

# CHEMISTRY MINOR

## Requirements

The requirements for the Chemistry minor for students majoring in **Biological Sciences, Natural Science, or Environmental Science** are as follows:

Course	Title	Credits
CHEM 2521	Organic Chemistry I	4
CHEM 2541	Organic Chemistry Lab I	2
CHEM 2511	Organic Chemistry I Recitation	0
CHEM 2522	Organic Chemistry II	4
CHEM 2542	Organic Chemistry Lab II	2
CHEM 2512	Organic Chemistry II Recitation	0

Select four additional courses with the subject code CHEM at the 3000- or 4000-level

The requirements for the Chemistry minor for **all other students** are as follows:

Course	Title	Credits
CHEM 1321	General Chemistry I	4
CHEM 1331	General Chemistry Lab I	2
CHEM 1311	General Chemistry I Recitation	0
CHEM 1322	General Chemistry II	4
CHEM 1332	General Chemistry Lab II	2
CHEM 1312	General Chemistry II Recitation	0
CHEM 2521	Organic Chemistry I	4
CHEM 2541	Organic Chemistry Lab I	2
CHEM 2511	Organic Chemistry I Recitation	0
CHEM 2522	Organic Chemistry II	4
CHEM 2542	Organic Chemistry Lab II	2
CHEM 2512	Organic Chemistry II Recitation	0

Select two additional courses with the subject code CHEM at the 3000- or 4000-level

For all CHEM foundation courses (i.e. General Chemistry through Organic Chemistry, including labs), a minimum grade of C- (in both lecture and lab) is required, both in order to enroll in the next course in the sequence, and for the course to apply towards the major.

## Learning Goals

Our American Chemical Society certified curriculum provides students with the necessary skill-sets, and prepares them for a range of STEM-related careers. The breadth and depth of courses, and research opportunities offered will prepare students for their applications to top-tier professional schools, including medical schools, graduate school programs, or to entry-level industrial positions. Students will learn how to apply their acquired knowledge in chemistry to a wide range of areas in a variety of chemistry related fields.

This preparation takes the form of the following learning goals:

- 1. Students will gain knowledge and proficiency in the core concepts of Chemistry.** Students will understand the fundamental basis for the structure and reactivity of atoms, molecules and non-molecular

solids. Our curriculum will introduce students to all the branches of chemistry: Organic, Inorganic, Physical, Analytical and Biochemistry.

- 2. Students will acquire problem-solving and critical-thinking skills that will prepare them to work independently on research questions by drawing upon experimental, theoretical, and computational evidence.** Students will apply research methods, for design, data analysis, and interpretation. This is achieved through pedagogically engaging, discovery-based laboratory courses as well as research courses (offered in all 4 years of study) in which the students work directly with individual faculty.
- 3. Students will learn to utilize chemical knowledge learned in their course work to real world applications in pharmacology, medicine and the environment.**
- 4. Students will receive hands-on training with operating and interpreting data from high-tech analytical instrumentation.** The opportunities for hands-on experience on the department's bevy of modern instrumentation, either via independent research or within the framework of laboratory courses, will prepare students for scientific future careers.
- 5. Students will gain experience in the computational methods of chemistry, ranging from ab initio calculations of electronic structure to molecular dynamics simulations, and learn how these complement experimental data.** Our curriculum will initiate students to "computational thinking," including chemical and materials informatics, applications of data science to chemistry, and first-principles simulation methods.
- 6. Students will acquire scientific literacy skills, particularly reading, writing, and presenting scientific communications.** Through classwork and presentations at regional and national conferences, students will be prepared to communicate research findings to chemist and non-chemist audiences. Students will learn to utilize library resources and critically read scientific literature. Students will also have the opportunity to hone their writing skills through research grant applications and writing initial drafts of peer-reviewed publications.
- 7. Students will be able to work safely in a laboratory setting and have hands-on experience with common laboratory equipment and glassware in organic, analytical, biochemistry, inorganic, and physical chemistry laboratories.** As a graduate of the chemistry department, students will be ready to safely work in industrial and academic research settings.

## Availability

The minor in Chemistry is available at Fordham College at Rose Hill. Students in Fordham's School of Professional and Continuing Studies may minor in Chemistry only if they receive the approval of their advising dean and/or department, and if their schedules are sufficiently flexible to permit them to take day courses at the Rose Hill campus.