

HONOURS BSC BIOLOGY (RESEARCH FOCUS) - CELLULAR MOLECULAR OPTION

Recent discoveries and new technologies are revolutionizing the biological sciences, placing increasing emphasis on integrating knowledge across all levels of organization, from molecules to ecosystems. Our programs give students both the intellectual tools and the hands-on experience they need to pursue careers in fields as diverse as conservation and endangered species; land-use management; ecotoxicology; academic, industry or government research; or health care. Learning takes place through traditional classroom instruction, innovative laboratory projects with state-of-the-art technologies, field-based courses around the world, and a strong research program in which undergraduate students of all years are intensively mentored in a research lab.

The honours program in biology allows for in-depth study in one or more biological disciplines. Students can concentrate on a particular area by choosing one of three options: Cellular and Molecular Biology, Physiology, or Ecology, Evolution and Behaviour. This route includes a compulsory independent research project to equip students with advanced research, analysis and communication skills applicable to diverse careers.

Students thinking of a career in research should consider the Research Focus, an immersive research experience in the third and fourth years.

This program is offered in English and in French.

Program Requirements

The French immersion stream is available with this program.

Requirements for this program have been modified. Please consult the 2023-2024 calendars (<http://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

Basic Skills

3 optional course units in English (ENG) at the 1000 or 2000 level 3 Units

Compulsory Courses at the 1000 level

BIO 1130	Introduction to Organismal Biology	3 Units
BIO 1140	Introduction to Cell and Molecular Biology	3 Units
CHM 1311	Principles of Chemistry	3 Units
CHM 1321	Organic Chemistry I	3 Units
GEO 1111	Introduction to Earth Systems	3 Units
MAT 1330	Calculus for the Life Sciences I	3 Units
MAT 1332	Calculus for the Life Sciences II	3 Units
PHY 1321	Principles of Physics I	3 Units

Compulsory Courses at the 2000 level

BCH 2333	Introduction to Biochemistry	3 Units
BIO 2129	Ecology	3 Units
BIO 2133	Genetics	3 Units
BIO 2135	Animal Form and Function	3 Units
BIO 2137	Introduction to Plant Science	3 Units
CHM 2120	Organic Chemistry II	3 Units

MAT 2379 Introduction to Biostatistics 3 Units

Compulsory Courses at the 3000 level

BIO 3009	Research Practicum	6 Units
BIO 3153	Cell Biology	3 Units
BIO 3170	Molecular Biology	3 Units

Compulsory Courses at the 4000 level

BIO 4009	Honours Research	9 Units
BIO 4158	Applied Biostatistics	3 Units
BIO 4922	Seminar – Evaluating and Developing Science	3 Units

Optional Courses

3 course units from: 3 Units

BIO 3151	Molecular Biology Laboratory
BIO 3152	Cell Biology Laboratory

6 course units from: 6 Units

BCH 3120	General Intermediary Metabolism
BIO 3102	Molecular Evolution
BIO 3119	Population Genetics
BIO 3124	General Microbiology
BIO 3126	General Microbiology Laboratory
BIO 3142	Plant Developmental Biology
BIO 3147	Animal Developmental Biology
BIO 3360	Computational Tools for Biological Sciences
BCH 4172	Topics in Biotechnology
BIO 4115	Topics in Molecular Genetics
BIO 4142	Plant Immunity and Symbioses
BIO 4144	Plant Molecular Biology
BIO 4145	Eukaryotic Microbiology
BIO 4175	Membrane Physiology
BIO 4537	Génétique évolutive humaine

BPS 3101 Genomics

BPS 4104 Bioinformatics Laboratory

9 optional course units in biology (BIO), biopharmaceutical science (BPS) or environmental science (EVS), ITI 1120, BCH 3120, BCH 3125, BCH 3356, BCH 4122, BCH 4125, BCH 4188, PHA 4107, SCI 3101 9 Units

3 optional course units in biology (BIO), biopharmaceutical science (BPS) or environmental science (EVS) at the 3000 or 4000 level, BCH 3120, BCH 3125, BCH 3356, BCH 4122, BCH 4125, BCH 4188, SCI 3101 3 Units

Elective Courses

9 elective course units offered by the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management 9 Units

15 elective course units 15 Units

Total: 120 Units