

# HONOURS BSC IN BIOMEDICAL SCIENCE (RESEARCH FOCUS) - BIOANALYTICAL SCIENCE 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 to enter an option within the biomedical sciences program (Neuroscience, Cellular and Molecular Medicine, Bioanalytical Science, Medicinal Chemistry or Biostatistics). The Research Focus is ideal for students thinking of a career in research, as it consists of an immersive research experience in the third and fourth years that will equip students with advanced research, analysis and communication skills applicable to diverse careers. On graduation, they will be ready for more advanced research training or for admission to a professional program in human health.

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

This program is offered in English and in French.

## Program Requirements

The French immersion stream is available with this program.

### Compulsory Courses at the 1000 level

ANP 1105	Human Anatomy and Physiology I	3 Units
ANP 1106	Human Anatomy and Physiology II	3 Units
BIO 1130	Introduction to Organismal Biology	3 Units
BIO 1140	Introduction to Cell 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
PHY 1321	Principles of Physics I	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
CHM 2123	Laboratory of Organic Chemistry II	3 Units
CHM 2132	Physical Chemistry for the Life Sciences	3 Units
CHM 2311	Introduction to Structure and Bonding	3 Units
CHM 2354	Analytical Chemistry	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
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BIM 3009	Research Practicum	6 Units
BIO 3170	Molecular Biology	3 Units
CHM 3120	Intermediate Organic Chemistry	3 Units
CHM 3122	Applications of Spectroscopy in Chemistry	3 Units

### Compulsory Courses at the 4000 level

BIM 4009	Research Project - Biomedical Science	9 Units
BIM 4316	Modern Bioanalytical Chemistry	3 Units
BIM 4920	Seminar I Evaluating Science	1.5 Units
BIM 4921	Seminar II Developing and Communicating Science	1.5 Units
BIO 4158	Applied Biostatistics	3 Units
CHM 4354	Principles of Instrumental Analysis	3 Units
PHA 4107	Introductory Pharmacology - Drugs and Living Systems	3 Units

### Optional Courses

3 optional course units in English (ENG) at the 1000 or 2000 level, excluding ENG 1112 and ENG 1131

3 course units from:

PSY 1102 Introduction to Psychology: Applications

PSY 2114 Lifespan Psychology

3 course units from:

BCH 3356 Molecular Biology Laboratory

BIO 3151 Molecular Biology Laboratory

3 optional course units from the list of optional courses

3 optional course units at the 3000 or 4000 level offered by the Faculty of Science<sup>1</sup>

### Elective Courses

6 elective course units

Total: 120 Units

<sup>1</sup> The following courses are considered as science courses: PHA 4107, PHS 3341, PHS 3342, PHS 4300, PHS 4336.

## List of Optional Courses

BCH 4123	Pathological Biochemistry	3 Units
BCH 4172	Topics in Biotechnology	3 Units
BIM 4103	Selected Topics in Biomedical Science	3 Units
BPS 3350	Transition Metal Chemistry	3 Units
BPS 4102	Pharmaceuticals: Federal and International Regulations	3 Units
BPS 4103	Selected Topics in Biopharmaceutical Science	3 Units
BPS 4127	Advanced Techniques in Biosciences	3 Units
BPS 4129	Advanced Chemical Biology	3 Units
BPS 4131	Advanced Biopharmaceutical Science	3 Units
CHM 4139	Enzyme Chemistry and Biocatalysis	3 Units
MAT 3377	Sampling and Surveys	3 Units