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 2025-2026 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 1141	Introduction to Cell and Molecular Biology	3 Units
BIO 1150	BioZoo: An Introduction Laboratory in 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
PHI 2396	Bioethics	3 Units
STA 2392	Introduction to Biostatistics	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 in R	
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
Elective Courses		
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, 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 in R	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.