

# Chemistry (CHM)

## (Science, Engineering, & Arch Department)

### CHM 100—Introduction to Chemistry

2 lect., 2 lab, 3 cr. (Fall/Spring/Summer)

A survey of the fundamental principles of chemistry and related physical laws. Only elementary mathematics used. Topics include: safety in the laboratory, measurement, atomic structure, the periodic table, chemical equations, solutions, electrolytes, acid-base reactions, pH, the gas laws, main organic functional groups, nuclear chemistry and radioisotopes. (G2A)

Prerequisite: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher.

Note: This course is not open to students who have successfully completed CHM 101 (formerly CHM 105), CHM 102 (formerly CHM 106), CHM 201 or CHM 202

### CHM 101—General Chemistry 1

3 lect., 3 lab, 4 cr. (Fall/Spring/Summer I)

A study of the fundamental principles of chemistry. Topics include: stoichiometry, gases, atomic structure, periodic properties, ionic and covalent bonding, Lewis structures, liquids and solids. Laboratory work is the application of these principles with emphasis on quantitative relationships. The keeping of a laboratory notebook is required. (G2A)

Prerequisite: MAT 102 or Math Placement test into MAT 121

### CHM 102—General Chemistry 2

3 lect., 3 lab, 4 cr. (Fall/Spring/Summer II)

Topics include: Chemical equilibrium, acid-base theories, solubility equilibria, thermochemistry, thermodynamics, chemical kinetics, nuclear reactions, electrochemistry, an introduction to organic chemistry and some representative biomolecules. Laboratory work includes the above topics, plus qualitative analysis of select cations, and chromatography. The keeping of a laboratory notebook and the writing of formal reports is emphasized. (G2A)

Prerequisite: C or better in CHM 101 (previously CHM 105) or permission of department chair

### CHM 103—Applied Chemistry 1

2 lect., 3 lab, 3 cr. (Fall)

A study of the fundamental concepts of inorganic chemistry and techniques to be used in clinical laboratories. Topics include the nature of matter, the mole concept nomenclature, redox reactions, solutions, chemical equilibrium, acids and bases, and the gas laws. Laboratory work stresses skills and techniques useful to the laboratory technician. (G2A)

Pre/corequisite: MAT 092 or 101 or placement into MAT 102 or higher.

Note: This course is closed to students who have completed or are currently enrolled in CHM 101 (formerly CHM 105), CHM 102 (formerly CHM 106), CHM 201 or CHM 202

### CHM 104—Applied Chemistry 2

2 lect., 3 lab, 3 cr. (Spring)

Continuation of CHM 103. Topics include acid base chemistry, nuclear chemistry, organic chemistry with an emphasis on nomenclature, simple chemical reactions, boiling points/solubility in water, and organic functional families. Laboratory work emphasizes quantitative techniques. The use of periodicals is required. (G2A)

Prerequisite: CHM 103 or permission of department chair

### CHM 110—General and Biological Chemistry

3 cr. (Fall)

Fundamental concepts of inorganic, organic, and biological chemistry essential for a thorough understanding of principles and techniques in clinical dental hygiene and nutritional counseling.

Prerequisite: Either high school Regents Chemistry, CHM 100 (formerly CHM 120), or permission of department chair

### CHM 201—Organic Chemistry 1

3 lect., 3 lab, 4 cr. (Fall)

An integrated presentation of the chemistry of aliphatic compounds with special emphasis on structure, nomenclature, mechanism and stereo-chemistry. Spectroscopy will be introduced. Laboratory work includes basic characterization techniques, basic synthesis, and keeping a laboratory notebook. (G2A)

Prerequisite: C or better in CHM 102 (formerly CHM 106)

### CHM 202—Organic Chemistry 2

3 lect., 3 lab, 4 cr. (Spring)

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Continuation of CHM 201. Topics include IR spectroscopy, NMR spectroscopy, and a continuation with the reactions of aliphatic and aromatic compounds, heterocyclic compounds and biologically active compounds. Laboratory work involves use of modern techniques in the synthesis, separation and purification of organic compounds, and keeping a laboratory notebook. (G2A)

Prerequisite: CHM 201