Chemistry Minor

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Available to all baccalaureate majors, this minor is intended for students who wish to incorporate a study of chemistry into their academic background. The chemistry minor consists of 22 credit hours of five chemistry courses (CHM prefix). Chemistry minors must complete the required courses with a grade of B or better in each course. There is also a residency requirement at Farmingdale State College for the organic chemistry sequence and biochemistry.

About Academic Minors

Farmingdale State College students are invited to enhance their studies with an "Academic Minor." A minor is a cluster of thematically related courses drawn from one or more departments. In addition to department based minors (e.g. computer programming & info systems), interdisciplinary minors are also available (e.g. legal studies).

Academic minors are approved by the College-Wide Curriculum Committee and the Provost. Students must make application for an academic minor through the department offering the minor in conjunction with the Registrar's Office. Specific course work must be determined in consultation with a faculty member in the department offering the minor. A statement of successful completion of the academic minor will appear on the student's transcript at the time of graduation.

• A minor is considered to be an optional supplement to a student's major program of study.
• Completion of a minor is not a graduation requirement and is subject to the availability of the courses selected. However, if the requirements for a minor are not completed prior to certification of graduation in the major, it will be assumed that the minor has been dropped. Consequently, the student will only be certified for graduation in their primary major.
• Only students in 4 year baccalaureate programs can apply for a minor.
• A minor should consist of 15 to 21 credits, with the exception of the Chemistry and Air Force ROTC minors which require 22 credits.
• At least 12 credits must be in courses at the 200 level or higher.
• At least 9 credits must be residency credits.
• Specific requirements for each minor are determined by the department granting the minor. Each minor and criteria are described in the Academic Minors Information Guide.
• Students must maintain a minimum cumulative GPA of at least 2.0 in their minor. Some minors may require a higher GPA.
• Students are prohibited from declaring a minor in the same discipline as their major (e.g. one cannot combine an applied math minor with an applied math major). Academic minors may not apply to all curricula.
• Students are permitted to double-count minor courses with liberal arts courses, general education courses and free electives but can only double-count up to 6 credits of required major coursework toward the minor.
• Students are only permitted to take more than one minor with appropriate written approval of their Department Chair or School Dean.

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Chemistry minors must complete the following courses with a grade of B or better in each course:

- CHM 152 General Chemistry Principles I 4
- CHM 153 General Chemistry Principles II 4
- CHM 270 Organic Chemistry I 5
- CHM 271 Organic Chemistry II 5
- CHM 380 Biochemistry 4

Total Required Credits: 22

The organic chemistry sequence and biochemistry must be taken in residence at Farmingdale State College.

Course Descriptions

**CHM 152 General Chemistry Principles I**
The first part of a two semester sequence in General Chemistry Principles with laboratory. This course covers the qualitative and quantitative aspects of scientific measurement, the nature of matter, gases, liquids and solids, energy, atomic theory, properties of elements, chemical bonding, molecular structure and properties, stoichiometry, thermochemistry and solutions. Note: the laboratory course CHM 152L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): (MP3, RMAT, RMTB, or MTH 116) and (Regents Chemistry or an equivalent High School Chemistry with Laboratory or CHM 124) Credits: 4

**CHM 153 General Chemistry Principles II**
A continuation of General Chemistry Principles I, which includes laboratory. Topics include: solutions and their colligative properties, acids and bases, chemical equilibrium, ionic equilibrium, pH, buffers, titration curves, oxidation and reduction balancing, electrochemistry, chemical kinetics, the covalent bond and the shape of molecules. Note: the laboratory course CHM 153L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): CHM 152 Credit: 4

**CHM 270 Organic Chemistry I**
A study of the compounds of carbon involving a thorough integration of observation and theory and emphasizing the relationships between structures, properties, mechanisms and reactions. This course, intended for science and pre-professional majors, covers topics such as bonding and structure, alkanes, alkenes, alkynes, cycloaliphatic hydrocarbons, stereochemistry, dienes, benzene, electrophilic aromatic substitution, arenes, spectroscopy and structure determination. Note: the laboratory course CHM 270L is a part of your grade for this course. Attendance in the laboratory course is required.
Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): CHM 153 Credits: 5

**CHM 271 Organic Chemistry II**
A continuation of CHM 270. Topics covered include: alkyl and aryl halides, alcohols and phenols, ethers and epoxides, carboxylic acids, esters, anhydrides, aldehydes, ketones, amines, amino acids, carbohydrates, heterocycles and polymers. Note: the laboratory course CHM 271L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): CHM 270 Credits: 5

**CHM 380 Biochemistry**
A one semester course covering the fundamentals of biochemistry. Topics covered include: the structure and function of important biomolecules such as carbohydrates lipids, amino acids, proteins and nucleic acids; enzyme kinetics and the use of cofactors and coenzymes; and metabolic pathways including glycolysis, TCA, electron transport system, fatty acid and amino acid pathways. Laboratory work includes current biochemical laboratory techniques such as chromatography and electrophoresis, application of specific topics described above, and analysis of data from laboratory experiments. Note: the laboratory course CHM 380L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): CHM 260 or CHM 271 Credits: 4

Admission to Farmingdale State College - State University of New York is based on the qualifications of the applicant without regard to age, sex, marital or military status, race, color, creed, religion, national origin, disability or sexual orientation.