

HONOURS BSC IN CHEMISTRY

Chemistry is a modern, dynamic and diverse field that involves investigating the substances that make up our physical world and how they change. Chemistry touches everything we come into contact with. It is connected to almost all areas of science and engineering.

For example, chemists play a vital role in developing new drugs, understanding and modifying biological processes and making materials for advanced electronic devices. Chemists are also important players in such diverse areas as genetic engineering, forensic science and the oil and gas industry. More recently, chemists have been at the forefront of nanotechnology and emerging green technologies, particularly in the development of sustainable energy sources.

The Department of Chemistry and Biomolecular Sciences at the Faculty of Science offers chemistry, biochemistry and biopharmaceutical science programs with unique options in medicinal chemistry, genomics, advanced materials chemistry, ecochemistry and chemical biology. In addition to classroom teaching, programs offer practical laboratory training with a focus on individual instruction.

This program is offered in English and in French.

Program Requirements

Co-operative education is available with this program.

The extended French stream is available with this program.

Requirements for this program have been modified. Please consult the 2015-2016 calendars (<http://www.uottawa.ca/academic/info/regist/1516/calendars>) for the previous requirements.

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|--------------------------------|--|---------|
| CHM 1311 | Principles of Chemistry | 3 Units |
| CHM 1321 | Organic Chemistry I | 3 Units |
| MAT 1320 | Calculus I | 3 Units |
| MAT 1322 | Calculus II | 3 Units |
| MAT 1341 | Introduction to Linear Algebra | 3 Units |
| PHY 1121 | Fundamentals of Physics I | 3 Units |
| PHY 1122 | Fundamentals of Physics II | 3 Units |
| BCH 2333 | Introduction to Biochemistry | 3 Units |
| CHM 2120 | Organic Chemistry II | 3 Units |
| CHM 2123 | Laboratory of Organic Chemistry II | 3 Units |
| CHM 2131 | Chemical Thermodynamics of Gases and Solutions | 3 Units |
| CHM 2330 | Physical Chemistry: Introduction to the Molecular Properties of Matter | 3 Units |
| CHM 2353 | Descriptive Inorganic Chemistry | 3 Units |
| CHM 2354 | Analytical Chemistry | 3 Units |
| PHY 2100 | Fundamentals of Applied Physics III | 3 Units |
| CHM 3120 | Intermediate Organic Chemistry | 3 Units |
| CHM 3122 | Applications of Spectroscopy in Chemistry | 3 Units |
| CHM 3126 | Laboratory of Organic Chemistry | 3 Units |
| CHM 3140 | Quantum Chemistry and Molecular Modelling | 3 Units |
| CHM 3350 | Transition Metal Chemistry | 3 Units |
| CHM 3373 | Molecular Spectroscopy and Statistical Mechanics | 3 Units |
| CHM 4354 | Principles of Instrumental Analysis | 3 Units |
| One option from the following: | | 9 Units |

Option 1: Honours Project

CHM 4010 Research Project

Option 2: Honours Project Co-op Option

CHM 4016 Research Project

and 3 optional course units in chemistry (CHM) at the 3000 or 4000 level

3 optional course units in chemistry (CHM) at the 2000, 3000 or 4000 level 3 Units

3 optional course units in chemistry (CHM) at the 3000 or 4000 level 3 Units

3 course units from Physical-Theoretical: 3 Units

CHM 4141 Computational Chemistry I

CHM 4143 Computational Chemistry II

CHM 4182 Molecular Dynamics in Chemistry

CHM 4340 Application of Theoretical Chemistry

CHM 4380 Advanced Characterization Methods in Material Science and Catalysis

CHM 4381 Photochemistry and Photobiology

CHM 4390 Special Topics in Physical Chemistry

CHM 4391 Selected Topics in Physical Chemistry

3 course units from Organic - Bio-organic: 3 Units

BIM 4316 Modern Bioanalytical Chemistry

CHM 4123 Medicinal Chemistry

CHM 4139 Enzyme Chemistry and Biocatalysis

CHM 4155 Polymer and Applied Chemistry

CHM 4325 Advanced Organic Synthesis and Reaction Mechanisms

CHM 4328 Special Topics in Organic Chemistry

BPS 4129 Advanced Chemical Biology

3 course units from Inorganic - Materials: 3 Units

CHM 4129 Chemistry of Sustainable Energy

CHM 4311 Selected Topics in Inorganic Chemistry

CHM 4313 Solid State Chemistry

CHM 4317 Organometallic Chemistry

CHM 4318 Nanostructured Materials

CHM 4319 Bio-Inorganic Chemistry

12 elective course units offered by the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management 12 Units

18 elective course units 18 Units

Total: 120 Units

This message is intended for students registered in the Faculty of Science. If the components of your program of study require common compulsory courses, you will have to replace the units as follows:

- 1000-level courses must be replaced with elective course units;
- 2000-level courses and above must be replaced with optional course units from either discipline at the same level or above.

Please note that all programs in the Faculty of Science require a minimum of 12 elective course units from the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management. Once you have decided on the replacement courses, please inform the Office of Undergraduate Programs of the

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Faculty of Science by email at infosci@uOttawa.ca so that we may amend your Academic Advisement accordingly.