

MAJOR IN BIOCHEMISTRY

Biochemistry is the chemistry of life. It provides the foundation for understanding all biological processes as well as the molecular basis and treatment of human disease.

The biochemistry bachelor's provides you with the education you need to play a leading role in new and exciting areas of medical research. You will be exposed to cutting-edge research and knowledge. Our program prepares you for graduate studies and for an academic or research career in the medical sciences. What's more, biochemistry provides an excellent foundation for further studies in medicine and other areas of health care.

You can choose an Honours BSc in Biochemistry, a major or a minor.

If you want to pursue a career in experimental biochemistry, choose the Honours program. If you prefer a basic biochemistry education, choose a major. And if you want to focus on another discipline but are interested in biochemistry, choose a minor.

If you have a particular interest in microorganisms and the role that the immune system plays in health and disease, you can also choose an Honours BSc in biochemistry with an option in microbiology and immunology. We also offer an integrated biotechnology program that lets you combine studies in biochemistry and chemical engineering and receive both a BSc in biochemistry and a BASc in chemical engineering in five years.

As for the language of instruction, compulsory courses and many optional course units are available in either English or French.

If you choose the Honours in Biochemistry, you have the opportunity to complete a full-year research project under the supervision of a professor from the departments of Chemistry and Biomolecular Sciences, Biology, Physics, or Biochemistry, Microbiology and Immunology, or under the supervision of an affiliated principle investigator from one of the many research institutes in the National Capital Region. Given the breadth of research expertise within our program, you can conduct research in many areas of modern biomedicine, including biochemistry, microbiology, immunology, chemical biology, molecular biology, cell biology, proteomics, genomics, systems biology and bioinformatics.

This program is offered in English and in French.

Program Requirements

The table below includes only the discipline-specific courses. Please refer to the Academic Regulations (<https://www.uottawa.ca/about-us/policies-regulations/academic-regulations/b-2-program-studies/>) for information on the Honours bachelor's with double major and the Honours bachelor's with major and minor.

Co-operative education is available when taken as part of an honours degree.

The French immersion stream is available when taken as part of an honours degree.

Requirements for this program have been modified. Please consult the 2018-2019 calendars (<https://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

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| BIO 1130 | Introduction to Organismal Biology | 3 Units |
| BIO 1140 | Introduction to Cell and Molecular Biology | 3 Units |

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| 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 |
| 3 courses units from: | | 3 Units |
| PHY 1322 | Principles of Physics II | |
| PHY 2325 | Physics in Biology | |
| BCH 2333 | Introduction to Biochemistry | 3 Units |
| BIO 2133 | Genetics | 3 Units |
| CHM 2120 | Organic Chemistry II | 3 Units |
| CHM 2132 | Physical Chemistry for the Life Sciences | 3 Units |
| MAT 2379 | Introduction to Biostatistics | 3 Units |
| BCH 3120 | General Intermediary Metabolism | 3 Units |
| BCH 3125 | Protein Structure and Function | 3 Units |
| BCH 3170 | Molecular Biology | 3 Units |
| BCH 3346 | Biochemistry Laboratory II | 3 Units |
| BCH 3356 | Molecular Biology Laboratory | 3 Units |
| 6 course units from: | | 6 Units |
| BCH 4101 | Human Genome Structure and Function ¹ | |
| BCH 4116 | Analytical Biochemistry | |
| BCH 4122 | Structural Biology of Proteins ^{1, 2} | |
| BCH 4123 | Pathological Biochemistry | |
| BCH 4124 | Carbohydrates and Glycobiology | |
| BCH 4125 | Cellular Regulation and Control ¹ | |
| BCH 4172 | Topics in Biotechnology | |
| BCH 4188 | Synthetic Biology ² | |
| BCH 4300 | Selected Topics in Biochemistry | |
| BPS 3101 | Genomics ¹ | |
| BPS 4129 | Advanced Chemical Biology | |
| CHM 4139 | Enzyme Chemistry and Biocatalysis | |

Total: **60 Units**

Note(s)

1

A maximum of 3 course units may be selected amongst these courses.

2

These courses may not be available every year.