CHEMISTRY (COURSE 5)

Department of Chemistry (http://catalog.mit.edu/schools/science/chemistry/#undergraduatetext)

Bachelor of Science in Chemistry (Flexible Option)

General Institute Requirements (GIRs)
The General Institute Requirements include a Communication Requirement that is integrated into both the HASS Requirement and the requirements of each major; see details below.

Summary of Subject Requirements

- Science Requirement: 6 subjects
- Humanities, Arts, and Social Sciences (HASS): 8 subjects
- Restricted Electives in Science and Technology (REST): 2 subjects
- Laboratory Requirement: 12 units

Total GIR Subjects Required for SB Degree: 17

Physical Education Requirement
Swimming requirement, plus four physical education courses for eight points.

Departmental Program
Choose at least two subjects in the major that are designated as communication-intensive (CI-M) to fulfill the Communication Requirement.

Required Subjects

- 5.03 Principles of Inorganic Chemistry I, 12 units
- 5.07[J] Introduction to Biological Chemistry, 12 units
- 5.12 Organic Chemistry I, 12 units
- 5.601 Thermodynamics I, 6 units
- 5.611 Introduction to Spectroscopy, 6 units

Select 24 units of the following:

- 5.04 Principles of Inorganic Chemistry II, 12 units
- 5.08[J] Fundamentals of Chemical Biology, 12 units
- 5.13 Organic Chemistry II, 12 units
- 5.43 Advanced Organic Chemistry, 6 units
- 5.602 Thermodynamics II and Kinetics, 6 units
- 5.612 Electronic Structure of Molecules, 6 units

5.62 Physical Chemistry

Elective Focus
Select a minimum of 36 units of coursework forming an intellectually coherent unit in some area, subject to the approval of the department.

Departmental Laboratory Requirement

- 5.351 Fundamentals of Spectroscopy, 4 units
- 5.352 Synthesis of Coordination Compounds and Kinetics (CI-M), 5 units
- 5.353 Macromolecular Prodrugs, 4 units
- 5.361 Expression and Purification of Enzyme Mutants, 4 units

Choose one of the following options:

Option 1
Select at least 20 units from the list of Laboratory Restricted Electives.

Option 2

- 5.39 Research and Communication in Chemistry (CI-M)

Option 3
A set of laboratory subjects of similar extent, subject to the approval of the department.

Units in Major: 145
Unrestricted Electives: 59-71
Units in Major That Also Satisfy the GIRs: (24-36)

Total Units Beyond the GIRs Required for SB Degree: 180

The units for any subject that counts as one of the 17 GIR subjects cannot also be counted as units required beyond the GIRs.

1. With approval by the faculty advisor, subjects outside the Department of Chemistry may be used.

2. Laboratory Restricted Electives cannot be double-counted within the program.

3. Before enrolling in 5.39, students must have completed an approved 12-unit UROP or non-credit research experience.

Laboratory Restricted Electives

- 5.362 Kinetics of Enzyme Inhibition (CI-M), 5 units
- 5.363 Organic Structure Determination, 4 units
- 5.371 Continuous Flow Chemistry: Sustainable Conversion of Reclaimed Vegetable Oil into Biodiesel, 4 units
- 5.372 Chemistry of Renewable Energy, 4 units
- 5.373 Dinitrogen Cleavage, 4 units
- 5.381 Quantum Dots, 4 units
- 5.382 Time- and Frequency-resolved Spectroscopy of Photosynthesis (CI-M), 5 units
| 5.383 | Fast-flow Peptide and Protein Synthesis | 4 |