

BIOLOGY

Course 7

Department Contact

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Description

Biologists study organisms and the systems and processes that permit life. A biology major provides students with an understanding of the fundamental principles of life as well as the prevailing and emerging approaches to Biology, with particular emphasis on Molecular and Cellular Biology. The major is research-intensive in both coursework and labs. Individuals majoring in biology may work in industries such as health care, drug development, law, science policy, scientific writing, and government. It also provides a strong background for graduate or medical school.

Inside [Course 7](#)

7	Biology	Undergraduates: 57
5-7	Chemistry and Biology	Undergraduates: 44
6-7	Computer Science and Molecular Biology	Undergraduates: 77

Introductory Classes

7.012 **Introductory Biology**

Introduction to fundamental principles of biochemistry, molecular biology and genetics for understanding the functions of living systems. Other core topics include ‘reading’ the language of life through understanding information flow from DNA to RNA to protein, recombinant DNA technology, fundamental cell biology, and evolution. This particular course emphasizes human genetics and biochemistry. Enrollment is limited to the seating capacity of the classroom.

7.014 **Introductory Biology**

Introduction to fundamental principles of biochemistry, molecular biology and genetics for understanding the functions of living systems. Other core topics include ‘reading’ the language of life through understanding information flow from DNA to RNA to protein, recombinant DNA technology, fundamental cell biology, and evolution. This particular course emphasizes understanding the Earth as a dynamic system shaped by life. Includes quantitative analysis of population growth, community structure, natural selection, phylogenetics, and molecular evolution; highlights their role in shaping the biosphere. Enrollment is limited to the seating capacity of the classroom.

BIOLOGY

Course 7

7.015 **Introductory Biology**

Introduction to fundamental principles of biochemistry, molecular biology and genetics for understanding the functions of living systems. Other core topics include ‘reading’ the language of life through understanding information flow from DNA to RNA to protein, recombinant DNA technology, fundamental cell biology, and evolution. This particular course emphasizes the application of fundamental biological principles to modern, trending topics in biology. Specific modules focus on antibiotic resistance, the microbiome, biotechnology (e.g., genetically-modified organisms and CRISPR- based genome editing), personal genetics and genomics, neurodegenerative diseases, and metabolism (the science behind making wine, cheese, and natural product drugs). Includes discussion of the social and ethical issues surrounding modern biology. Enrollment is limited to the seating capacity of the classroom.

7.016 **Introductory Biology**

Introduction to fundamental principles of biochemistry, molecular biology and genetics for understanding the functions of living systems. Other core topics include ‘reading’ the language of life through understanding information flow from DNA to RNA to protein, recombinant DNA technology, fundamental cell biology, and evolution. This particular course emphasizes the role of genetics in biological discovery, developmental biology, and neurobiology.

Course 7-Friendly UROP Areas

- Koch Biology Building (Building 68)
- Koch Institute for Integrative Cancer Research at MIT
- Broad Institute
- Health Sciences and Technology (HST)
- McGovern Institute for Brain Research Picower Institute (PILM)
- Whitehead Institute for Biomedical Research
- Ragon Institute

Get Involved with Course 7

- Biology Undergraduate Students Association (bexec@mit.edu)
- [MIT Biotechnology Group](#)
- MIT Microbiome Club – <https://microbiome.mit.edu/for-students/microbiome-club/>
- The BioMakers group – <https://biomakers.mit.edu/>

Skills

- Using scientific rules and methods to make discoveries and solve problems.
- Strong writing skills and translating technical information

BIOLOGY

Course 7

- Safe handling of chemical materials and equipment
- Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Possible Future Jobs

- **Biological technician:** Prepare samples for analysis by biologists or medical scientists, conduct experiments for scientists, and maintain laboratory equipment.
- **Microbiologist:** Conduct research projects to study how microorganisms affect the environment and other life forms, prepare reports and present research findings.
- **Environmental scientist:** Develop research projects and investigations to fix or prevent environmental concerns such as pollution.

Career Industry Examples

Agriculture	Consulting	Genetics
Biotechnology	Counseling	Healthcare
Computer software	Environmental science	Medicine
Conservation	Food Science	Pharmaceuticals

Sample Employers

Amgen	Boston Scientific	Massachusetts General Hospital
Athenahealth	Broad Institute	McKinsey & Company
Boston Children's Hospital	Motif FoodWorks	QLD Biotherapeutics