CSMLS	**9830-18 ENTEROBACTERIACEAE** (BASIC) Reinforce your knowledge and skills as you use nomenclature, cultural characteristics, identification techniques and pathogenicity to differentiate *Escherichia, Shigella, Salmonella, Enterobacter* and other clinically significant *Enterobacteriaceae*.	CSMLS Course Catalogue	Continuous enrolment. 8.5 PEP hours $99.00
CSMLS	**9831-18 ENTEROBACTERIACEAE: MEDIA AND IDENTIFICATION** (BASIC) Continue your study of this challenging family of organisms by considering the differential properties of selective media and other identification techniques. MacConkey, Xylose, Lysine, Deoxycholate, Salmonella-Shigella, Hektoen Enteric, Bismuth Sulfite agars (and many more) are discussed. Learn what results to expect when various biochemical tests such as carbohydrate fermentation, triple sugar iron, ONPG, Voges Proskauer, IMViC Series, and Urea Motility Indole are used, and describe the appearance of those organisms that do grow.	CSMLS Course Catalogue	Continuous enrolment. 8.5 PEP hours $99.00

MICROBIOLOGY

Institution	Outline	More Info	Duration/ Fee
CSMLS	**9828-21 MISCELLANEOUS GRAM POSITIVE RODS** (BASIC) Improve your ability to isolate, identify, differentiate, and be better prepared to deal with *Bacillus anthracis, Corynebacterium diphtheria* and *Listeria.*	CSMLS Course Catalogue	Continuous enrolment. 10.5 PEP hours $99.00
CSMLS	**4878-20 ANAEROBIC BACTERIOLOGY PART 1: Introduction to Anaerobic Bacteriology** Anaerobic bacteria are important causes of many different types of infections and are still the most frequently overlooked of all bacterial infections. Part 1 of this two-part course will give you an introduction to anaerobic bacteriology, review specimen collection and culture requirements and delve into the isolation of anaerobes.	CSMLS Course Catalogue	Continuous enrolment. 17 PEP hours $329.00
CSMLS	**4879-20 ANAEROBIC BACTERIOLOGY PART 2: Methods and Identification** Part 2 of the two-part anaerobic bacteriology series will explore the identification of anaerobes. This will include advanced identification methods as well as susceptibility testing.	CSMLS Course Catalogue	Continuous enrolment. 20 PEP hours 0.80 CPS credits $329.00
CSMLS	**9821-12 NEISSERIA AND MORAXELLA** Learn the morphology, growth requirements, identification tests and susceptibility patterns, and pathogenicity to better differentiate *Neisseria* species including *N. gonorrhoeae, N. meningitides* and *Moraxella catarrhalis*.	CSMLS Course Catalogue	Continuous enrolment. 10.3 PEP hours $99.00

CSMLS	**9804-18 BODY FLUIDS: CEREBROSPINAL FLUID** Review the many laboratory techniques for evaluating cerebrospinal fluid (CSF) including routine procedures and new technologies. This course focuses on cell counting and identification, chemical analyses, significance of lab findings and microbiological tests for meningitis. Brain anatomy and physiology and the production of CSF are also reviewed.	CSMLS Course Catalogue	Continuous enrolment. 21 PEP hours $99.00
CSMLS	**9814-21 STREPTOCOCCI** Build your confidence and competence in dealing with the pervasive group Streptococci in this module that includes classification and nomenclature, morphology, isolation and identification procedures, clinical significance, and antimicrobial susceptibility.	CSMLS Course Catalogue	Continuous enrolment. 10 PEP hours $99.00
LabCE CE Info	**578-017-16 READING GRAM STAINED SMEARS FROM CULTURES** This basic illustrated course covers the basics of reading gram-stained smears from cultures. Covers gram positive and gram-negative bacilli; single, pair, chain, and tetrad cell arrangements; and reporting.	Course information	P.A.C.E. contact hours: 1.5 $25 US or by subscription

Laurentian University Online & Distance course info	**BIOL-2110 EL: MEDICAL MICROBIOLOGY** This course consists of an introduction to microorganisms, the principles of medical microbiology, basic immunology, and a survey of infectious diseases that emphasizes causative agent, symptoms, chemotherapy, and prevention.	Course information Students in the three-year or four-year program in Biology may take this course for Biology credit, but only if they have prior permission of the department.	Fall/Winter 6 credits Fees & Financing
The Michener Institute of Education at UHN	**MI905 TUTORIALS IN MICROBIOLOGY** Designed for technologists seeking microbiology certification and those working in a multidisciplinary environment, this correspondence course provides a comprehensive review of medical microbiology. Topics covered: ▪ Commonly isolated bacterial pathogens found in the majority of clinical specimens ▪ Review basic microbiology and bacterial physiology ▪ Understand the theory and use of the gram stain ▪ Discuss the correct uses of various media ▪ Differentiate and identify commonly isolated bacterial pathogens	Course information	Continuous intake 5 CEU (= 50 refresher course hours) Domestic: $803 International: $1004

Southern Alberta Institute of Technology	**MBIO-102 CLINICAL MICROBIOLOGY** Reviews the basic concepts of bacterial anatomy and physiology. Areas of clinical significance studied are normal flora and the most common pathogens isolated from the urogenital tract, respiratory tract, gastrointestinal tract, eye/ear, cardiovascular and central nervous systems, and skin/wound/soft tissue sites. Other areas covered include mycology, parasitology, and antimicrobial susceptibility testing including the spectrum of the major drug groups and their pathophysiology, commonly isolated anaerobes and their clinical significance, and miscellaneous uncommon pathogens.	Course information	Continuous registration 88 hours $549.00
University of British Columbia	**PATH 417A BACTERIAL INFECTION IN HUMANS** Students acquire content relating to the virulence factors of the bacteria and the pathophysiology of the host while working through infectious disease case scenarios on their own and in online groups. Students taking this course must be willing to engage in both self-directed and small-group learning.	Course information Prerequisite: MICB 212.	January 2025 3 credits Registration/tuition information not yet available
University of Waterloo	**BIOL 240 FUNDAMENTALS OF MICROBIOLOGY** Introduction to the biology of bacterial and archaeal organisms. Cell structure and function, methods of cultivation, genetics, phylogeny and taxonomy, and metabolic and genetic diversity.	Course information	FALL/WINTER/ SPRING Half credit Course work and exam Tuition Fee Schedules

LabCE CE Info	**578-016-16 READING & REPORTING GRAM STAINED DIRECT SMEARS** This Basic course helps provide training for technologists who must read gram stain but do not work primarily in the microbiology laboratory. Describes the morphology and Gram stain reactions of bacteria and nonbacterial elements found in gram-stained smears of clinical material.	Course information	P.A.C.E. contact hours: 1.5 $25 US or by subscription

TRANSFUSION SCIENCE / IMMUNOHEMATOLOGY / IMMUNOLOGY			
Institution	**Outline**	**More Info**	**Duration/ Fee**
CSMLS	**9812-17 OVERVIEW OF COMMON BLOOD GROUP SYSTEMS (BASIC)** Get reacquainted with modern concepts on various blood group systems.	CSMLS Course Catalogue	Continuous enrolment. 15.45 PEP hours $99.00 
The Michener Institute of Education at UHN	**IH903 TUTORIALS IN TRANSFUSION SCIENCE** This course re-acquaints the Medical Laboratory Technologist with a variety of Transfusion Science topics, including Blood Components. This online course consists of a comprehensive package of self-study notes, covering all aspects of Transfusion Science theory including: Immunology; Major blood group systems; Antibody investigation; Compatibility testing; Blood component therapy; Transfusion hazards; Quality control; Hemolytic disorders (HDN, WAIHA, CHD, DIHA)	Course information	Continuous intake 5 CEU (=50 refresher course hours) Domestic: $803.00 International: $1004.00 

Northern Alberta Institute of Technology	**MELT521 IMMUNOLOGY** Improve your skills in the laboratory with the fundamental knowledge of antigen-antibody reactions and principles of immunological techniques. Discover mechanisms that the body uses to defend against infectious agents as well as immune responses in hypersensitivity, autoimmunity, transplantation and tumor growth. This course will strengthen your understanding of immunity, hormonal response, antibody structure and specificity, cell-mediated response, and maturation and activation of B and T lymphocytes. Investigate MHC molecules, cellular interactions, effector mechanisms, and the generation of immune diversity to complement your technical knowledge and abilities.	Course information	Continuous Registration 24 PEP hours $325.00 
Southern Alberta Institute of Technology	**MEDL-104 TRANSFUSION MEDICINE** This course will provide the theory required to perform basic techniques to detect antigen-antibody reactions, to perform ABO forward and reverse grouping and Rh phenotyping, as well as to perform antiglobulin testing (direct and indirect). Topics covered will also include how to problem-solve ABO discrepancies and a discussion on quality systems implemented in the blood bank and how to problem-solve ABO discrepancies.	Course information	Continuous registration 48 hours $549.00 

VIROLOGY			
Institution	**Outline**	**More Info**	**Duration/ Fee**
Brock University	**BTEC 3P94 MOLECULAR VIROLOGY (OR BIOL 3P94)** Bacterial and animal viruses. Topics include biochemical properties, virus-host interaction, productive cycle, effect of virus on host cell and organism, viral vectors and gene therapy, recombinant viral vaccines and origin of virus.	Course information BIOL 2P02, 2P03, 2P05, and 2P98 0 or permission of the instructor	3 lecture/seminar per week Tuition and Fees Overview
McMaster University BHSc Program	**HTHSCI 3K03 Principles of VIROLOGY** This introductory course will focus on virology as an integrative discipline and examine the overarching principles and survival strategies adopted by viruses. Topics include the structure and composition of viruses, virus replication strategies, virus-host interactions and uses of viruses for medical research.	Course information One of BIOLOGY 2B03, HTHSCI 2K03, BIOTECH 2CB3, or ISCI 2A18 A/B and registration in Level III	3 lectures and 1 tutorial, 1 term Fees & Payment
Queen's University	**MICR-451 VIRAL PATHOGENESIS** This molecular virology course covers viral replication strategies and virus-host interactions, with an emphasis on mechanisms of viral pathogenesis, focusing on human pathogenic viruses such as coronaviruses, hepatitis viruses, HIV, and herpesviruses.	Course information Level 3 or above and registration in the BIOL or LISC Major or Specialization Plan and a GPA of 2.5 and (MICR 221/3.0 or MICR 271/3.0) and (BCHM 218/3.0 or BIOL 330/3.0).	Offered in alternate years to MICR 450/3.0 9-10 hrs/wk 3 units Tuition and Fees

University of Guelph Dept. of Molecular and Cell Biology	**MICR*4330 MOLECULAR VIROLOGY** This course will focus on molecular aspects of virus replication cycles and the diverse strategies used for replication of select RNA and DNA viruses. Virus-host interactions including tumour virology and host antiviral responses such as interferon and apoptosis will be discussed. Viral anti host-defense responses as well as recent advances in molecular virology and evolution will be also be covered.	Course information MICR*3330, (MICR*2430 is recommended) Not offered in Winter 25 Semester	Lectures, seminars, and lab Half credit Tuition and fees
University of Toronto Dept. of Molecular Genetics	**MGY 440H1 VIRUS-HOST INTERACTIONS** Analysis of virus/host interactions at the molecular level with a view to understanding how viruses cause disease. Course material is based on recent research publications. Topics will be selected from two or three themes that may include virus entry, intracellular trafficking, activation of host cell signaling pathways in response to infection, assembly and release of progeny virus, viral and host determinants of tissue tropism within the host, and virus transmission between hosts.	Course information BCH311H1/CSB349H1/MGY31 1Y1; MGY378H1/CSB351Y1. Recommended preparation: IMM334Y1/335Y1	36 L contact hours Tuition & Fees

University of Waterloo	**BIOL 442 VIROLOGY** Survey of viral structures, life cycles, and the interactions of viruses with microbial and animal hosts. The laboratory component will include demonstrations of procedures used for viral detection and titration, as well as individual library research projects.	Course information BIOL 140/240, 140/240L, 241 and 308 or 341 or permission of instructor	3 lecture, 3 lab half course Tuition Fee Schedules
York University Dept. of Biology	**SC/BIOL 3155 VIROLOGY** This course focuses on cellular, molecular, and structural aspects of Virology. The goal is to understand how viruses hijack host cells and redirect cellular energy to perform virus-related tasks – like the synthesis of viral proteins and replication of viral genomes. The course material investigates the highly-regulated host- and virus-specific steps that lead to successful infections. Molecular processes and concepts will be emphasized using prototypical viruses selected from different virus families.	Course information SC/BIOL 2020 and SC/BIOL 2021	Two midterm tests One final exam Course and Program Fees

OTHER			
Institution	**Outline**	**More Info**	**Duration/ Fee**
Association for Diagnostics & Laboratory Medicine (Formerly AACC) www.myadlm.org	**POINT-OF-CARE SPECIALIST CERTIFICATE PROGRAM** This program was developed to prepare point-of-care coordinators and POC specialists for their critical role and to promote standardized best practices. It provides a comprehensive curriculum for successful practice in the hospital, clinical, and doctor's office point-of-care testing. The program is composed of eight courses: • POC Regulations • POC Quality Management • POC Policies and Procedures • POC Instrument Selection and Validation • POC Connectivity and IT • POC Education and Training • POC Administration • POC Communication • POC Final Exam	The program is composed of eight courses. Course information	Credit: 13 hours Level: Intermediate Price: $515.00 Member Price: $265.00 Program consists of eight courses. Each course can be completed online in approx. 1-2 hours and contains a lecture, slides and transcripts, and a quiz. Also has a comprehensive 50 question multiple choice exam and additional resources for download.

Trent University https://www.trentu.ca/biology/	**BIOL 2050H Introduction to Genetics** Develops a basic understanding of genetics. Mendelian inheritance, chromosome structure, genetic recombination, mutation, the structure of DNA, the nature of genes, and current topics in genetics are investigated using examples from plants, animals, insects, bacteria, fungi, and viruses.	Course information 60% or higher in BIOL 1030H or BIOM 1000H, and 60% or higher in one of BIOL 1020H or 1050H. Cross-listed with FRSC-2050H	Fall and winter Tuition and Fees