

BIOB11H3: Molecular Aspects of Cellular and Genetic Processes

A course focusing on the central dogma of genetics and how molecular techniques are used to investigate cellular processes. Topics include structure and function of the nucleus, DNA replication and cell cycle control, transcription and translation, gene regulation and signal transduction.

Prerequisite: [BIOA01H3](#) and [BIOA02H3](#) and [CHMA10H3](#) and [CHMA11H3](#)

Exclusion: BIO230H

Breadth Requirements: Natural Sciences

[Link to UTSC Timetable](#)

BIOB12H3: Cell and Molecular Biology Laboratory

A practical introduction to experimentation in cell and molecular biology. Lab modules will introduce students to concepts and techniques in the general preparation of solutions and buffers, microbiology, molecular biology, biochemistry, microscopy, data analysis, and science communication. This core laboratory course is the gateway for Molecular Biology & Biotechnology Specialists to upper level laboratory offerings.

Prerequisite: [CHMA10H3](#) and [CHMA11H3](#)

Corequisite: [BIOB10H3](#) and [BIOB11H3](#)

Breadth Requirements: Natural Sciences

Course Experience: University-Based Experience

Note: Priority will be given to students enrolled in the Specialist programs in Molecular Biology and Biotechnology (Co-op and non-Co-op), Medicinal and Biological Chemistry, Neuroscience (Stage 1, Co-op only), Neuroscience (Cellular/Molecular Stream), and the Major program in Biochemistry. Additional students will be admitted as space permits.

[Link to UTSC Timetable](#)

BIOB20H3: Introduction to Computational Biology

This course explains the fundamental methods of quantitative reasoning, with applications in medicine, natural sciences, ecology and evolutionary biology. It covers the major aspects of statistics by working through concrete biological problems. The course will help students develop an understanding of key concepts through computer simulations, problem solving and interactive data visualisation using the R programming language (no prior skills with R or specialized math concepts are required).

Prerequisite: [BIOA01H3](#) and [BIOA02H3](#)

Exclusion: BIO259H5

Breadth Requirements: Quantitative Reasoning

[Link to UTSC Timetable](#)

BIOB32H3: Animal Physiology Laboratory

This course examines physiological mechanisms that control and co-ordinate the function of various systems within the body. The laboratory exercises examine properties of digestive enzymes, characteristics of blood, kidney function, metabolic rate and energetics, nerve function and action potentials, synaptic transmission, skeletal muscle function and mechanoreception.

Corequisite: (BIOB30H3) or [BIOB34H3](#)

Exclusion: BIO252Y, BIO270H, BIO271H, (ZOO252Y)

Breadth Requirements: Natural Sciences

Course Experience: University-Based Experience

[Link to UTSC Timetable](#)

BIOB33H3: Human Development and Anatomy

A lecture based course with online learning modules which deals with the functional morphology of the human organism. The subject matter extends from early embryo-genesis through puberty to late adult life.

Prerequisite: [[BIOA01H3](#) and [BIOA02H3](#)] or [[HLTA03H3](#) and [HLTA20H3](#)]

Exclusion: ANA300Y, ANA301H, [HLTB33H3](#), [PMDB33H3](#)

Breadth Requirements: Natural Sciences

Note: Priority will be given to students in the Human Biology programs. Additional students will be admitted as space permits.

[Link to UTSC Timetable](#)

BIOB34H3: Animal Physiology

An introduction to the principles of animal physiology rooted in energy usage and cellular physiology. A comparative approach is taken, which identifies both the universal and unique mechanisms present across the animal kingdom. Metabolism, thermoregulation, digestion, respiration, water regulation, nitrogen excretion, and neural circuits are the areas of principal focus.

Prerequisite: [BIOA01H3](#) and [BIOA02H3](#) and [CHMA11H3](#)

Exclusion: BIO270H

Breadth Requirements: Natural Sciences

[Link to UTSC Timetable](#)