

# Bachelor of Science

## Nanoscience



### ABOUT THE PROGRAM

Nanoscience is an interdisciplinary science focusing on science at the molecular or atomic level. The term nanoscience generally refers to materials of 100 nm or smaller. The integration of chemistry and physics at the nanoscale will help prepare students to create, control and understand the properties of matter and materials. Nanoscience supports nanotechnology, advanced materials research, efficient energy productions and storage and will be crucial to the development of new materials and devices with a wide range of 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 Co-ordinator to assist you during the employment process, and access to senior student mentors.

### COURSE SEQUENCING

In the Nanoscience co-op program, you will participate in five 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	Academic	Work
THREE	Academic	Work	Work
FOUR	Academic	Academic	Work
FIVE	Work	Academic	

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## SAMPLE JOBS

There is a diverse selection of jobs made available to Nanoscience co-op students, in the academic, government, and private sectors within various industries. Students may conduct research, assist with product development or quality assurance, and may work in a laboratory, in the field, and/or in an office setting. Below are some examples of past Nanoscience co-op positions.

### Nanomaterials Analyst

The student will be conduct a research project on a specific nanomaterial (e.g. nano silver, nano zinc oxide). This will involve gathering literature and extracting data on the nanomaterial's physical-chemical properties and its eco-toxicological fate and effects. The student will also enter key endpoints in a database, examine the data, and write a report summarizing the findings and identifying any data gaps.

### Student Assistant

The student will assist in the research of new bio-based adhesives by reviewing scientific literature through citation databases, synthesizing new adhesive formulations, and conducting mechanical and thermal analysis characterization tests using various types of laboratory equipment.

### Co-op Research Assistant

The student will investigate the role of bone-associated proteins in modulating mineral crystal formation. Responsibilities include acquiring the technical skills to properly utilize the Dynamic Light Scatter Goniometer, and depending on the acquired data, additional analysis by a Constant Composition Assay System. The student will also assess the effects of specific proteins or peptides on calcium phosphate formation, to convert the raw data into appropriate figures and provide monthly written reports.

**Additional Sample Jobs:** Research Assistant, Test Technician, Student Chemical Technologist, Internship – Biomaterials, Nanoscience Co-op Student, and more.

## SAMPLE EMPLOYERS\*

- University of Guelph – Department of Physics, Department of Chemistry
- Myant Incorporated
- Environment and Climate Change Canada

\*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 contacts.

## SALARY INFORMATION

### Average Weekly Salary Range: \$525 - \$700\*

\*Salary ranges are shown as rates before deductions. Statistics are based on jobs held by co-op students in 2017/2018. These ranges may fluctuate on an annual basis in response to economic conditions.

## ABILITIES & KNOWLEDGE ACQUIRED

- A firm foundation in Chemistry, Physics and Calculus, as well as nanoscale properties of material
- Experience in a laboratory working with various types of microscopy
- Exceptional laboratory and teamwork experience
- Well-developed analytical and computer literacy skills

