrated laboratory experience covering the isolation, characterization and analysis of enzymes and DNA, protein synthesis and purification, enzyme kinetics, biochemical databases and statistical treatment of data.

3150:380 Advanced Chemistry Laboratory I (2 Credits)
Prerequisite: 3150:266. A laboratory experience that focuses on the synthetic and spectroscopic techniques of modern inorganic chemistry, including bio-inorganic and organometallic compounds.

3150:381 Advanced Chemistry Laboratory II (2 Credits)
Prerequisite: 3150:266; corequisite: 3150:314 or 3150:305 or permission. Integrated laboratory experience covering the areas of quantitative analysis, physical chemistry, and instrumental techniques.

3150:399 Internship in Chemistry (1-3 Credits)
Prerequisites: minimum GPA of 2.5, permission of the Department. Work experience focused on career applications of the discipline of Chemistry. (May repeat for a maximum of six credits.)

3150:401 Biochemistry Lecture I (3 Credits)
3150:402 Biochemistry Lecture II (3 Credits)
Prerequisite: 3150:401. Overview of metabolism; thermodynamics; carbohydrate, fatty acid, amino acid, and nucleoside anabolism and catabolism; hormonal control of metabolism. Photosynthesis.

3150:406 Biochemistry of Gene Expression (3 Credits)
Prerequisites: 3100:311 and 3150:401. DNA, RNA, and protein synthesis, translation and transcription. Gene function and expression, cell cycle and cancer, genetic engineering, gene silencing, gain of function studies.

3150:410 Special Readings in Analytical Chemistry (1-3 Credits)
Prerequisite: Junior standing or higher. Selected topics in advanced analytical chemistry for which no course exists. (May be repeated)

3150:411 Special Readings in Inorganic Chemistry (1-3 Credits)
Prerequisite: Junior standing or higher. Selected topics in advanced inorganic chemistry for which no course exists. (May be repeated)

3150:412 Special Readings in Organic Chemistry (1-3 Credits)
Prerequisite: Junior standing or higher. Selected topics in advanced organic chemistry for which no course exists. (May be repeated)

3150:413 Special Readings in Physical Chemistry (1-3 Credits)
Prerequisite: Junior standing or higher. Selected topics in advanced physical chemistry for which no course exists. (May be repeated)

3150:415 Special Readings in Biochemistry (1-3 Credits)
Prerequisite: Junior standing or higher. Selected topics in advanced biochemistry for which no course exists. (May be repeated)

3150:423 Analytical Chemistry I (3 Credits)
Prerequisite: 3150:154 and 3150:263. Theoretical principles of quantitative and instrumental analysis.

3150:424 Analytical Chemistry II (3 Credits)
Prerequisite: 3150:154 and 3150:263. Instrumental analysis with emphasis on newer analytical tools and methods.

3150:463 Advanced Organic Chemistry (3 Credits)
Prerequisite: 3150:264. Introduction to study of mechanisms of organic reactions.

3150:472 Advanced Inorganic Chemistry (3 Credits)

3150:480 Advanced Chemistry Laboratory III (2 Credits)
Prerequisite: 3150:381; or Corequisite: 3150:305; or permission. Integrated laboratory experience covering the areas of quantitative analysis, physical chemistry, instrumental techniques, and inorganic chemistry.

3150:490 Workshop in Chemistry (1-3 Credits)
(May be repeated) Group studies of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry.

3150:497 Honors Project in Chemistry (2 Credits)
(May be repeated for a total of eight credits) Prerequisites: Junior or senior standing in Honors College and permission of department honors preceptor. Independent research leading to completion of honors thesis under guidance of honors project adviser.

3150:498 Special Topics in Chemistry (1-3 Credits)
Special Topics in Chemistry.

3150:499 Research Problems in Chemistry (1-2 Credits)
(May be repeated for a total of eight credits) Prerequisite: Permission. Assignment of special problems to student, designed as an introduction to research problems.