

# Bachelor of Science

## Biological & Pharmaceutical Chemistry



### ABOUT THE PROGRAM

Chemistry is the study of the structure and behaviour of molecules. This includes the construction of molecules with specific properties for use in areas such as pharmaceuticals and agrochemicals. In the Biological and Pharmaceutical Chemistry program, you will also study the necessary theoretical and practical insights to acquire a thorough interdisciplinary understanding of material at the interfaces of chemistry, biology, and pharmacology. It is a chemistry-based approach to the synthesis, analysis and investigation of biological and pharmaceutical structures in the context of biological function and pharmaceutical applications.

### WHY CO-OP?

As a co-op student, you will gain relevant work experience, build professional networks and develop essential interpersonal skills needed to succeed in the workplace, all while being paid and earning your university degree. Guelph's co-op program is unique due to the exceptional level of support provided, including an online preparatory course, a personal connection with a Co-op Coordinator to assist you during the employment process, and access to senior student mentors.

### COURSE SEQUENCING

In the Biological & Pharmaceutical Co-op program, you will participate in four co-op work terms in addition to eight academic semesters throughout your five years at the University of Guelph. This sequencing is viewable below:

YEAR	FALL	WINTER	SUMMER
ONE	Academic	Academic	Off
TWO	Academic	Work	Academic
THREE	Academic	Academic	Work
FOUR	Work	Academic	Work
FIVE	Academic		

## SAMPLE JOBS

There is a diverse selection of jobs made available to Biological & Pharmaceutical Chemistry Co-op students, in government, academia, and the private sector within various industries. You may conduct research, participate in literature searches, assist in data collection and analysis or may work in public health in a clinical setting. Students may work in a laboratory, a hospital, and/or in an office environment. Below are some examples of positions held by Biological & Pharmaceutical Chemistry Co-op students:

### Quality Control Technician

This is a laboratory-based position with a leading Canadian manufacturer of pharmaceutical premixes and other animal health products. You will perform chemical, physical, spectroscopic and chromatographic examination of raw materials and finished product; preparation of test solutions, reagents, standards and other common laboratory solutions; and record keeping to current GMP standards. You'll also perform maintenance of laboratory equipment.

### Analytical Technologist

In this role, you will assist in analysis of water samples using various instrumental techniques. You will participate in the determination of basic water quality parameters including pH, alkalinity, colour and conductivity. Additionally, you will analyze major cations using Atomic Absorption Spectrophotometry and anions in aqueous samples using Ion Chromatography. Computer skills will be required to assist in sample submission and data tracking.

### Quality Assurance Specialist

You will be supporting the team objectives through documentation and assisting with activities related to internal departments. Your main functions will be to prepare worksheets and test procedures for the laboratory, prepare and implement standard operating procedures as well as prepare and implement the manufacturing orders for Processing Department.

## SAMPLE EMPLOYERS\*

- McNeil Consumer Healthcare
- Bio Agri Mix LP
- Health Canada
- SUEZ International
- GPI

\*This shows a sample of recent co-op employers, and employers will vary depending on employer recruitment needs. During a job search, students are encouraged to be actively engaged and are also supported in establishing and maintaining their own personal

## SALARY INFORMATION

Students receive compensation from their employer for co-op work terms. The rate of pay will vary depending on a number of factors including the industry, the student's program of study, and work term level. For your reference, a **Co-operative Education Salary Guide** is available on our website, which provides hourly rates (averages and ranges) for each degree program.

## ABILITIES & KNOWLEDGE ACQUIRED

- A sound knowledge of the theoretical foundations of the chemical sub-disciplines of analytical, inorganic, organic, and physical chemistry
- Practical laboratory experience in wet bench chemistry including inorganic and organic synthesis, quantitative analysis and analytical instrumentation
- Well-developed computer literacy and problem-solving abilities
- Excellent laboratory technique skills as well as written and verbal communication skills