

PROGRAM INFORMATION

Academic Year	2024 - 2025
Credential	Ontario College Certificate
Program Delivery	Full - Time
Duration	1 Year
Length	3 Semesters
Program Code	H150 (PC) Timmins Campus

DESCRIPTION

The entire healthcare system depends on your results.

Northern's Medical Laboratory Technician diploma will set you up with the knowledge and expertise you need to work alongside other laboratory professionals. Along with an overview of applied anatomy, physiology, microbiology, and chemistry, you'll learn specimen collection and processing. You'll master the various tests and equipment. You'll develop the professional bedside manner that's so critical for close patient contact.

Using simulation in our medical lab, you'll get all the practice you need. Plus, you'll get experience at various local laboratories as part of your placement. It all adds up to a smooth transition to the workplace, and a rewarding career in a hospital, research lab, private or public clinic, and beyond. The Medical Laboratory Technician program provides students with the knowledge and skills to enable them to work in a medical laboratory. Students will receive education and training in specimen collection and processing, the administration of ECG's, set up of Holter monitors, and the use of laboratory equipment while developing the professional attitude and demeanor needed for close patient contact.

Students should be aware that working in a Medical Lab setting will result in exposure to potentially challenging environments, such as patient contact/trauma, mental health issues and challenging family dynamics in an emergency setting. Graduates must be capable of managing this work-related stress as part of their daily duties.

Students will have the opportunity to perform a variety of lab functions both within the simulation and during clinical practicums within both community and hospital laboratories. Upon successful completion of all courses outlined in the program of study, students are eligible to write the Examination for Medical Laboratory Assistant/Technician with the MLPAO or the CSMLS National exam. This program is currently applying to Accreditation Canada/Equal to pursue accreditation status. Equal is Accreditation Canada's specialized health professional education accreditation program that helps health professions and their higher education institutions and programs deliver quality education to the future workforce.

CAREER OPPORTUNITIES

Employment opportunities exist with hospitals, private/public health laboratories, clinics, veterinary laboratories, research labs, mining sector and commercial diagnostic supply companies.

VOCATIONAL LEARNING OUTCOMES

1. Utilize health and safety measures to protect the environment and ensure the safety of patients, co-workers, and self.
2. Communicate laboratory and other data in written, electronic and verbal formats, accurately and completely.
3. Prepare a variety of laboratory solutions and media accurately and appropriately.
4. Demonstrate the safe and appropriate collection, and handling of specimens.
5. Perform a variety of laboratory tests using correct techniques.
6. Demonstrate the safe and appropriate use and care of specialized equipment within medical laboratory.
7. Prepare laboratory specimens to level of diagnostic quality.
8. Demonstrate proper technique in performing a venipuncture, a capillary stick and an arterial blood gas puncture to ensure a quality specimen.
9. Demonstrate competency in data entry/retrieval within laboratory information systems.
10. Perform laboratory duties within the scope of practice outlined in the RHPA, in compliance with current legislation, regulations, Standard and best practice guidelines.
11. Demonstrate effective communication on a personal and professional level.

PROGRAM COURSES

The following reflects the planned course sequence for full-time offerings of the program. Programs at Northern College are delivered using a variety of instruction modes. Courses may be offered in the classroom or lab, entirely online, or in a hybrid mode which combines classroom sessions with virtual learning activities.

Semester 1		Hours
CM1323	Professional Communications	42
LT1002	Specimen Collection and Handling Theory I	28
LT1003	Clinical Laboratory Techniques	42
LT1012	Specimen Collection and Handling Practice I	28
LT1013	Applied Anatomy & Physiology	42
LT1034	Clinical Data Management	56
PH1014	Chemistry I	56
 Semester 2		
GN1443	Indigenous Culture and Awareness	42
LT2002	Specimen Collection and Handling Theory II	28
LT2004	Clinical Chemistry & Urinalysis	56
LT2012	Specimen Collection and Handling Practice II	28
LT2014	Practical Hematology & Immunohematology	56
LT2024	Microbiology, Cytology and Histology	56
LT2034	Laboratory Administration and Quality	56
 Semester 3		
LT3010	Clinical Practice	37.5

PROGRAM PROGRESSION

The following reflects the planned progression for full-time offerings of the program.

Fall Intake

Sem 1: Fall 2024

Sem 2: Winter 2025

Sem 3: Summer 2025

WORK INTEGRATED LEARNING OPPORTUNITIES

Clinical & Fieldwork Requirements

In the final 5 weeks of the program, students will be placed in a clinical laboratory where you will function, under supervision, as a member of the clinical laboratory team. Northern is partnered with a number of public laboratories across Canada that will provide excellent clinical training to Northern's Medical Laboratory Assistant/Technician students.

Clinical partner sites are subject to change; therefore, specific geographic regions may not be available at the time of your placement and other regions may be added.

Please note that when you accept a seat in the program, you also accept to go to any of the program's affiliated clinical sites available at the time of your placement. The placement will be delivered at an accredited hospital or lab in Canada that is an approved clinical partner of Northern College. All related clinical placement expenses such as travel, parking, and accommodation are the responsibility of the student. Mask fit will be provided by Northern College prior to clinical placement.

ARTICULATION/TRANSFER AGREEMENTS

A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program coordinator for specific details if you are interested in pursuing such an option. Additional information can be found at [Articulation Agreements](#).

ADDITIONAL INFORMATION

Entry into Semester 3

Students must successfully complete and pass all courses in both semesters in order to enter Semester 3.

Examination for Laboratory Technicians

Upon successful completion of all courses outlined in the program of study, students are eligible to write the Examination for Laboratory Technicians as set out by the Medical Laboratory Professionals' Association of Ontario (MLPAO) and/or Canadian Society of Medical Science (CSMLS) At the time of publishing, the application fee for MLPAO exam is \$210.00 and for CSMLS exam \$215.00.

PROGRAM SPECIFIC REQUIREMENTS

Medical Laboratory Technician Clinical Requirements

ADMISSION REQUIREMENTS

- Ontario Secondary School Diploma (OSSD)
- Grade 12 English (C,U)
- Grade 11 Math (C, M or U)
- Grade 11 or 12 Biology (C or U)
- Grade 11 or 12 Chemistry (C or U)
- Or equivalent

Computer proficiency in Microsoft Office (word processing, spreadsheets), web search engines and e-mail systems. Successful completion of Northern's two-semester Pre-Health Sciences program will also serve to meet the admission requirements for the Medical Laboratory Technician program. Northern College does not offer testing for the science equivalencies.

Additional Requirements for International Students

In addition to the general and program admission requirements, international students must have proof of English Proficiency and meet the requirements below:

1. Proof of Senior High School Diploma/Certificate with 50% in each equivalents for Mathematics, Chemistry and Biology.
2. English Proficiency (we will require one of the following):
 - IELTS Academic (International English Language Testing System – minimum overall score of 6.5 must be achieved, with no individual band score under 6.0.
 - TOEFL (Test of English as a Foreign Language) – Internet Based Test (iBT) overall minimum score of 88+
 - PTE (Pearson Test of English) Academic 60+

If your country of citizenship has English as its official language, we may accept alternate proof of English Proficiency. All educational documents must be submitted in English and will be dependent on the country of citizenship. For more information, please contact admissions@northern.on.ca.

Academic prerequisites for this program may be obtained free of charge through [Academic Upgrading](#). Applicants who do not have a high school diploma or equivalent and will have reached the age of 19 years on or before the start of the program must undergo academic testing and may be required to complete [Prior Learning Assessment & Recognition \(PLAR\)](#) process to demonstrate equivalency of admission requirements prior to admission into a program. For more details, please contact the Admissions Office at 705-235-7222 or admissions@northern.on.ca.

Applicant Selection Criteria

Where the number of eligible applicants exceeds the available spaces in the program, the Applicant Selection Criteria will be:

- Preference for permanent residents of Ontario
- Receipt of Application by February 1st
- Achievement in the Required Academic Preparation

Required Documentation

- Current Basic Cardiac Life Support (CPR – HP content). Standard First Aid Certificate (or equivalent)
- Physician's medical report as per guide supplied by the College Immunization record including Hepatitis B; two step Mantoux (with follow up chest x-ray if the test is positive)
- Employers who provide clinical placement settings require a criminal record check for criminal offenses before accepting a student into the clinical setting.
- A recent criminal/vulnerable sector record check (within 3 months of start of semester) is required prior to the start of the third semester.
- CPR re-certification, criminal reference checks and immunization updates are required annually. Any costs for these tests/certifications will be the responsibility of the student.
- To be eligible for participation in clinical training, students must not have been convicted of any criminal offence for which that person has not been pardoned. An unpardoned criminal record will result in an inability to participate in clinical placements and field internship courses and will prevent the student from graduating.

GRADUATION REQUIREMENTS

- 13 Program Courses
 - 1 Communications Course
 - 1 General Education Course

GRADUATION ELIGIBILITY

To graduate from this program, a student must attain a minimum of 60% in core courses or a letter grade of CR (Credit) in each course in each semester unless otherwise stated on the course outline. Students should consult departmental policies and manuals for additional detail and exceptions.

GRADUATION WINDOW

Students unable to adhere to the program duration of one year (as stated above) may take a maximum of two years to complete their credential. After this time, students must be re-admitted into the program, and follow the curriculum in place at the time of re-admission.

CONTACT INFORMATION

For questions about being admitted into the program, please contact Northern College Admissions at admissions@northern.on.ca or by phone at 705-235-3211 ext. 7222. For questions about the content of the program, contact the Program Coordinator:

Violet Jewitt, Program Coordinator
Tel: 705-235-3211
Email: jewittv@northern.on.ca

COURSE DESCRIPTIONS

Semester 1

CM1323 Professional Communications

In this course, students will learn essential skills for success in college and the workplace. This course focuses on developing and strengthening oral and written communication skills, and critical thinking ability. During this course, students will engage in a variety of forms of communication with a focus on upholding the principles of academic integrity. Students will develop the skills necessary to create discipline-specific documents, practice business etiquette and professionalism, and apply critical thinking strategies to practical scenarios. Upon successful completion of this course, students will be able to plan and draft concise, coherent and well-organized writing assignments that are tailored to specific audiences and purposes.

LT1002 Specimen Collection and Handling Theory I

This course will introduce students to the proper techniques for the collection of blood and body fluid specimens. Students will be introduced to the processing of specimens for the various tests and the importance of storage to ensure valid test results. Students will be introduced and utilize standard precautions in handling biological specimens. This course will provide students with opportunities to perform ECGs and set up Holter monitors. An exciting aspect of this course is the focus on the theoretical knowledge and skills needed to interact with patients in the collection of specimens. Legal and ethical issues pertaining to specimen collection and processing will be explored and discussed.

LT1003 Clinical Laboratory Techniques

This course provides students with an introduction to the concept of safety in the laboratory environment for patients, co-workers, and medical laboratory technicians. General safety measures, employee safety and occupational health and safety issues are explored in this course. In addition, the topics of basic specimen handling, storage, shipping and disposal of biological hazards, blood borne pathogens and drug samples in accordance with current government legislation and regulations and institutional policies is examined. Emergency response plans are reviewed and discussed. The discussion of use, care and maintenance of common laboratory equipment provides for hands-on experience and application of theory.

LT1012 Specimen Collection and Handling Practice I

This course will introduce students to the proper techniques for the collection of blood, urine and fecal specimens. Students will be introduced to the processing of specimens for the various tests and the importance of storage to ensure valid test results. Students will be introduced and utilize standard precautions in handling biological specimens. This course will provide students with opportunities to perform ECGs and set up Holter monitors. An exciting aspect of this course is the focus on the theoretical knowledge and skills needed to interact with patients in the collection of specimens. Legal and ethical issues pertaining to specimen collection and processing will be explored and discussed.

LT1013 Applied Anatomy & Physiology

This course will assist the student to increase his/her foundational knowledge of the normal structure and functions of the major organ systems. This course will also assist the student to identify the common pathologies of the various organ systems and familiarize him/her to the relevant tests utilized for proper diagnosis. In addition, the student will gain an appreciation for the physical and biochemical changes from early childhood to the senior years.

LT1034 Clinical Data Management

This course will assist the student in gaining familiarity with the use of a coherent system of measurement units vital to precise clinical laboratory analyses. Students will be introduced to statistical calculations and quality control methods. In addition, students will be able to perform mathematical calculations relating to clinical laboratory techniques. Students will be able to develop computer literacy skills and begin competency in data entry and laboratory information systems.

PH1014 Chemistry I

This course is designed to assist the student in developing a basic knowledge of chemistry to be applied in understanding chemical compounds and enzymatic reactions. The course begins with a broad discussion of atoms and compounds and progresses to practical discussion of chemical nomenclature. The course culminates with the exploration of more complex chemical structures in the field of organic chemistry and the discussion of the physical properties and function of enzymes.

Semester 2

GN1443 Indigenous Culture and Awareness

This general education course will provide students with an introduction to Canadian Indigenous Nations' history, sovereignty, land titles, cultural history, and current critical issues. Topics addressed include the content of Indigenous rights, economic and social development, community and political processes, and business law and policies, justice & social services. Canadian Indigenous History and Relations is a general education course that has been incorporated into all programs at Northern College.

LT2002 Specimen Collection and Handling Theory II

This course will assist students in the application of proper techniques for the collection of blood, urine and fecal specimens. Students will develop skills in processing specimens for the various tests and the importance of storage to ensure valid test results. Students will learn to use standard precautions in handling biological specimens. This course will provide students with opportunities to perform ECGs and set up Holter monitors. An exciting aspect of this course is the focus on the theoretical knowledge and skills needed to interact with patients in the collection of specimens. Legal and ethical issues pertaining to specimen collection and processing will be explored and discussed.

LT2004 Clinical Chemistry & Urinalysis

This course will assist students to understand the specimen requirements for all routine clinical chemistry tests. It will provide students with clinical laboratory practice to setup/load both automated and manual instrumentation including QC samples for initial analysis. Students will gain an understanding of the normal ranges for all routine chemistry tests, recognize variant results and report relevant information.

LT2012 Specimen Collection and Handling Practice II

This course will introduce students to the proper techniques for the collection of blood, urine and fecal specimens. Students will be introduced to the processing of specimens for the various tests and the importance of storage to ensure valid test results. Students will be introduced and utilize standard precautions in handling biological specimens. This course will provide students with opportunities to perform ECGs and set up Holter monitors. An exciting aspect of this course is the focus on the theoretical knowledge and skills needed to interact with patients in the collection of specimens. Legal and ethical issues pertaining to specimen collection and processing will be explored and discussed.

LT2014 Practical Hematology & Immunohematology

This course will introduce students to the formed elements of blood, and the routine tests in hematology and blood bank departments. Students will learn the underlying principles, use and care of equipment found in the hematology and Transfusion Medicine departments. Students will learn how to prepare and stain a peripheral blood film and examine it for proper staining.

LT2024 Microbiology, Cytology and Histology

This course will assist students in understanding the major classes of micro-organisms. Students will learn about common media used in a microbiology laboratory including preparation, autoclaving, and dispensing. Students will learn how to handle specimens using aseptic techniques. They will learn to inoculate specimens using the proper media and incubation conditions. Students will be able to perform common stain techniques and examine them for proper staining. Students will learn the different specimen types, collection for submission for testing and basic techniques in the Histology and Cytology Departments.

LT2034 Laboratory Administration and Quality

This course will introduce students to the organization and structure of the clinical laboratory and the movement of specimens from collection to analysis and storage. Students will gain an understanding of the complexity of laboratory systems that encompass the receipt, organization, prioritization, and transmission of information. Students will learn strategies for effective time management and priority setting. Students will be introduced to the various components of a quality assurance program within a medical laboratory.

Semester 3

LT3010 Clinical Practice

This course will provide students with an opportunity to apply theoretical knowledge in a clinical practice setting under the direction of a medical laboratory technician. The focus of this course is to allow for easy transition into the workplace environment. Students will be given the opportunity to become proficient at specimen collection and handling and be able to function as an effective member of a medical laboratory team.