HONOURS BACHELOR OF SCIENCE IN TRANSLATIONAL AND MOLECULAR MEDICINE

The Bachelor of Science with Honours in Translational and Molecular Medicine (TMM) is a unique collaborative effort between the Faculty of Medicine’s researchers and its affiliated institutes. The program integrates theoretical and practical courses with e-learning, offering students an enriching educational environment and exposing them to innovative research throughout their studies. TMM offers the largest number of advanced laboratories for an undergraduate program in Canada. Students are taught by both basic scientists and clinicians, providing them with the skillsets required to perform cutting-edge biomedical research.

Program Requirements

Basis of admission
Two full years of study in a BSc program 60 Units

Compulsory courses at the 3000 level
TMM 3009 Biomedical Research Laboratory 9 Units
TMM 3101 Molecular Biology and Inherited Disorders 3 Units
TMM 3102 Proteins: Structure, Functions and Diseases 3 Units
TMM 3103 Metabolic Pathways of Human Diseases 3 Units
TMM 3104 Cellular Basis of Disease 3 Units

Compulsory courses at the 4000 level
TMM 4012 Honours Research Project (Part 1 of 2) 12 Units
TMM 4950 Science Communication 3 Units

Optional Courses
6 optional course units from: 6 Units

PHS 3341 Physiology of Sensation, Regulation, Movement and Reproduction
PHS 3342 Physiological Regulation of Intake, Distribution, Protection and Elimination
TMM 3105 Immunity and Infectious Diseases
TMM 3106 Introduction to Neurobiology
TMM 3107 Introduction to high-throughput and systems biology methods relevant to diseases
TMM 3300 Selected Topics in Translational and Molecular Medicine

3 optional course units in advanced methodology courses: 3 Units
TMM 4910 Advanced Methods in Biomedical Research - Special Topics
TMM 4911 Advanced Methods in Biomedical Research - Cell Biology and Microscopy
TMM 4912 Advanced Methods in Biomedical Research - Biochemistry and Biophysics
TMM 4913 Advanced Methods in Biomedical Research - Nucleic Acids
TMM 4914 Advanced Methods in Biomedical Research - Flow Cytometry
TMM 4915 Advanced Methods in Biomedical Research - Epigenetics and Genomics

List of Optional Courses

CMM 3350 Principles of Neurobiology 3 Units
PHA 4107 Introductory Pharmacology - Drugs and Living Systems 3 Units
PHS 4300 Pathophysiology 3 Units
TMM 3107 Introduction to high-throughput and systems biology methods relevant to diseases 3 Units
TMM 4101 Introduction to Cancer Biology 3 Units
TMM 4102 Regenerative Medicine 3 Units
TMM 4103 Metabolomics and Integrative Research Methods in Metabolic Diseases 3 Units
TMM 4104 Probability and Statistics for Molecular Medicine and Genomics 3 Units
TMM 4105 Neurological Diseases 3 Units
TMM 4106 Genomic Systems of Disease 3 Units
TMM 4107 Viral Pathogenesis 3 Units
TMM 4108 Bacterial Diseases 3 Units
TMM 4300 Selected Topics in Biomedical Research 3 Units
TMM 4301 Special Topics in Biochemistry 1.5 Units
TMM 4302 Special Topics in Epidemiology 1.5 Units
TMM 4303 Special Topics in Neuroscience 1.5 Units
TMM 4304 Special Topics in Infectious Diseases 1.5 Units
TMM 4910 Advanced Methods in Biomedical Research - Special Topics 1.5 Units
TMM 4911 Advanced Methods in Biomedical Research - Cell Biology and Microscopy 1.5 Units
TMM 4912 Advanced Methods in Biomedical Research - Biochemistry and Biophysics 1.5 Units
TMM 4913 Advanced Methods in Biomedical Research - Nucleic Acids 1.5 Units
TMM 4914 Advanced Methods in Biomedical Research - Flow Cytometry 1.5 Units
TMM 4915 Advanced Methods in Biomedical Research - Epigenetics and Genomics 1.5 Units
TMM 4916 Advanced Methods in Biomedical Research - Electrophysiology 1.5 Units
TMM 4917 Advanced Methods in Biomedical Research - Microbiology 1.5 Units
TMM 4918 Advanced Methods in Biomedical Research - Proteomics 1.5 Units

Electives
6 elective course units from another faculty 6 Units

Total: 120 Units

Note(s)
PHI 2396 is strongly recommended.