COURSE DESCRIPTIONS

CHEM 105L Introductory Chemistry for Nursing Lab 0 CREDITS
Lab for CHEM 105 Introductory Chemistry Nursing

CHEM 111R Chemistry III: Recitation 0 CREDITS
An add on to the Chemistry 111 course aimed at bolstering students' math, problem-solving and deductive reasoning skills.

CHEM 440S Internship 1 to 8 CREDITS

CHEM 105 Introductory Chemistry for Nursing 4 CREDITS
A general introductory chemistry course that covers the fundamental principles of general chemistry specific to pre-nursing students. Topics include atomic structure, states of matter, the periodic table, chemical bonding, chemical reactions, solubility, solutions, ideal gasses, IUPAC rules for naming organic compounds, structure, functional groups, organic reactions, followed by a survey of biochemical topics, including proteins, lipids, carbohydrates, and nucleic acids.

CHEM 111 Principles of Chemistry I and Lab 4 CREDITS
A course in inorganic chemistry designed for students majoring in chemistry, biology, pre-professional programs in the sciences, and other science fields. Emphasis is placed on a detailed analysis of the fundamental principles of chemistry on both a theoretical and descriptive level.

CHEM 112 Principles of Chemistry II and Lab 4 CREDITS
A course in inorganic chemistry designed for students majoring in chemistry, biology, pre-professional programs in the sciences, and other science fields. Emphasis is placed on a detailed analysis of the fundamental principles of chemistry on both a theoretical and descriptive level.

CHEM 300 Special Topics in Chemistry 2 to 4 CREDITS
Topics of interest and importance to students majoring in chemistry, biology, and physics will be offered as needed. Special Topics may be used as elective hours in the Chemistry majors or minors.

CHEM 303 Organic Chemistry I 3 CREDITS
This course develops foundational knowledge with particular focus on the basic principles to study the physical and chemical properties of all carbon compounds particularly emphasizing alkanes, alkenes and alkynes. It includes detailed study of nomenclature, stereochemistry, spectrometry, synthesis and reactivity, highlighting each of the typical mechanisms. Scaffolded writing assignments introduce scientific and technical writing as it applies to manuscript preparation. Prerequisites: CHEM 111, 112. CHEM 303 is a prerequisite for CHEM 304.

CHEM 304 Organic Chemistry II 3 CREDITS
This course further develops concepts in organic chemistry with particular focus on oxygen containing, nitrogen containing and aromatic compounds. It includes detailed study of the physical and chemical properties of carbon compounds addressing nomenclature, stereochemistry, spectroscopy, spectrometry, synthesis and reactivity with particular focus on reaction mechanisms. Prerequisites: CHEM 111, 112. CHEM 303 is a prerequisite for CHEM 304.

CHEM 306 Quantitative Analysis and Lab 4 CREDITS
A study of the theory and practice of quantitative analytical chemistry. Topics include kinetics, chemical equilibrium, acid-base chemistry, complex formation, ionic strength effects, and oxidation-reduction reactions. The lab involves an in-depth study of gravimetric and volumetric methods, as well as a range of instrumental analyses with a focus on quality assurance/quality control. Students will gain experience with multiple modes of scientific communication, and will learn to apply statistics to data collected in the lab, with statistical tests covered including one-sample t-test, two sample t-test, paired t-test, linear regression, and ANOVA. The course includes a multi-week community based lab and science global learning outreach component which requires attendance at least one evening during the term outside normal class or lab time. (WCore: EWRLD)

CHEM 307 Instrumental Analysis and Lab 4 CREDITS
Theory and laboratory work in absorption and emission spectroscopy (AA, UV-vis, IR and fluorometry); electroanalytical chemistry and chromatography as they apply to analytical chemistry. Offered spring of even years. Prerequisites: CHEM 111, 112; PHYS 151 or 211. (4)

CHEM 320 Inorganic Chemistry 4 CREDITS
Inorganic chemistry is concerned with the chemistry of all of the elements except carbon. Selected topics that give the student broad exposure to the modern applications of inorganic chemistry are presented, as well as the underlying theories on which the subject is based. Topics include symmetry and group theory, bonding in inorganic compounds, the solid state, chemical forces, and coordination chemistry. Interesting aspects of the chemistry of selected elements are covered.

CHEM 350 Biochemistry 3 CREDITS
A study of the chemistry of living organisms. Begins with a review of basic biology and organic chemistry as it applies to the biological system, the structure and function of the cell, water and its importance in the biological system and energy considerations. Detailed discussion of the structure and function of proteins, enzymology, carbohydrate structure and metabolism by both aerobic and anaerobic metabolism, and the structure and function of lipids and biological membranes.

CHEM 370 Scientific Computing 4 CREDITS
This course provides students with experience applying programming techniques in Python to a wide range of?scientific?problems. Topics include a brief review of basic programming principles, and applications in equation solving, data analysis, and model simulation.

CHEM 400 Advanced Topics in Chemistry 1 to 5 CREDITS
A class designed to meet the special course needs of chemistry majors. Subject offerings include: (a) Organic Reaction Mechanisms, (b) Organic Qualitative Analysis, (c) Organic Synthesis, and (d) Advanced Inorganic Chemistry. The specific course offerings depend upon student need and interest.

CHEM 401 Directed Studies in Chemistry 1 to 4 CREDITS
A tutorial-based course used only for student- initiated proposals for intensive individual study of topics not otherwise offered in Chemistry Program. Prerequisites: senior standing and consent of instructor and school dean. This course is repeatable for credit.

CHEM 421 Quantum Chemistry and Lab 4 CREDITS
A study of the basic principles of quantum mechanics and its application to atomic structure, molecular structure and spectroscopy. A laboratory section accompanies the lecture. Offered fall semester.

CHEM 422 Thermodynamics & Statistical Mechanics 4 CREDITS
A study of the theoretical macroscopic properties of matter. An introduction to statistical mechanics and chemical thermodynamics with applications to gases, solutions, and phase and chemical equilibria. A laboratory section accompanies the lecture.

CHEM 430 Undergraduate Research 1 to 4 CREDITS
Students undertake a portion of a research project and learn all aspects of scientific inquiry. One credit hour equates to three hours per week in the laboratory. This course may be taken one credit at a time. This course is repeatable for credit.

CHEM 440 Internship 1 to 8 CREDITS
Offers students the opportunity to integrate classroom knowledge with practical experience. Students will be graded on assigned coursework and evaluation by their site supervisor. Prerequisites: 60 college credits completed (for transfer students at least 15 hours competed at Westminster or permission of instructor), minimum 2.5 GPA, and consent of faculty advisor and Career Center internship coordinator. Interns will work for 42 hours per each registered credit. This course is repeatable for credit. Some majors limit how many internship credits may count towards the major, consult your faculty advisor. REGISTRATION NOTE: Registration for internships is initiated through the Career Center website and is finalized upon completion of required paperwork and approvals. More info: 801-832-2590 https://westminstercollege.edu/student-life/career -center/internships.html

CHEM 487 Undergraduate Teaching 1 to 2 CREDITS
Provides an opportunity for teaching experience in lower-division laboratories by junior- and senior-level chemistry majors and minors. CHEM 487 may not be used as elective hours in the chemistry majors or minors. This

course is graded on a credit/no credit basis. Permission of program director required. This course is repeatable for credit.