CHEMISTRY (CHEM)

CHEM 110-CN Quantitative Problem Solving in Chemistry (1 Unit)
Solution strategies for traditional word problems and their application to basic chemistry quantitative problems: dimensional analysis, chemical equations, stoichiometry, limiting reagents.

CHEM 131-CN General Chemistry 1 (1 Unit)
Quantum mechanics, electronic structure, periodic properties of the elements, chemical bonding, thermodynamics, intermolecular forces, properties of solids and liquids, special topics in modern chemistry. Must be taken concurrently with CHEM 141-CN.
Prerequisite: grade of C- or higher in CHEM 110-CN.

CHEM 132-CN General Chemistry 2 (1 Unit)
Solutions and colligative properties, chemical equilibrium, aqueous solution equilibria, chemical kinetics, metals in chemistry and biology, oxidation-reduction reactions and electrochemistry, special topics in modern chemistry. Must be taken concurrently with CHEM 142-CN.
Prerequisite: grade of C- or higher in CHEM 131-CN and CHEM 141-CN.

CHEM 141-CN General Chemistry 1 Lab (0.34 Unit)
Chemical analysis of real samples using basic laboratory techniques including titration, colorimetric analysis, density measurements, and atomic spectroscopy. Planning, data collection, interpretation, and reporting on experiments. Credit for this course is 0.34 units. Must be taken concurrently with CHEM 131-CN.
Prerequisite: grade of C- or higher in CHEM 110-CN.

CHEM 142-CN General Chemistry Lab 2 (0.34 Unit)
Chemistry laboratory techniques applied to materials science and nanotechnology, acid-base chemistry, and chemical kinetics. Planning, data collection, interpretation, and reporting on experiments. The course must be taken concurrently with CHEM 132-CN. Credit for this course is 0.34 units.
Prerequisite: grade of C- or higher in CHEM 131-CN.

CHEM 201-CN Chemistry of Nature and Culture (1 Unit)
NPEP course.

CHEM 210-A Organic Chemistry (1 Unit)
Basic concepts of structure, stereochemistry, and reactivity of organic compounds. The chemistry of hydrocarbons and alcohols.
Prerequisite: completion of General Chemistry Sequence with grade of C- or better, or equivalent transfer credit with qualifying score on the Chemistry Placement Exam.

CHEM 210-B Organic Chemistry (1 Unit)
The chemistry of aromatic, carbonyl, and nitrogen compounds; characterization of organic substances by chemical and spectral methods; reaction mechanisms. Must be taken concurrently with CHEM 230-B.
Prerequisite: grade of C- or higher in CHEM 210-A.

CHEM 210-C Organic Chemistry III (1 Unit)
Prerequisite: grade of C- or higher in CHEM 210-B.

CHEM 215-A Organic Chemistry I (1 Unit)
Foundational concepts in organic chemistry will be introduced. Topics include structure and properties of common functional groups, acidity/basicity, conformational analysis, stereochemistry, and reactivity of organic compounds. The chemistry of hydrocarbons, alkyl halides, and alcohols, ethers, and carbonyl compounds included.
Prerequisite: CHEM 132-CN and CHEM 142-CN (C- or better in all listed courses) or permission of department by placement exam. Must be taken concurrently with CHEM 235-A.

CHEM 215-B Organic Chemistry II (1 Unit)
Fundamental concepts in organic chemistry will be covered. Topics include important functional groups: nomenclature, structure, properties, and multi-step synthesis. Reaction mechanisms for organic transformations presented, and synthesis strategies covered. The chemistry of pi systems and aromatic ring system, amines, and carboxylic acids and their derivatives, and enol/enolate species included.
Prerequisite: CHEM 215-A and CHEM 235-A (C- or better). Must be taken concurrently with CHEM 235-B.

CHEM 215-C Advanced Organic Chemistry (1 Unit)
Advanced concepts in modern organic chemistry introduced. Focus on recent developments in synthetic organic chemistry, including concerted/pericyclic reactions, catalysis, green/environmental chemistry, automated synthesis, and combinatorial/screening methods. Additional topics include an introduction to materials and polymer chemistry.
Prerequisite: CHEM 215-B and CHEM 235-B (C- or better). Must be taken concurrently with CHEM 235-C.

CHEM 230-B Organic Chemistry II Laboratory (0.34 Unit)
Instruction in experimental techniques of modern organic chemistry emphasizing chemical separations, spectroscopic characterization, and reactions of alkanes, alkenes, alkyl halides, alcohols, carboxylic acids, esters, and aromatic compounds. Must be taken concurrently with CHEM 210-B.
Prerequisite: grade of C- or higher in CHEM 210-A.

CHEM 230-C Organic Chemistry III Laboratory (0.34 Unit)
Experimental techniques of modern organic chemistry emphasizing chemical separations, spectroscopic characterization, and reactions such as amide synthesis, Grignard reaction, aldol condensation, Robinson annulation, and DielsAlder reaction. Must be taken concurrently with CHEM 210-C.
Prerequisite: grade of C- or higher in CHEM 210-B.

CHEM 235-A Organic Chemistry Lab I (0.34 Unit)
Experimental techniques of modern organic chemistry will be covered. Techniques will focus on the isolation and purification of organic compounds as well as the use of spectroscopic methods to determine identity and purity.
Prerequisite: CHEM 132-CN and CHEM 142-CN (C– or better in all listed courses) or permission of department by placement exam. Must be taken concurrently with CHEM 215-A.

CHEM 235-B Organic Chemistry Lab II (0.34 Unit)
Complete laboratory experiments focusing on standard synthetic organic chemistry conducted each week. Students complete prelab worksheet including stoichiometric calculations, prediction of reaction outcome, and identification of safety protocols.
Prerequisite: CHEM 215-A and CHEM 235-A (C- or better). Must be taken concurrently with CHEM 215-B.

CHEM 235-C Advanced Organic Chemistry Lab (0.34 Unit)
Advanced concepts in modern organic chemistry introduced. Focus on recent developments in synthetic organic chemistry, including concerted/pericyclic reactions, catalysis, green/environmental chemistry, automated synthesis, and combinatorial/screening methods. Additional topics include an introduction to materials and polymer chemistry.
Prerequisite: CHEM 215-B and CHEM 235-B (C- or better). Must be taken concurrently with CHEM 215-C.

CHEM 242-CN Thermodynamics (1 Unit)
NPEP course.