

HONOURS BSC BIOMEDICAL SCIENCE (RESEARCH FOCUS) - MEDICINAL CHEMISTRY 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 2022-2023 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

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|----------|---|---------|
| 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 |
| PHY 1321 | Principles of Physics I | 3 Units |
| PSY 1101 | Introduction to Psychology: Foundations | 3 Units |

Compulsory Courses at the 2000 level

| | | |
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| 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 |

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| 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

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| BCH 3120 | General Intermediary Metabolism | 3 Units |
| 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

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| 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 |
| CHM 4123 | Medicinal Chemistry | 3 Units |
| PHA 4107 | Introductory Pharmacology - Drugs and Living Systems | 3 Units |

Optional Courses

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|--|---|
| 3 course units from: | 3 Units |
| BCH 3356 | Molecular Biology Laboratory |
| BIO 3151 | Molecular Biology Laboratory |
| 3 course units from: | 3 Units |
| CHM 3126 | Laboratory of Organic Chemistry |
| CHM 3127 | Laboratory of Organic Chemistry – Research Option |
| 3 course units from: | 3 Units |
| PSY 1102 | Introduction to Psychology: Applications |
| PSY 2114 | Lifespan Psychology |
| 3 optional course units from the list of optional courses | 3 Units |
| 3 optional course units at the 3000 or 4000 level offered by the Faculty of Science ^{1,2} | 3 Units |
| Elective Courses | |
| 6 elective course units | 6 Units |
| Total: | 120 Units |

Note(s)

¹ The following courses are considered as science courses: MIC 4100, MIC 4125, MIC 4126, PHA 4107, PHS 3300, PHS 3341, PHS 3342, PHS 4336.

² The course SCI 3101 is considered a science optional course.

List of Optional Courses

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| BCH 4123 | Pathological Biochemistry | 3 Units |
| BIM 4103 | Selected Topics in Biomedical Science | 3 Units |
| BIM 4316 | Modern Bioanalytical Chemistry | 3 Units |
| BPS 3350 | Transition Metal Chemistry | 3 Units |
| BPS 4103 | Selected Topics in Biopharmaceutical Science | 3 Units |
| BPS 4105 | Human Toxicology and Environmental Health | 3 Units |
| BPS 4121 | Biosynthesis and Natural Product Derived Medicines | 3 Units |

This is a copy of the 2023-2024 catalog.

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| BPS 4126 | Synthetic and Medicinal Chemistry Laboratory | 3 Units |
| BPS 4129 | Advanced Chemical Biology | 3 Units |
| BPS 4131 | Advanced Biopharmaceutical Science | 3 Units |
| CHM 4139 | Enzyme Chemistry and Biocatalysis | 3 Units |
| CHM 4141 | Computational Chemistry I | 3 Units |
| CHM 4317 | Organometallic Chemistry | 3 Units |
| CHM 4319 | Bio-Inorganic Chemistry | 3 Units |
| CHM 4354 | Principles of Instrumental Analysis | 3 Units |