

# CHEMISTRY (CHM)

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## CHM 101 - Introductory Chemistry

**Credit Hours: 4, Contact Hours: 5**

Division: Science Math

A one-semester chemistry course for the non-science major exploring the language, concepts and methods of chemistry. Topics include atomic theory, chemical periodicity, chemical bonding, stoichiometry, gases, nuclear energy, equilibrium, and acid/base chemistry. The laboratory will include descriptive and analytical experiments, focusing on measurement, physical and chemical properties of materials, acids and bases, laboratory procedures and calculations. Science, engineering, and premedical students must select CHM 150 and 151 to meet chemistry requirements. Consult with an advisor before enrolling. Group 1 lab course. Quantitative Reasoning.

Required Prerequisites: MTH 111 with a grade of 2.0 or better.

Recommended Prerequisites: ENG 111; the ability to work algebraic problems involving unknown variables, fractions, percents and proportions. Students enrolling in CHM 101 who have not completed these requirements should plan on additional study time.

Corequisites: CHM 101L

## CHM 101L - Introductory Chemistry Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See CHM 101 for course description.

Corequisites: CHM 101

## CHM 150 - General Chemistry I

**Credit Hours: 4, Contact Hours: 5**

Division: Science Math

First semester of a two-semester course covering matter and chemical measurement, basic laws, chemical symbols and formulas, stoichiometry and chemical calculations, gases and the gas laws, thermochemistry, atomic structure, electron configurations and the periodic table, elements, chemical bonding and molecular structure, intermolecular forces, liquids and solids. The laboratory includes descriptive and quantitative experiments illustrating the above topics. The recitation includes problem solving, quizzes, and laboratory preparation to accompany lectures. Group 1 lab course. Quantitative Reasoning.

Required Prerequisites: MTH 111 with a grade of 2.0 or better.

Recommended Prerequisites: MTH 121; ENG 111 with a grade of 2.0 or better

Corequisites: CHM 150L, CHM 150R

## CHM 150L - General Chemistry I Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See CHM 150 for course description.

Corequisites: CHM 150, CHM 150R

## CHM 150R - General Chemistry I, Recitatin

**Credit Hours: 1, Contact Hours: 2**

Division: Science Math

Problem solving quizzes and laboratory preparation to accompany lectures. Group 1 course.

Required Prerequisites: MTH 111 with a grade of 2.0 or better

Recommended Prerequisites: ENG 111 with a grade of 2.0 or better; MTH 121

Corequisites: CHM 150, CHM 150L

## CHM 151 - General Chemistry II

**Credit Hours: 4, Contact Hours: 5**

Division: Science Math

A second semester course covering chemical reactions in aqueous solution including acid-base and oxidation and reduction reactions, properties of solutions, chemical kinetics, gaseous equilibria, acids and bases, acid-base equilibria, pH, common ion effect, buffer systems, solubility product constant, thermodynamics, enthalpy, entropy, and free energy, electrochemistry, and nuclear chemistry. The laboratory will cover the above topics using quantitative and qualitative procedures. The recitation involves problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 lab course. Quantitative Reasoning. Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better.

Recommended Prerequisites: ENG 111 with a grade of 2.0 or better

Corequisites: CHM 151L, CHM 151R

## CHM 151L - General Chemistry II Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See CHM 151 for course description.

Corequisites: CHM 151, CHM 151R

## CHM 151R - General Chemistry II Recitatin

**Credit Hours: 1, Contact Hours: 2**

Division: Science Math

Problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 course.

Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better.

Recommended Prerequisites: ENG 111 with a grade of 2.0 or better

Corequisites: CHM 151, CHM 151L

## CHM 201 - Intro to Organic Chemistry

**Credit Hours: 4, Contact Hours: 5**

Division: Science Math

An introduction to organic chemistry. Topics include the classes of organic compounds, reactions, synthesis, and mechanisms. Includes laboratory. NOTE: This course is a one semester course and is not appropriate for all majors. Please check with an advisor prior to registration. Group 1 lab course. Quantitative Reasoning.

Required Prerequisites: CHM 101 or CHM 150 and MTH 111, all with a grade of 2.0 or better.

Recommended Prerequisites: ENG 111

Corequisites: CHM 201L

## CHM 201L - Intro to Organic Chemistry Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See CHM 201 for course description. Quantitative Reasoning.

Corequisites: CHM 201

**CHM 250 - Organic Chemistry I**

**Credit Hours: 5, Contact Hours: 9**

Division: Science Math

The first semester of a two-semester course covering the chemistry of carbon compounds. Designed to meet the requirements for majors in chemistry, chemical engineering, biological science, pre-medicine, etc. Topics include nomenclature, structure, aliphatic compounds, free-radical, nucleophilic substitution and elimination reactions, electrophilic addition reaction and mechanisms, alkyl halides, alkenes, alkynes and alcohols. The laboratory portion will cover fundamental organic laboratory techniques of synthesis, separation and analysis. Group 1 lab course. Quantitative Reasoning.

Required Prerequisites: CHM 151, CHM 151L, CHM 151R, MTH 111, all with a grade of 2.0 or better.

Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.

Corequisites: CHM 250L

**CHM 250L - Organic Chemistry I Lab**

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See CHM 250 for course description.

Corequisites: CHM 250

**CHM 251 - Organic Chemistry II**

**Credit Hours: 5, Contact Hours: 9**

Division: Science Math

A follow-up to CHM 250. Topics include alcohols, aromatics, ethers and epoxides, arenes, carbonyls, carboxylic and sulfonic acids and their derivatives, amines, phenols, aryl halides, carbohydrates, amino acids, biochemical processes, and others together with appropriate mechanistic theories and structural concepts. Instrumental techniques discussed include infrared spectroscopy (IR), nuclear magnetic resonance (NMR), mass spectrometry (MS), and ultraviolet (UV) spectroscopy. The lab exercises will continue the development of organic chemistry laboratory technique on both semi-microscale and microscale. In addition, analytical techniques using infrared spectroscopy and gas chromatography will be developed. Group 1 lab course. Quantitative Reasoning.

Required Prerequisites: CHM 250, CHM 250L, MTH 111, all with a grade of 2.0 or better.

Recommended Prerequisites: ENG 111 with a grade on 2.0 or better.

Corequisites: CHM 251L

**CHM 251L - Organic Chemistry II Lab**

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See CHM 251 for course description.

Corequisites: CHM 251