HONOURS BSC IN
BIOMEDICAL SCIENCE
(RESEARCH FOCUS) -
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 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.

Requirements for this program have been modified. Please consult the 2019-2020 calendars (http://catalogue.uottawa.ca/en/archives/) for the previous requirements.

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)
- 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)
- BIM 3009 Research Practicum (6 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, Movement and Reproduction (3 Units)
- PHS 3342 Physiological Regulation of Intake, Distribution, Protection and Elimination (3 Units)

Compulsory Courses at the 4000 level

- BIM 4009 Research Project - Biomedical Science (9 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)
- 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 Units)

3 course units from:
- PSY 1102 Introduction to Psychology: Applications (3 Units)
- PSY 2114 Lifespan Psychology (3 Units)

3 course units from:
- BPS 2110 Introduction to Biopharmaceutical Science (3 Units)
- PHY 1321 Principles of Physics I (3 Units)
- PHY 1322 Principles of Physics II (3 Units)

3 course units from:
- BCH 3356 Molecular Biology Laboratory (3 Units)
- BIO 3151 Molecular Biology Laboratory (3 Units)

3 course units from:
- BIO 3360 Computational Tools for Biological Sciences (3 Units)
- BPS 4104 Bioinformatics Laboratory (3 Units)
- BPS 4127 Advanced Techniques in Biosciences (3 Units)

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

3 optional course units at the 3000 or 4000 level offered by the Faculty of Science (3 Units)

Elective Courses

6 elective course units (6 Units)

Total: 120 Units

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

List of Optional Courses

- BCH 3125 Protein Structure and Function (3 Units)
- BCH 4101 Human Genome Structure and Function (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 Nucleic Acids - Structure and Functions (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)
- BIM 4537 Génétique évolutive humaine (3 Units)

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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>BIO 3102</td>
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<td>BIO 3360</td>
<td>Computational Tools for Biological Sciences</td>
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<td>BPS 3101</td>
<td>Genomics</td>
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<td>BPS 4101</td>
<td>Human Genome Structure and Function (^1)</td>
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<td>BPS 4103</td>
<td>Selected Topics in Biopharmaceutical Science</td>
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<td>BPS 4104</td>
<td>Bioinformatics Laboratory</td>
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<td>Human Toxicology and Environmental Health</td>
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<td>BPS 4127</td>
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<td>CMM 5304</td>
<td>Introduction to Developmental Biology</td>
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<td>PHS 4336</td>
<td>Reproductive Physiology</td>
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\(^1\) The courses BCH 4101, BPS 4101 cannot be combined for credits.