



Course suggestions for Undergraduate students interested in applying to the
Biology Stream of Medical Biophysics

Students with bioscience backgrounds who are interested in graduate studies in the Biology Stream of the Department of Medical Biophysics are encouraged to consider taking some of the courses listed below during their undergraduate years. These courses are not requirements for admission. Taking some of these courses will provide a strong foundation for graduate studies in the Department of Medical Biophysics at the University of Toronto.

Students with backgrounds from outside of the traditional biosciences (e.g. Chemical Engineering, Chemistry, Computer Engineering, Computer Science, Electrical Engineering, Engineering Physics, Engineering Science, Mathematics, Pharmacy, and Physics) who are interested in the Biology Stream of the Department of Medical Biophysics are also encouraged to apply. It is recognized that undergraduate course requirements for these programs will vary; however, such students would benefit from taking a few of the courses listed below.

First year:

- Introductory Biology (e.g. from evolution to population genetics)
- Introductory Chemistry (organic and inorganic chemistry)
- Introductory Physics (or Physics for Life Sciences)
- Introductory Calculus (from limits to differentials to integral calculus)
- English Course - Effective Writing (e.g. Eng 100)
- Introduction to Computer Science for non-computer scientists

Second year:

- Introductory Biochemistry
- Organic Chemistry
- Inorganic Chemistry
- Physical Chemistry for the Life Sciences
- Vectors, Matrices, and Linear Algebra
- Cell biology/Genetics/Immunology/Microbiology/Physiology
- Statistics (2nd or 3rd year)
- Computer Science for General Sciences

Third year:

- Molecular biology, and nucleic acid structure and function
- Protein structure and function
- Physical Chemistry
- Laboratory course in Biochemistry/Cell Biology/Immunology/Physiology
- Specialized course in Bioscience (see below)

Fourth year:

- Fourth year Research Project
- Fourth year Advanced Laboratory Course in Biochemistry/Cell Biology/Immunology/Physiology
- Two or more specialized courses in Bioscience (see below)

Examples of specialized courses in Bioscience:

Bioinformatics, Biomembranes and Membrane Proteins, Cancer and the Immune System, Developmental Biology, Epigenetics, Infection and Immunity, Innate Immunity, Molecular/Cellular/Genetic Basis of Cancer, Neurobiology, Neurodegeneration, Neuronal Biophysics, Protein Biosynthesis, Protein Trafficking, Radiation and Cancer Biology, Signaling Pathways, Stem Cells in Development and Disease, Structural Biology, Systems Biology, and other related courses