Biology is one of the most important disciplines today, with research at the frontiers of biotechnology, medicine and engineering. A degree in Biology is an excellent entry point into many professions. The Biology undergraduate program offers a wide range of courses, an emphasis on lab research, and two degree options. In addition, and new for 2007-2008, the Biology Department will offer a series of recommended tracks that allow a student to gain depth and breadth in a particular area.

The Department of Biology houses more than 60 research groups located in the Koch Biology Building, the Center for Cancer Research, the Whitehead Institute for Biomedical Research, the Picower Institute for Learning and Memory, the McGovern Institute for Brain Research and the Broad Institute. The present Biology Department faculty includes four Nobel laureates and 26 members of the prestigious National Academy of Sciences.

Research programs in the Department include:

- Biochemistry
- Biophysics
- Bioengineering
- Cancer
- Genetics
- Developmental Biology
- Cell Biology
- The Human Genome
- Immunology
- Microbiology
- Neurobiology
- Plant Molecular Genetics
- Protein Engineering
- Computational and Systems Biology
- Protein Structure and Drug Design
- Stem Cells
- Cloning
- Virology

These studies use theoretical and computational approaches as well as experimental model systems including human, mouse, frog, fish, fruit fly, worm, plant, yeast, bacteria and in vitro cell culture.

Biology Department undergraduates benefit from these broad research areas through an extensive course curriculum that leads to sophisticated understanding of fundamental principles and current approaches to Biology. Emphasis is given to Molecular and Cell Biology. All Course VII majors participate in laboratory research, with focus on experimental design, data evaluation and scientific presentation. Many research opportunities are provided.

This training provides excellent preparation for careers in the biomedical and many other professions, particularly research in academia or industry, medicine, management or finance in the pharmaceutical and biotech industries, intellectual property law, high school- or college-level teaching, forensics and bioethics.

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Biology
Undergraduate Study
2007-2008
Program Requirements

Biology Undergraduate Course Offerings 2007-2008

Required Lecture Courses:

7.012	Fall	Introductory Biology
7.013	Spring	Introductory Biology
7.014*	Spring	Introductory Biology
7.015	Spring	Introductory Biology
7.03	Fall	Genetics
7.05	Spring	General Biochemistry
7.06	Fall/Spring	Cell Biology

Laboratory Courses:

7.02	Fall/Spring	Introduction to Experimental Biology and Communication
7.13	Fall	Experimental Microbial Genetics
7.17	Spring	Experimental Molecular Biology: Biotechnology
7.18	Fall/Spring	Topics in Experimental Biology

Biology Restricted Electives:

7.08J	Spring	Biological Chemistry II
7.20J*	Fall	Human Physiology
7.21	Fall	Microbial Physiology
7.22	Fall	Development and Evolution
7.23	Spring	General Immunology
7.24	Fall	The Protein Folding Problem
7.25	Spring	Biological Regulatory Mechanisms
7.27	Spring	Principles of Human Disesase
7.28	Spring	Molecular Biology
7.29J	Spring	Cellular Neurobiology
7.30J	Fall	Ecology I: The Earth System
7.31	Fall	Current Topics in Mammalian Biology: Medical Implications
7.35	Fall	Topics in Metabolic Biochemistry
7.36	Spring	Foundations of Computational and Systems Biology
7.37J	Spring	Molecular and Engineering Aspects of Biotechnology

Additional Biology Courses:

7.19	Fall/Spring	Communication in Experimental Biology
7.34X	Fall/Spring	Advanced Undergraduate Seminars
7.38J	Spring	Introduction to Bioengineering
7.40J	Spring	Biotechnology: Engineering of Macromolecules

Not offered 2007-2008

Undergraduate Research in Biology

Participating in cutting-edge research is a vital component of the MIT Biology education. The Biology UROP and Mentoring Program (BUMP) promotes success in UROP projects by providing training for students and by enhancing interaction between mentors and students. Students participate in the annual Undergraduate Research Symposium. For more information on the BUMP, visit the website at http://mit.edu/biology/bump.

Cambridge-MIT Exchange Program

The junior year can be a wonderful time for a student to study abroad, and to experience a different culture and educational style. The Biology Department participates in the CME Junior year study abroad program at the University of Cambridge. Department guidelines are on the website at: http://web.mit.edu/biology/www/undergrad/CMEexchange.html.

Advising in the Biology Department

Each Biology student meets with his/her faculty advisor at least twice per semester, once on Registration Day and again at mid-term. These meetings allow discussion of academic progress and provide excellent mentoring opportunities. Students are encouraged to set up additional meetings. Students are able to change advisors, and are invited to provide feedback to the Department.

Biology Undergraduate Student Association (BUSA)

The Biology Undergraduate Student Association (BUSA) is open to all Biology majors and students who are interested in Biology. BUSA organizes student events, the Departmental Tutoring Program and the Big Sib/Li'l Sib Program where students in different years help each other. For more information visit the website at: http://mit.edu/busa.

The Biology Curriculum

leading to a Bachelor of Science degree in Biology (Course VII or VII-A) or to a minor in Biology includes the General Institute Requirements, as well as the specific subjects listed. The degree program allows students to take graduate level courses in Biology, to explore relevant classes in other departments and to perform significant research through the Undergraduate Research Opportunities Program (UROP).

SB in Biology/Course VII Program

Required lecture subjects:

7.012 or 7.013 or 7.014 or 7.015	Introductory Biology
7.03	Genetics
7.05 or 5.07	General Biochemistry
7.06	Cell Biology
5.111 or 5.112 or 3.091	Introductory Chemistry
5.12	Organic Chemistry
5.60 or 20.110J	Thermodynamics

(2.005, 3.012, 8.044, or 10.213 will also substitute for 5.60)

Required restricted electives:

Three restricted electives from the following courses are required: 7.08J, 7.20J, 7.21, 7.22, 7.23, 7.24, 7.25, 7.27, 7.28, 7.29J, 7.30J, 7.31, 7.35, 7.36, 7.37J.

Required laboratory subjects:

7.02	Introduction to Experimental Biology and Communication (10.702 or 20.109 will substitute)
	and one of the following Project Labs:
7.13	Experimental Microbial Genetics
7.17	Experimental Molecular Biology: Biotechnology III
7.18	Topics in Experimental Biology

SB in Biology/Course VII-A Program

The VII-A program provides flexibility for students wishing to include extensive course work from other Departments. The VII-A curriculum is identical to the Course VII curriculum except that it does not require Project Laboratory and the corresponding credit can be taken from any Institute subjects.

Minor in Biology Program

5.12	Organic Chemistry
7.03	Genetics
7.05	Biochemistry

and two additional subjects from the following: 7.02/10.702 or 20.109; 7.06, 7.08J, 7.20J, 7.21, 7.22, 7.23, 7.24, 7.25, 7.27, 7.28, 7.29J, 7.31, 7.35, 7.36, 7.37J

(See Course Offerings for course titles corresponding to these numbers)

CI-M Requirement (Communication Intensive in the Major)

All Biology majors must complete two CI-M courses, generally by their Junior or Senior year. CI-Ms teach the specific forms of written, oral, and/or visual communication appropriate to Biology's professional and academic culture.

CI-M subjects for the Course VII degree are: 7.02/10.702 or 20.109 and one of: 7.13, 7.17, or 7.18.

CI-M subjects for Course VII-A are: 7.02/10.702 or 20.109 and one of: 3.014, 3.042, 5.33, 5.36, 5.38, 7.19, 8.13, 9.02, 9.12, 9.18, 9.63, 10.26, 10.28, 10.29, or 2.791J/6.021J/20.370J.

More information about the CI-M requirement is available at http://mit.edu/commreq.