Biomedical Toxicology

**Life Science That Works**

Biomedical Toxicology concentrates on the effects and mechanisms of action of toxic substances from a variety of perspectives. Students study such issues as the risk of cancer from exposure to environmental agents, including both natural and synthetic chemicals, as well as the metabolism of carcinogenic and other toxic substances, and the effects of these substances on DNA. The effects of both natural and synthetic chemicals and their movement, distribution and breakdown in the environment will also be studied.

**University of Guelph Advantage**

- Guelph offers a multi-disciplinary approach to toxicology, drawing on the physical, biological and social science
- Our faculty have expertise in teaching and research from the molecular to the ecosystem level
- The University of Guelph is the headquarters of the Canadian Network of Toxicology Centres

Our co-op process responds to your needs. Employers can post, interview and hire throughout the semester and our students are available for 4 or 8 month work terms. The Experience Guelph hiring tool makes hiring Guelph co-op students easy!

**Student Strengths**

Students enhance theoretical and practical skills as they progress through their program, obtaining:

- A sound grounding in organic, analytical, and biochemistry
- Practical laboratory abilities in chemical and biological wet-bench techniques, instrumentation and sampling
- Exposure to the theories of toxic action: uptake and metabolism, risk assessment, and pesticides in the environment
- Functional proficiency in trace analysis, statistical analysis, contaminant dose response and comparative physiology of plants and animals

recruit@uoguelph.ca
519-824-4120 ext. 52323
uoguelph.ca/coop
<table>
<thead>
<tr>
<th>YEAR</th>
<th>FALL (SEPT-DEC)</th>
<th>WINTER (JAN-APRIL)</th>
<th>SUMMER (MAY-AUG)</th>
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| ONE  | • INTRODUCTION TO MOLECULAR AND CELLULAR BIOLOGY  
     • GENERAL CHEMISTRY I  
     • ELEMENTS OF CALCULUS I  
     • PHYSICS FOR LIFE SCIENCES  
     • 1 ARTS/SOCIAL SCIENCE ELECTIVE  | • BIOLOGICAL CONCEPTS OF HEALTH  
     • GENERAL CHEMISTRY II  
     • PHYSICS FOR LIFE SCIENCES II  
     • STATISTICS I  
     • INTRODUCTION TO COOPERATIVE EDUCATION  
     • 1 ARTS/SOCIAL SCIENCE ELECTIVE  | OFF |
| TWO  | • INTRODUCTION TO BIOCHEMISTRY  
     • ANALYTICAL CHEMISTRY I  
     • PRINCIPLES OF TOXICOLOGY  
     • FOUNDATIONS IN MOLECULAR BIOLOGY AND GENETICS  
     • 1 ARTS/SOCIAL SCIENCE ELECTIVE  | WORK TERM ONE  
     WORK TERM TWO  | |
| THREE | • MOLECULAR BIOLOGY OF THE CELL  
     • STRUCTURE & FUNCTION IN BIOCHEMISTRY  
     • ANALYTICAL TOXICOLOGY  
     • FUNDAMENTALS OF NUTRITION  
     • 1 ELECTIVE OR RESTRICTED ELECTIVE  | • ORGANIC CHEMISTRY I  
     • BIOMEDICAL PHYSIOLOGY  
     • ENVIRONMENTAL CHEMISTRY AND TOXICOLOGY  
     • 1 ELECTIVE OR RESTRICTED ELECTIVE  | WORK TERM THREE |
| FOUR | WORK TERM FOUR  | • PRINCIPLES OF PHARMACOLOGY  
     • PRINCIPLES OF DISEASE  
     • ONE OF: LABORATORY METHODS IN MOLECULAR BIOLOGY I OR MEDICAL EMBRYOLOGY  
     • 2 ELECTIVES OR RESTRICTED ELECTIVES  | OFF |
| FIVE | • MEDICAL TOXICOLOGY  
     • BIOCHEMICAL TOXICOLOGY  
     • TOXICOLOGY, NUTRITION, AND FOOD  
     • 2 ELECTIVES OR RESTRICTED ELECTIVES  
     • ONE OF: PHARMACOLOGY OR TOXICOLOGY RESEARCH PROJECT I  | • ADVANCED OPERATIONS MANAGEMENT  
     • RETAILING, MERCHANDISING AND SALES  
     • FOOD SAFETY MANAGEMENT SYSTEMS  
     • 2 ELECTIVES OR RESTRICTED ELECTIVES  | |

BASED ON THE 2019/20 UNDERGRADUATE CALENDAR

PLEASE SEE THE CURRENT UNDERGRADUATE CALENDAR FOR MORE INFORMATION