

## 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	Subjects
Science Requirement	6
Humanities, Arts, and Social Sciences (HASS) Requirement; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.	8
Restricted Electives in Science and Technology (REST) Requirement [two subjects can be satisfied by 5.07[J] (if taken under joint number 20.507[J]) and 5.12 in the Departmental Program]	2
Laboratory Requirement (12 units) [can be satisfied from among 5.351, 5.352, 5.353, and 5.363 in the Departmental Program]	1
<b>Total GIR Subjects Required for SB Degree</b>	<b>17</b>

#### 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	Units
5.03 Principles of Inorganic Chemistry I	12
5.07[J] Introduction to Biological Chemistry	12
5.12 Organic Chemistry I	12
5.601 Thermodynamics I	6
5.611 Introduction to Spectroscopy	6
<i>Select 24 units of the following:</i>	<b>24</b>
5.04 Principles of Inorganic Chemistry II	
5.08[J] Fundamentals of Chemical Biology	
5.13 Organic Chemistry II	
5.43 Advanced Organic Chemistry	
5.602 Thermodynamics II and Kinetics	
5.612 Electronic Structure of Molecules	

5.62 Physical Chemistry	
<b>Elective Focus</b>	
Select a minimum of 36 units of coursework forming an intellectually coherent unit in some area, subject to the approval of the department <sup>1</sup>	36
<b>Departmental Laboratory Requirement</b>	
5.351 Fundamentals of Spectroscopy	4
5.352 Synthesis of Coordination Compounds and Kinetics (CI-M)	5
5.353 Macromolecular Prodrugs	4
5.361 Expression and Purification of Enzyme Mutants	4
<i>Choose one of the following options:</i>	<b>20</b>
Option 1	
Select at least 20 units from the list of Laboratory Restricted Electives <sup>2</sup>	
Option 2	
5.39 Research and Communication in Chemistry (CI-M) <sup>3</sup>	
Option 3	
A set of laboratory subjects of similar extent, subject to the approval of the department	
<b>Units in Major</b>	<b>145</b>
<b>Unrestricted Electives</b>	<b>59-71</b>
Units in Major That Also Satisfy the GIRs	(24-36)
<b>Total Units Beyond the GIRs Required for SB Degree</b>	<b>180</b>

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

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

<sup>2</sup> Laboratory Restricted Electives cannot be double-counted within the program.

<sup>3</sup> 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
5.363 Organic Structure Determination	4
5.371 Continuous Flow Chemistry: Sustainable Conversion of Reclaimed Vegetable Oil into Biodiesel	4
5.372 Chemistry of Renewable Energy	4
5.373 Dinitrogen Cleavage	4
5.381 Quantum Dots	4
5.382 Time- and Frequency-resolved Spectroscopy of Photosynthesis (CI-M)	5

5.383	Fast-flow Peptide and Protein Synthesis	4
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