# HONOURS BSC BIOMEDICAL SCIENCE - BIOSTATISTICS 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 2023-2024 calendars (http://catalogue.uottawa.ca/en/archives/) for the previous requirements.

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| **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 |
| MAT 1341 | Introduction to Linear Algebra | 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 |
| MAT 2371 | Introduction to Probability | 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 3170 | Molecular Biology | 3 Units |
| MAT 3373 | Methods of Machine Learning | 3 Units |
| MAT 3375 | Regression Analysis | 3 Units |
| MAT 3378 | Analysis of Experimental Designs | 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 |
| One option from the following: | | 9 Units |
| **Option 1: Honours Project** | | |
| BIM 4009 | Research Project - Biomedical Science | |
| **Option 2: Honours Project Substitution** | | |
| BPS 4127 | Advanced Techniques in Biosciences | |
| and 6 optional course units at the 3000 or 4000 level from the list of optional courses | | |
| **Optional courses** | | |
| 3 course units from: | | 3 Units |
| PSY 1102 | Introduction to Psychology: Applications | |
| PSY 2114 | Lifespan Psychology | |
| 3 course units from: | | 3 Units |
| BCH 3356 | Molecular Biology Laboratory | |
| BIO 3151 | Molecular Biology Laboratory | |
| 3 course units from: | | 3 Units |
| BIO 4158 | Applied Biostatistics | |
| MAT 4374 | Computational Statistics | |
| 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 [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: 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 a science optional course.

## List of Optional Courses

| | | |
|---|---|---|
| BIM 4316 | Modern Bioanalytical Chemistry | 3 Units |
| BIO 3102 | Molecular Evolution | 3 Units |
| BIO 3360 | Computational Tools for Biological Sciences | 3 Units |
| BPS 3101 | Genomics | 3 Units |
| BPS 4104 | Bioinformatics Laboratory | 3 Units |
| BPS 4127 | Advanced Techniques in Biosciences | 3 Units |
| CHM 2354 | Analytical Chemistry | 3 Units |
| MAT 4375 | Multivariate Statistical Methods | 3 Units |

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|---|---|---|
| MAT 4377 | Topics in Applied Probability | 3 Units |
| MAT 4378 | Categorical Data Analysis | 3 Units |