MASTER OF SCIENCE IN CELL AND MOLECULAR BIOLOGY

Plan A
Effective Fall 2024

Code	Title	Credits
Required Courses:		
CM 510	Introduction to Cell and Molecular Biology	1
CM 544/MIP 544	Reproducible Biomedical Research Methods	3
CM 595	Independent Study	1-17
CM 699	Thesis	1-17
CM 792	Cell and Molecular Biology Seminar [2]	1-2
CM 793	Seminar [2]	1-2
Select one course from the following:		**4**
BC 563	Molecular Genetics	
BC 565	Molecular Regulation of Cell Function	
Ethics Elective (see list below)		1
Cell and Molecular Biology Electives [3]		8
Program Total Credits:		**30**

A minimum of 30 credits are required to complete this program.

Ethics Electives

Code	Title	Credits
Select at least one course from the following:		
BC 601	Responsible Conduct in Biochemistry	1
GRAD 544	Ethical Conduct of Research	1
MIP 554	Research Policies and Regulations	1
NSCI 575/GRAD 575	Ethical Issues in Big Data Research	1

Cell and Molecular Biology Electives

A minimum of 8 credits of electives related to the student's research area are required. Some possible options are listed, but this list is not exhaustive.

Code	Title	Credits
AB 511	Microbiome of Plant Systems	3
ANEQ 505	Microbiome of Animal Systems	3
ANEQ 545	Molecular Methods in Animal Genetics	3
ANEQ 575	Computational Biology in Animal Breeding	3
BC 511	Structural Biology I	4
BC 563	Molecular Genetics	4
BC 565	Molecular Regulation of Cell Function	4
BC 571	Quantitative Biochemistry	1
BC 611	Structural Biology II	2
BC 663	Gene Expression	2
BC 665A	Advanced Topics in Cell Regulation: Microscopic Methods	2
BIOM 525/MECH 525	Cell and Tissue Engineering	3
BIOM 533/CIVE 533	Biomolecular Tools for Engineers	3
BMS 500	Mammalian Physiology I	4
BMS 501	Mammalian Physiology II	4
BZ 565/MIP 565	Next Generation Sequencing Platform/ Libraries	1
BZ 570	Molecular Aspects of Plant Development	3
BZ 576/BZ 476	Genetics of Model Organisms	4
CBE 560	Engineering of Protein Expression Systems	3
DSCI 511	Genomics Data Analysis in Python	2
DSCI 512	RNA-Sequencing Data Analysis	1
MIP 530	Advanced Molecular Virology	4
MIP 543	RNA Biology	3
MIP 545	Microbial Metagenomics/Genomics Data Analysis	2
MIP 670	Molecular Immunology and Immunogenetics	3
MIP 730/ERHS 730	Principles of Flow Cytometry & Cell Sorting	2
NB 501	Cellular and Molecular Neurophysiology	2
NB 503/BMS 503	Developmental Neurobiology	3

[1] Minimum 1 credit for each CM 595 and CM 699, with additional credits as needed to bring degree total to 30 credits, with approval of the graduate advisory committee.

[2] CM 792 and CM 793 must be taken every academic year.

[3] At least 8 credits in regular graduate-level courses relevant to Cell & Molecular Biology, with approval of the graduate advisory committee.