



## 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 is 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

# Biomedical Toxicology Course Sequencing

YEAR	FALL (SEPT-DEC)	WINTER (JAN-APRIL)	SUMMER (MAY-AUG)
ONE	<ul style="list-style-type: none"> <li>INTRODUCTION TO MOLECULAR AND CELLULAR BIOLOGY</li> <li>GENERAL CHEMISTRY I</li> <li>ELEMENTS OF CALCULUS I</li> <li>PHYSICS FOR LIFE SCIENCES</li> <li>1 LIBERAL EDUCATION ELECTIVE</li> </ul>	<ul style="list-style-type: none"> <li>BIOLOGICAL CONCEPTS OF HEALTH</li> <li>GENERAL CHEMISTRY II</li> <li>PHYSICS FOR LIFE SCIENCES II</li> <li>STATISTICS I</li> <li>INTRODUCTION TO CO-OPERATIVE EDUCATION</li> <li>1 LIBERAL EDUCATION ELECTIVE</li> </ul>	OFF
TWO	<ul style="list-style-type: none"> <li>INTRODUCTION TO BIOCHEMISTRY</li> <li>ANALYTICAL CHEMISTRY I</li> <li>PRINCIPLES OF TOXICOLOGY</li> <li>FOUNDATIONS IN MOLECULAR BIOLOGY AND GENETICS</li> <li>1 LIBERAL EDUCATION ELECTIVE</li> </ul>	WORK TERM ONE	WORK TERM TWO
THREE	<ul style="list-style-type: none"> <li>MOLECULAR BIOLOGY OF THE CELL</li> <li>STRUCTURE &amp; FUNCTION IN BIOCHEMISTRY</li> <li>FUNDAMENTALS OF NUTRITION</li> <li>ANALYTICAL CHEMISTRY II: INSTRUMENTAL ANALYSIS</li> <li>1 ELECTIVE OR RESTRICTED ELECTIVE</li> </ul>	<ul style="list-style-type: none"> <li>ORGANIC CHEMISTRY I</li> <li>BIOMEDICAL PHYSIOLOGY</li> <li>ENVIRONMENTAL CHEMISTRY AND TOXICOLOGY</li> <li>1 ELECTIVE OR RESTRICTED ELECTIVE</li> </ul>	WORK TERM THREE
FOUR	WORK TERM FOUR	<ul style="list-style-type: none"> <li>PRINCIPLES OF PHARMACOLOGY</li> <li>PRINCIPLES OF DISEASE</li> <li>ONE OF: LABORATORY METHODS IN MOLECULAR BIOLOGY OR MEDICAL EMBRYOLOGY</li> <li>2 ELECTIVES OR RESTRICTED ELECTIVES</li> </ul>	OFF
FIVE	<ul style="list-style-type: none"> <li>MEDICAL TOXICOLOGY</li> <li>BIOCHEMICAL TOXICOLOGY</li> <li>TOXICOLOGY, NUTRITION, AND FOOD</li> <li>2 ELECTIVES OR RESTRICTED ELECTIVES OR TOXICOLOGY RESEARCH PROJECT I</li> </ul>	<ul style="list-style-type: none"> <li>TOXICOLOGICAL RISK ASSESSMENT</li> <li>TOXICOLOGICAL PATHOLOGY</li> <li>TOPICS IN TOXICOLOGY</li> <li>2 ELECTIVES OR RESTRICTED ELECTIVES</li> </ul>	

BASED ON THE 2022/23 UNDERGRADUATE CALENDAR

PLEASE SEE THE CURRENT UNDERGRADUATE CALENDAR FOR MORE INFORMATION