

## CHEMICAL-BIOLOGICAL ENGINEERING (COURSE 10-B)

Department of Chemical Engineering (<http://catalog.mit.edu/schools/engineering/chemical-engineering/#undergraduatetext>)

### Bachelor of Science in Chemical-Biological Engineering

#### 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 from among 5.07[] or 7.05, 5.12, 7.03, 10.301, and 18.03 in the Departmental Program]	2
Laboratory Requirement (12 units) [can be satisfied by 10.7003[] 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
<b>Foundational Subjects</b>	
5.12 Organic Chemistry I	12
5.601 Thermodynamics I	6
7.002 Fundamentals of Experimental Molecular Biology	6
7.03 Genetics	12
10.10 Introduction to Chemical Engineering	12
10.7003[] Applied Molecular Biology Laboratory (CI-M)	12
18.03 Differential Equations <sup>1</sup>	12
<b>Intermediate Subjects</b>	
7.05 General Biochemistry	12
or 5.07[] Introduction to Biological Chemistry	

7.06 Cell Biology	12
10.213 Chemical and Biological Engineering Thermodynamics	12
10.301 Fluid Mechanics	12
10.302 Transport Processes	12
<i>Select one of the following:</i>	15
10.27 Energy Engineering Projects Laboratory (CI-M)	
10.28 Chemical-Biological Engineering Laboratory (CI-M)	
10.29 Biological Engineering Projects Laboratory (CI-M)	

#### Advanced Subjects

10.37 Chemical Kinetics and Reactor Design	12
10.490 Integrated Chemical Engineering	9
<i>Select one of the following:</i>	6

10.492A Integrated Chemical Engineering Topics I	
10.492B Integrated Chemical Engineering Topics I	
10.493 Integrated Chemical Engineering Topics II	
10.494A Integrated Chemical Engineering Topics III	
10.494B Integrated Chemical Engineering Topics III	

#### Restricted Elective

One subject of at least 6 units in Chemical Engineering <sup>2</sup>	6
--	---

**Units in Major** **180**

**Unrestricted Electives** **48**

Units in Major That Also Satisfy the GIRs (36)

**Total Units Beyond the GIRs Required for SB Degree** **192**

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> 18.032 Differential Equations is also an acceptable option.

<sup>2</sup> May be satisfied with a second term of 10.492A, 10.492B, 10.493, 10.494A or 10.494B; or a second term of 10.490 (with permission of instructor). Graduate subjects may not be used as restricted electives. In addition, the following undergraduate subjects may not be used as restricted electives: 10.04, 10.792[] 10.806, 10.910, 10.911, 10.UR, 10.URG, and 10.THU.