

BIOLOGY

COURSE 7

CONTACT

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DESCRIPTION

Biologists study organisms and the systems and processes that permit life. A biology major takes an extensive look at the biological world, including ecology, evolutionary systems, genetics, molecular and cellular biology, immunology, developmental biology and neurobiology, and 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.

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7	Biology	Undergraduates: 58
5-7	Chemistry and Biology	Undergraduates: 18
6-7	Computer Science and Molecular Biology	Undergraduates: 32

INTRODUCTORY CLASSES

- 7.12 **Introductory Biology**
Exploration into areas of current research in molecular and cell biology, immunology, neurobiology, human genetics, biochemistry, and evolution. Enrollment limited to seating capacity of classroom..
- 7.14 **Introductory Biology**
Studies the fundamental principles of biology and their application towards understanding the Earth as a dynamical system shaped by life. Focuses on molecular ecology in order to show how processes at the molecular level can illuminate macroscopic properties, including evolution and maintenance of biogeochemical cycles, and ecological interactions in ecosystems ranging from the ocean to the human gut. Includes quantitative analysis of population growth, community structure, competition, mutualism and predation; highlights their role in shaping the biosphere. Enrollment limited to seating capacity of classroom.
- 7.15 **Introductory Biology**
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.

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7.16 **Introductory Biology**

Introduction to fundamental principles of biochemistry, molecular biology and genetics for understanding the functions of living systems. Covers examples of the use of chemical biology, the use of genetics in biological discovery, principles of cellular organization and communication, immunology, cancer, and engineering biological systems. In addition, includes 21st-century molecular genetics in understanding human health and therapeutic intervention.

COURSE 7-FRIENDLY UROP AREAS

Broad Institute

Health Sciences and Technology (HST)

McGovern Institute for Brain Research

Picower Institute (PILM)

Whitehead Institute for Biomedical Research

GET INVOLVED WITH COURSE 7

[Biology Undergraduate Students Association](#)

The BioMakers group

[MIT Biotechnology Group](#)

Undergraduate Biochemistry Association

MIT Microbiome Club

SKILLS

Using scientific rules and methods to solve problems.

Strong report-writing skills and translating technical information

Safe handling of chemical materials and equipment

Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

POSSIBLE FUTURE POSITIONS

- **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

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SAMPLE EMPLOYERS

Amgen

Athenahealth

Boston Children's Hospital

Boston Scientific

Broad Institute

Motif FoodWorks

Massachusetts General Hospital

McKinsey & Company

QLD Biotherapeutics