

BIOLOGY (BIOL)

Updated April 11, 2024

Chair: J. Franck; Professors Emeriti: W.S. Evans, G.E.E. Moodie, M.D. Wiegand, R.A. Woods; Professors: A. Civetta, L.S. Forbes, S. Good, S. Lingle, A. Park, A. Shrivastav, J. Tardif, A.R. Westwood, C. Willis; Associate Professors: R. Anderson, G. Avila-Sakar, C. Hasler, P.W. Holloway, R. Otfinowski; Assistant Professors: S. Wijenayake; Instructors: B. Biernacka, C. DuGuay, M. Geisler, S. Hebert, J. Jeffrey, K. Kachur, A. McGreevy, L. Warszycki; Lab Manager: N. Taiarol; Technical Staff: L.G. Buchanan, R. Cole, D. Nickel, M. Rondeau, M. Torres, D. Wasyliv.

DEGREES/PROGRAMS OFFERED

3-Year BSc

3-Year BSc (Business Stream)

4-Year BSc

4-Year BSc (Business Stream)

Honours BSc

4-Year BSc (UW/RRC) – NOTE: This program is being discontinued. No new students will be admitted.

MSc in Bioscience, Technology & Public Policy (For more information, please see the *Graduate Studies Academic Calendar*.)

INTRODUCTION

The study of Biology encompasses any manifestation of life, from the DNA molecule to the interactions of organisms within the various ecosystems of the earth. This broad discipline includes the subject areas of Botany, Zoology, Microbiology, Ecology, Genetics and Molecular Biology.

The Biology Department offers the 3-Year BSc, 4-Year BSc, and BSc Honours degrees.

Students pursuing a 3-year or 4-year BSc in Biology have the opportunity to take a Business Stream – a set of core courses in the Faculty of Business that will provide them with the skills needed to enter and succeed in industry and business. See the "Science with a Business Stream" section of this Course Calendar.

In addition, courses in Biology constitute the core of the Environmental Studies Forest Ecology Program, the Forest Policy and Management Program, the Biochemistry Program, the Neuroscience Program and the Bioanthropology Program.

A BSc in Biology can lead to employment in Conservation or other government departments, work as a technologist in a research or industrial laboratory, as well as a career in education. It also provides the preparation necessary for those entering several professional programs including Dentistry, Medicine, Veterinary Medicine, Pharmacy and Optometry.

Many Biology graduates also pursue post-graduate education. The necessary academic preparation for post-graduate studies is **only** provided by the 4-Year and Honours degrees in Biology. The 3-Year BSc is not recognized as adequate preparation by most Graduate Studies Programs in Canada or internationally.

REQUIREMENTS FOR A 3-YEAR BSc IN BIOLOGY

ADMISSION REQUIREMENT Students should consult with a member of the Department in planning their course of study.

GRADUATION REQUIREMENT 90 credit hours

RESIDENCE REQUIREMENT

Degree: Minimum 30 credit hours

Major: Minimum 18 credit hours

GENERAL DEGREE REQUIREMENT

Humanities ()Tj-0.004URBmcc9N5S30derM6ayM5206im6M2N520.6om6.6t.M9N3026vM(9118542nRUD57BDC -0.004 01.7m)-21.8

Distribution: maximum of 6 credit hours may be below the 1000 level.
Minimum three (3) credit hours from each of five (5) different subjects.

MAJOR REQUIREMENT

Single Major: Minimum 30 credit hours/Maximum 48 credit hours in the Major subject.

Double Major: 30 credit hours in Biology and specified number of credit hours in the other department/program.

Required courses:

1. Mandatory courses

- **BIOL-1115(3)** Cells and Cellular Processes, and **BIOL-1116(3)** Evolution, Ecology and Biodiversity.

- **CHEM-1111(3)** Introduction to Chemical Properties of Matter, and **CHEM-1112(3)** Basic Principles of Chemical Reactivity

- Minimum 24 credit hours in other Biology courses at or above the 2000 level, not including **BIOL-4111(6)** Biology Honours Thesis.

2. Statistics Requirement -

REQUIREMENTS FOR THE 3-YEAR BSc IN BIOLOGY WITH A BUSINESS STREAM

Students must complete the requirements of the 3-year BSc in Biology

ANTH-3309/4309(3) Primate Behaviour
ANTH-4212(3) Advanced Zooarchaeology
ANTH-4303(3) Problems in Human and Primate Evolution
ANTH-4305(3) Problems in Biological Anthropology
ANTH-4307(3) Advanced Human Osteology
ANTH-4311(3) Human Paleopathology

CHEMISTRY – ALL courses **EXCEPT**:

CHEM-1111(3) Introduction to Chemical Properties of Matter
CHEM-1112(3) Basic Principles of Chemical Reactivity
CHEM-2801(3) Environmental Issues: A Chemistry Perspective (formerly Chemistry and Society)

GEOGRAPHY – **ONLY**:

Physical Geography courses (second digit in the course number is “2”)
Geomatics courses (second digit in the course number is “3”)

KINESIOLOGY – **ONLY**:

KIN-2204(3) Into2(c)-ATs.866(iey) CHEM

RESIDENCE REQUIREMENT

Degree: Minimum 60 credit hours
Honours: Minimum 30 credit hours, including minimum 18 credit hours at upper level (3000/4000) of which a minimum of 9 credit hours at 4000 level

GENERAL DEGREE REQUIREMENT

Humanities: 12 credit hours in Humanities
Writing: Minimum 3 credit hours of Academic Writing.
Indigenous: 3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level.
Distribution: Minimum three (3) credit hours from each of five (5) different subjects.

HONOURS REQUIREMENT

Single Honours: Minimum 54 credit hours in the Major subject.
Minimum 30 credit hours in upper-level (3000 and 4000) courses of which a minimum of 15 credit hours must be at the 4000 level.

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Required Courses:

1. Mandatory courses:

- **BIOL-1115(3)** Cells and Cellular Processes
- **BIOL-1116(3)** Evolution, Ecology and Biodiversity
- **BIOL-2301(3)** Genetics
- **BIOL-3902(3)** Microbial Ecology
- **BIOL-3221(3)** Cell Biology
- **BIOL-4111(6)** Biology Honours Thesis **Note:** This course has admission restrictions, see course description.
- **CHEM-1111(3)** Introduction to Chemical Properties of TJO Tc Tc 0 Tw 5.254 8/004 Tc 0.004Tw 0.821 0 Td(BI)-11.6 0.7 .6 (nt)-9.6 (r)0.7 (odp.7430

CHEMISTRY – ALL courses **EXCEPT:**
CHEM-

4-Year Joint Program in Applied Biology	
Year 1 – UW	Year 2 - UW

BIOL-1115(3) Cells and Cellular Processes
BIOL-

- BIOL-3562(3) Human Reproductive Biology
- BIOL-3563(3) Human Embryology
- BIOL-3602(3) Comparative Animal Physiology I
- BIOL-3603(3) Comparative Animal Physiology II
- BIOL-3702(3) Parasites and Disease
- BIOL-3703(3) Ectoparasitology
- BIOL-3801(3) General Entomology
- BIOL-3901(3) Microorganisms and Disease
- BIOL-3902(3) Microbial Ecology

4000 LEVEL COURSES

Note: 4000-level courses may not be offered every year.
Consult the current timetable for details.

BIOL-4111(6) -3902(3) Microbiology (40-065(0w)127(09)0.0022284.002d(w)F16