

# BIOMEDICAL TOXICOLOGY CO-OP (BTOX:C)

Interdisciplinary Program, Departments of Biomedical Sciences, Chemistry, School of Environmental Sciences, Molecular and Cellular Biology

## Program Requirements

The Co-op program in Biomedical Toxicology is a five year program, including four work terms. Students must follow the academic work schedule as outlined below (also found on the Co-operative Education website: <https://www.recruitguelph.ca/cecs/>).

Biomedical Toxicology Academic and Co-op Work Term Schedule

Year	Fall	Winter	Summer
1	Academic Semester 1	Academic Semester 2 COOP*1100	Off
2	Academic Semester 3	COOP*1000 Work Term I	COOP*2000 Work Term II
3	Academic Semester 4	Academic Semester 5	COOP*3000 Work Term III
4	COOP*4000 Work Term IV	Academic Semester 6	Off
5	Academic Semester 7	Academic Semester 8	N/A

To be eligible to continue in the Co-op program, students must meet a minimum 70% cumulative average requirement after second semester, as well as meet all work term requirements. Please refer to the Co-operative Education program policy with respect to work term performance grading, work term report grading and program completion requirements.

For additional program information students should consult with their Co-op Co-ordinator and Co-op Faculty Advisor, listed on the Co-operative Education web site.

## Credit Summary

(22.00 Total Credits)

Code	Title	Credits
	First year science credits	4.00
	Required science courses semesters 3 – 8	10.75
	Restricted electives	1.50
	Liberal Education electives	1.50
	Free electives - any approved elective for B.Sc. students	2.25
	Co-op Work Terms	2.00
	<b>Total Credits</b>	<b>22</b>

Of the total credits required, students are required to complete 16.00 credits in science of which a minimum of 2.00 credits must be at the 4000 level and an additional 4.00 credits must be at the 3000 or 4000 level.

The recommended program sequence is outlined below.

## Major (Honours Program)

Students lacking Grade 12 or 4U Biology, Chemistry or Physics should follow the revised schedule of study for this major found at: [https://www.uoguelph.ca/bsc/revised\\_SS](https://www.uoguelph.ca/bsc/revised_SS) ([https://www.uoguelph.ca/bsc/revised\\_SS/](https://www.uoguelph.ca/bsc/revised_SS/))

Code	Title	Credits
<b>Semester 1 - Fall</b>		
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
CHEM*1040	General Chemistry I	0.50
MATH*1080	Elements of Calculus I	0.50
PHYS*1080	Physics for Life Sciences	0.50
	0.50 Liberal Education electives	0.50
<b>Semester 2 - Winter</b>		
BIOL*1080	Biological Concepts of Health	0.50
CHEM*1050	General Chemistry II	0.50
COOP*1100	Introduction to Co-operative Education	0.00
PHYS*1070	Physics for Life Sciences II	0.50
STAT*2040	Statistics I	0.50
	0.50 Liberal Education electives	0.50
<b>Semester 3 - Fall</b>		
BIOC*2580	Introduction to Biochemistry	0.50
CHEM*2480	Analytical Chemistry I	0.50
MBG*2040	Foundations in Molecular Biology and Genetics	0.50
TOX*2000	Principles of Toxicology	0.50
	0.50 Liberal Education electives	0.50
<b>Winter Semester</b>		
COOP*1000	Co-op Work Term I	0.50
<b>Summer Semester</b>		
COOP*2000	Co-op Work Term II	0.50
<b>Semester 4 - Fall</b>		
BIOC*3560	Structure and Function in Biochemistry	0.50
CHEM*3430	Analytical Chemistry II: Instrumental Analysis	0.50
MCB*2050	Molecular Biology of the Cell	0.50
NUTR*3210	Fundamentals of Nutrition	0.50
	0.50 electives or restricted electives	0.50
<b>Semester 5 - Winter</b>		
CHEM*2700	Organic Chemistry I	0.50
BIOM*3200	Biomedical Physiology	1.00
TOX*3360	Environmental Chemistry and Toxicology	0.50
	0.50 electives or restricted electives	0.50
<b>Summer Semester</b>		
COOP*3000	Co-op Work Term III	0.50
<b>Fall Semester</b>		
COOP*4000	Co-op Work Term IV	0.50
<b>Semester 6 - Winter</b>		
BIOM*3090	Principles of Pharmacology	0.50
PATH*3610	Principles of Disease	0.50
BIOM*3040	Medical Embryology	0.75
or MBG*3350	Laboratory Methods in Molecular Biology	

Electives or Restricted Electives to a maximum of 2.75 total credits in this semester 0.50

#### Semester 7 - Fall

NUTR*4510	Toxicology, Nutrition and Food	0.50
TOX*4000	Medical Toxicology	0.50
TOX*4590	Biochemical Toxicology	0.50
TOX*4900	Toxicology Research Project I (or 1.00 Electives or Restricted Electives)	1.00

#### Semester 8 - Winter

ENVS*4000	Toxicological Risk Assessment	0.50
TOX*4100	Toxicological Pathology	0.50
TOX*4200	Topics in Toxicology	0.50
1.00 electives or restricted electives		1.00

### Restricted Electives

At least 1.50 credits must be completed from the following list of allowable courses.

**Note:** Students are advised to pay particular attention to pre-requisite requirements when choosing individual courses, and seek advice as needed.

Code	Title	Credits
ANSC*4650	Comparative Immunology	0.50
BIOM*3040	Medical Embryology	0.75
BIOM*4050	Biomedical Aspects of Aging	0.50
BIOM*4070	Biomedical Histology	0.50
BIOM*4090	Pharmacology	0.50
BIOM*4150	Cancer Biology	0.50
CHEM*3750	Organic Chemistry II	0.50
CHEM*3760	Organic Chemistry III	0.50
CHEM*4740	Topics in Bio-Organic Chemistry	0.50
MBG*3040	Molecular Biology of the Gene	0.50
MBG*3350	Laboratory Methods in Molecular Biology	0.75
MBG*4270	DNA Replication, Recombination and Repair	0.50
MCB*4010	Advanced Cell Biology	0.50
MICR*3230	Immunology	0.50
NUTR*4090	Functional Foods and Nutraceuticals	0.50
NUTR*4320	Nutrition and Metabolic Control of Disease	0.50
PATH*3040	Principles of Parasitology	0.50
POPM*3240	Epidemiology	0.50
POPM*4040	Epidemiology of Food-borne Diseases	0.50
STAT*2050	Statistics II	0.50
STAT*3510	Environmental Risk Assessment	0.50
TOX*4900	Toxicology Research Project I	1.00
TOX*4910	Toxicology Research Project II	1.00