Chemistry and Biology (Course 5-7)

Chemistry and Biology

Bachelor of Science in Chemistry and Biology

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 [can be satisfied by 5.12 and 7.03 in the Departmental Program]	2
Laboratory Requirement (12 units) [can be satisfied by 7.003[J] or the combination of 5.351, 5.352, and 5.353 in the Departmental Program]	1
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		Units
5.03	Principles of Inorganic Chemistry I	12
5.07[J]	Introduction to Biological Chemistry	12
or 7.05	General Biochemistry	
5.08[J]	Fundamentals of Chemical Biology	12
5.12	Organic Chemistry I	12
5.13	Organic Chemistry II	12
5.601	Thermodynamics I	6
5.611	Introduction to Spectroscopy	6
7.03	Genetics	12
7.06	Cell Biology	12
Departmental Laborato	ry Requirement	
5.351	Fundamentals of Spectroscopy	4
5.352	Synthesis of Coordination Compounds and Kinetics (CI-M)	5
5.353	Macromolecular Prodrugs	4
7.002	Fundamentals of Experimental Molecular Biology	6
Select one of the following	ng options:	9-12
Option 1		
5.361	Recombinant DNA Technology	
5.362	Cancer Drug Efficacy (CI-M)	
Option 2		
7.003[J]	Applied Molecular Biology Laboratory (CI-M)	
Restricted Electives		
Select 30 units of the fol	lowing:	30
5.04	Principles of Inorganic Chemistry II	
5.363	Organic Structure Determination	
5.371	Continuous Flow Chemistry: Sustainable Conversion of Reclaimed Vegetable Oil into Biodiesel	
5.372	Chemistry of Renewable Energy	
5.373	Dinitrogen Cleavage	
5.381	Quantum Dots	
5.382	Time- and Frequency-resolved Spectroscopy of Photosynthesis	
5.383	Fast-flow Peptide and Protein Synthesis	
5.39	Research and Communication in Chemistry	
5.43	Advanced Organic Chemistry	

Total Units Beyond the GIRs Required for SB Degree		
Units in Major That Also Satisfy the GIRs		(36)
Units in Major		154-157
Unrestricted Elective	S	59-62
7.49[J]	Developmental Neurobiology	
7.46	Building with Cells	
7.45	The Hallmarks of Cancer	
7.371	Biological and Engineering Principles Underlying Novel Biotherapeutics	
7.33[J]	Evolutionary Biology: Concepts, Models and Computation	
7.32	Systems Biology ¹	
7.31	Current Topics in Mammalian Biology: Medical Implications	
7.30[J]	Fundamentals of Ecology	
7.29[J]	Cellular and Molecular Neurobiology	
7.28	Molecular Biology	
7.27	Principles of Human Disease and Aging	
7.26	Molecular Basis of Infectious Disease	
7.23[J]	Immunology	
7.21	Microbial Physiology	
7.20[J]	Human Physiology	
7.19	Communication in Experimental Biology (CI-M)	
7.094	Modern Computational Biology	
7.093	Modern Biostatistics	
5.62	Physical Chemistry	
5.612	Electronic Structure of Molecules	
5.602	Thermodynamics II and Kinetics	

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

⁷ Subject has prerequisites that are outside of the program.