

HONOURS BSC BIOMEDICAL SCIENCE - CELLULAR AND MOLECULAR MEDICINE OPTION

Biomedical Science is an interdisciplinary program that focuses on the fundamentals of human structure and function, as well as those of other animals. The first two years provide a background in human anatomy and psychology, in addition to more in-depth knowledge in basic sciences like biology, chemistry, biochemistry, and mathematics. At the end of second year, in addition to courses in biology and biochemistry, students may choose from an array of optional courses and obtain a minor in one of many programs offered, OR they can choose an option within the biomedical sciences (Neuroscience, Cellular and Molecular Medicine, Bioanalytical Science, Medicinal Chemistry or Biostatistics). On graduation, they will be ready for more advanced research training or for admission to a professional program in human health.

Students in the Biomedical Sciences program are also eligible to participate in the Co-Operative Education Programs.

Admission to this program is competitive and higher averages are required.

This program is offered in English and in French.

Program Requirements

Co-operative education is available with this program.

The French immersion stream is available with this program.

Requirements for this program have been modified. Please consult the 2024-2025 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, excluding ENG 1112 and ENG 1131 3 Units

Compulsory courses at the 1000 level

ANP 1111 Essentials of Human Anatomy and Physiology I 3 Units

ANP 1115 Essentials of Human Anatomy and Physiology II 3 Units

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

MAT 1330 Calculus for the Life Sciences I 3 Units

MAT 1332 Calculus for the Life Sciences II 3 Units

PSY 1101 Introduction to Psychology: Foundations 3 Units

Compulsory courses at the 2000 level

BCH 2333 Introduction to Biochemistry 3 Units

BIO 2133 Genetics 3 Units

CHM 2120 Organic Chemistry II 3 Units

MAT 2379 Introduction to Biostatistics 3 Units

PHI 2396 Bioethics 3 Units

Compulsory courses at the 3000 level

BCH 3120 General Intermediary Metabolism 3 Units

BIO 3124 General Microbiology 3 Units

BIO 3153 Cell Biology 3 Units

BIO 3170 Molecular Biology 3 Units

PHS 3341 Physiology of Sensation, Regulation Mechanisms, Movement and Reproduction 3 Units

PHS 3342 Physiological Regulation of Intake, Distribution, Protection and Elimination 3 Units

Compulsory courses at the 4000 level

BIM 4920 Seminar I Evaluating Science 1.5 Units

BIM 4921 Seminar II Developing and Communicating Science 1.5 Units

PHA 4107 Introductory Pharmacology - Drugs and Living Systems 3 Units

Optional courses

3 course units from: 3 Units

PSY 1102 Introduction to Psychology: Applications

PSY 2114 Lifespan Psychology

3 course units from: 3 Units

BPS 2110 Introduction to Biopharmaceutical Science

PHY 1321 Principles of Physics I

PHY 1322 Principles of Physics II

3 course units from: 3 Units

BCH 3356 Molecular Biology Laboratory

BIO 3151 Molecular Biology Laboratory

3 course units from: 3 Units

BIO 3360 Computational Tools for Biological Sciences

BIO 4158 Applied Biostatistics

BPS 4104 Bioinformatics Laboratory

BPS 4127 Advanced Techniques in Biosciences

9 course units from: 9 Units

BIM 4009 Research Project - Biomedical Science

or 9 optional course units at the 3000 or 4000 level from the list of optional courses

12 optional course units from the list of optional courses 12 Units

3 course units at the 3000 or 4000 level offered by the Faculty of Science^{1,2} 3 Units

Electives

15 elective course units 15 Units

Total: 120 Units

Note(s)

1

The following courses are considered as science courses: CMM 3350, CMM 4360, MIC 4100, MIC 4124, MIC 4125, MIC 4126, PHA 4107, PHS 3300, PHS 3341, PHS 3342, PHS 4336.

2

The course SCI 3101 is considered as a science optional course.

List of Optional Courses

BCH 3125	Protein Structure and Function	3 Units
BCH 4101	Human Genome Structure and Function ¹	3 Units
BCH 4122	Structural Biology of Proteins	3 Units
BCH 4123	Pathological Biochemistry	3 Units
BCH 4125	Cellular Regulation and Control	3 Units
BCH 4188	Synthetic Biology	3 Units
BIM 4103	Selected Topics in Biomedical Science	3 Units
BIM 4115	Topics in Molecular Genetics	3 Units
BIM 4316	Modern Bioanalytical Chemistry	3 Units
BIO 3102	Molecular Evolution	3 Units
BIO 3360	Computational Tools for Biological Sciences	3 Units
BIO 4109	Advanced Topics in Animal Development	3 Units
BIO 4158	Applied Biostatistics	3 Units
BPS 3101	Genomics	3 Units
BPS 4101	Human Genome Structure and Function ¹	3 Units
BPS 4103	Selected Topics in Biopharmaceutical Science	3 Units
BPS 4104	Bioinformatics Laboratory	3 Units
BPS 4105	Human Toxicology and Environmental Health	3 Units
BPS 4127	Advanced Techniques in Biosciences	3 Units
BPS 4129	Advanced Chemical Biology	3 Units
BPS 4131	Advanced Biopharmaceutical Science	3 Units
PHS 4336	Reproductive Physiology	3 Units

Note(s)

¹

The courses BPS 4101, BCH 4101 cannot be combined for credits.