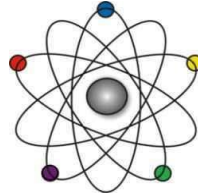


Medical Diagnostics Department



**Combined Laboratory and X-ray Technology
Medical Laboratory Assistant
Medical Laboratory Technology
Medical Radiologic Technology
Phlebotomy**

Intake 2022-2023

Anin Sikwa
Edlanet'e
Hau Koda
Hau Kona
Hau Kola
tawâw
Tanshi



At Saskatchewan Polytechnic, our campuses are situated on Treaty 4 and Treaty 6 territories and the traditional homeland of the Métis.



Laboratory Medicine

- In Canada, each day, over 1.2 million diagnostic test results are generated by medical laboratory professionals. These test results lead to diagnosis and treatment of illness, as well as monitor patient health.
- It is estimated that 85% of physician's diagnosis and treatment decisions are based on Laboratory test results

Who works within Laboratory Medicine

Laboratory Medicine has a variety of professionals who work together across the province to provide diagnostic testing for patients. Dependant on the size and location of the lab service will determine which laboratory professionals may be utilized.

- **Phlebotomists** – front line workers who procure samples from patients (specimen procurement)
- **Medical Laboratory Assistants** – Complete specimen procurement and preanalytical processes
- **Combined Laboratory & X-Ray Technologists** – Perform all lab processes from specimen procurement, preanalytical work then completes routine Hematology and Chemistry analyses in hospitals within small to moderate sized communities
- **Medical Laboratory Technologists** – Performs all lab processes from specimen procurement through to routine and specialized analyses in hospitals within moderate to urban sized communities

Phlebotomy

A critical step within all laboratory medicine roles is phlebotomy.

This is the only direct patient contact laboratory medicine has with patients.

This professional is the face of the laboratory to the public

- **Treating all patients with respect and dignity while using professional communication**
- **Patient identification is always critical**
- **Proper collection of samples using established protocols**
- **Samples must be labelled accurately**
- **Timely, accurate collections enable quality results for patient care and safety**
- **Clearly explaining collection procedures for samples other than blood**

Laboratory Medicine - Phlebotomist

- Phlebotomists – study phlebotomy and specimen procurement
- Front line representative to our patients
- Responsible for:
 - Collection of blood samples
 - accurate patient identification and data entry
 - Management and handling of specimens
- requires good people and communication skills, attention to detail, a professional yet caring attitude, and a commitment to teamwork and excellence
- Phlebotomist's work in hospital and community collection centers.



Laboratory Medicine - Medical Laboratory Assistant

- Medical Laboratory Assistants- study phlebotomy and preanalytical processes and process and preparation of specimens for analysis
- Phlebotomy- front line representative to our patients
- Pre-analytical work such as Specimen Management and Front-end Chemistry & Hematology
- requires good people and communication skills, attention to detail, a professional yet caring attitude, and a commitment to teamwork and excellence
- MLA's also work in areas such as Histology/Cytology, Microbiology, Transfusion Medicine, Cytogenetics

Preanalytical – what is it?

- Specimen Management/Chemistry/Hematology
Prepare and aliquot the sample for testing
- Microbiology
Prepare samples so the organisms can grow and be identified
- Histology & Cytology
Prepare slides for tissue analysis
- Transfusion Medicine
Inventory control and equipment quality control
- Cytogenetics
Shipping samples, inventory control, preanalytical specimen accessioning



Large laboratories often utilize complex equipment for preanalytical processing



Maintenance of equipment and quality control processes are the responsibility of laboratory personnel

Laboratory Medicine

Combined Laboratory & X Ray

- Combined Laboratory & Xray Technologists- study a combination of Laboratory (routine hematology and chemistry) plus general X-Ray and ECG
- CLXTs need to be comfortable working with people because positioning and touching patients, as well as talking with them, is an important part of their job
- CLXTs are a critical component to the health care team in **smaller communities**. Inter-professional teamwork and good communication skills are extremely important

Laboratory Medicine

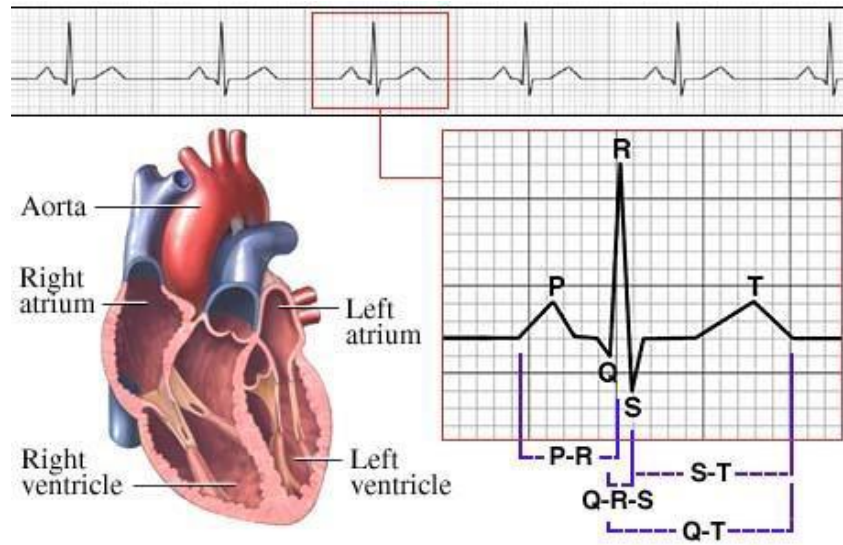
Combined Laboratory & X Ray

- Collection and Accessioning Specimens
 - Prepare patient for specimen collection
 - Collect, transport, and prepare specimens for in house testing
 - Organize and prioritize specimens based on urgency, stability of samples and timing protocols
- Clinical Chemistry & Hematology
 - Perform testing according to scope of practice
 - Uses highly technical instruments and performs routine microscope work
- Microbiology
 - Prepare specimens for testing and or dispatch specimens to reference laboratories

Laboratory Medicine

Combined Laboratory & X Ray

- ECG
 - Prepare patient for and perform Electrocardiography Testing
 - Instruct patient on Holter Monitoring and attach equipment to patient



Laboratory Medicine

Combined Laboratory & X Ray

- X-Ray
 - Prepare patient for Radiographic procedures by portering, instructing and positioning.
 - Perform routine radiographic procedures based on CLXT scope of practice
 - Develop / Process radiographic films, prepare files
- Clerical
 - Computer, filing, reception, data entry, patient records.



Laboratory Medicine – Medical Laboratory Technologist

- Medical Laboratory Technologists- study five distinct disciplines:
 - Clinical Chemistry,
 - Hematology,
 - Histology (Anatomic Pathology)
 - Microbiology,
 - Transfusion Medicine,
- In addition:
 - Molecular diagnostic techniques (e.g. PCR – polymer chain reactions)
 - Point of Care analyses
 - Quality control processes and quality improvement



Laboratory Medicine – Medical Laboratory Technologist

- **Clinical Chemistry-**

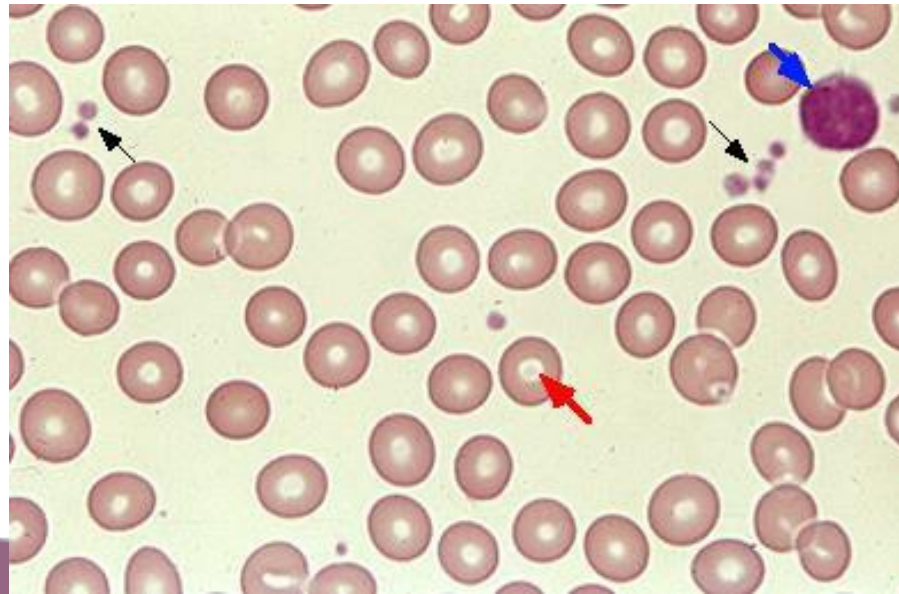
- analyzes the chemical constituents in the blood and urine and other body fluids to determine organ and system functions.
- Uses and maintains highly sophisticated technical instruments and computer interfaces



Laboratory Medicine – Medical Laboratory Technologist

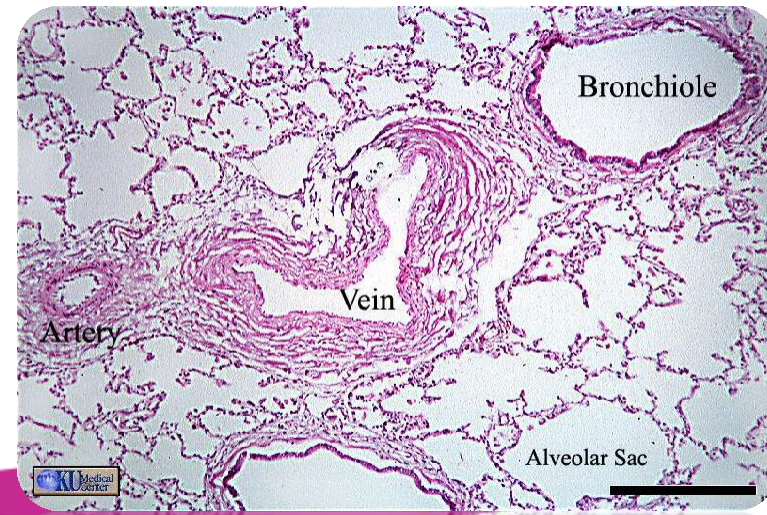
- **Hematology-**

- Studies the cellular components of blood (and bone marrow)
- Studies hemostasis and the clotting mechanisms
- Uses technical analyzers as well as microscopes



Laboratory Medicine – Medical Laboratory Technologist

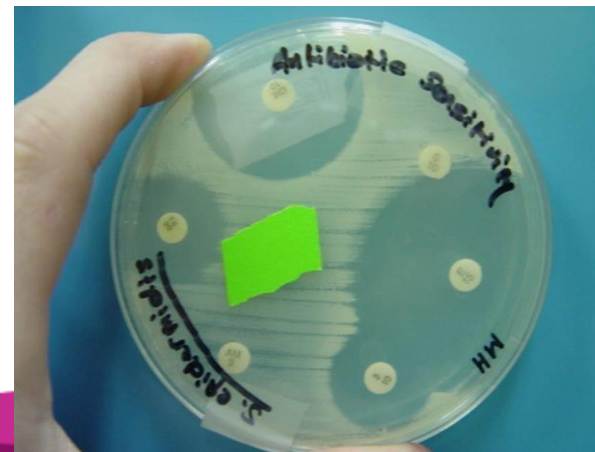
- **Histology (Anatomic Pathology)-**
 - studies tissue that has been removed from the body through surgery, biopsy or autopsy, and processed.
 - Works with chemicals, stains, very sharp instruments and microscopes



Laboratory Medicine – Medical Laboratory Technologist

- **Microbiology-**

- identifies the types of microorganisms (bacteria, fungi, parasites) that are causing disease or infections in patients.
- Performs antibiotic sensitivity testing



Laboratory Medicine – Medical Laboratory Technologist

- **Transfusion Medicine-** perform tests to determine:
 - the blood types of patients
 - compatibility of donor blood
 - Critical testing for patients who require a transfusion(s) due to accidents, illness or surgery.



Diagnostic Imaging – Medical Radiologic Technologist

- Study radiographic image techniques including:
 - X-Ray
 - Fluoroscopy
 - Computed Tomography (CT)
 - Angiography
 - Mammography
- Images are taken in a variety of environments such as the x-ray suite, emergency, ICU, CCU, surgical suites or the morgue.

Diagnostic Imaging – Medical Radiologic Technologist

- A people-oriented profession which works very closely with patients, radiologists and other health care professionals
- Responsible for:
 - Communication with patients and other health professionals
 - Patient care
 - Procuring diagnostic images using a variety of x-ray equipment (standard x-ray, C-arm, fluoroscopy, mobile equipment, etc.)
- **MRT do invasive procedures** such as:
 - venipunctures for contrast medium injections
 - Barium enemas
- requires good people and communication skills, attention to detail, a professional yet caring attitude, and a commitment to teamwork and excellence

Medical radiologic technologists may see patients when they are in extreme pain and may not be at their best.

Elbow Dislocation



Supracondylar Fracture



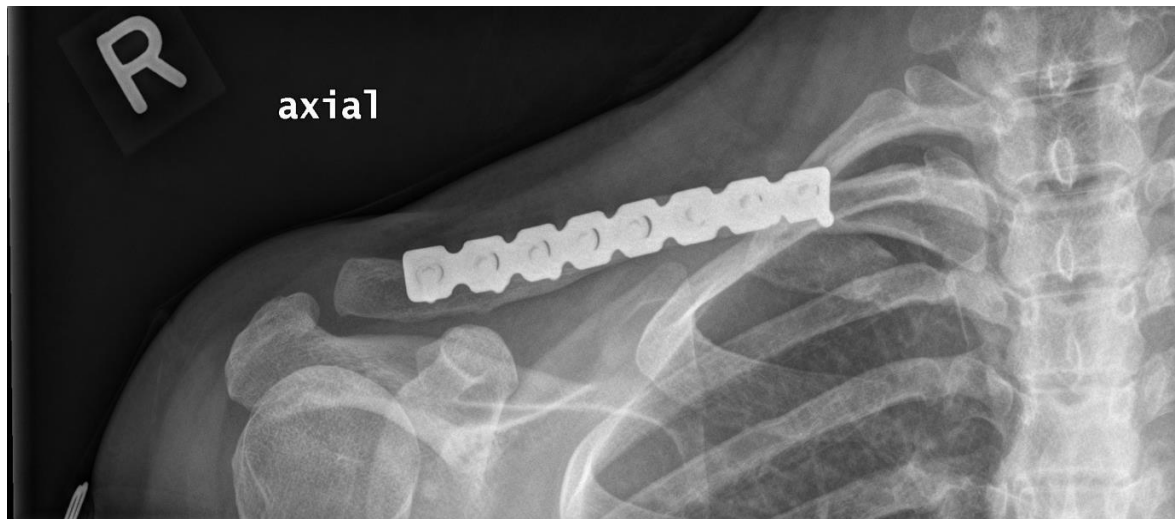
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Crush Injury to right hand
(Comminuted Fracture)

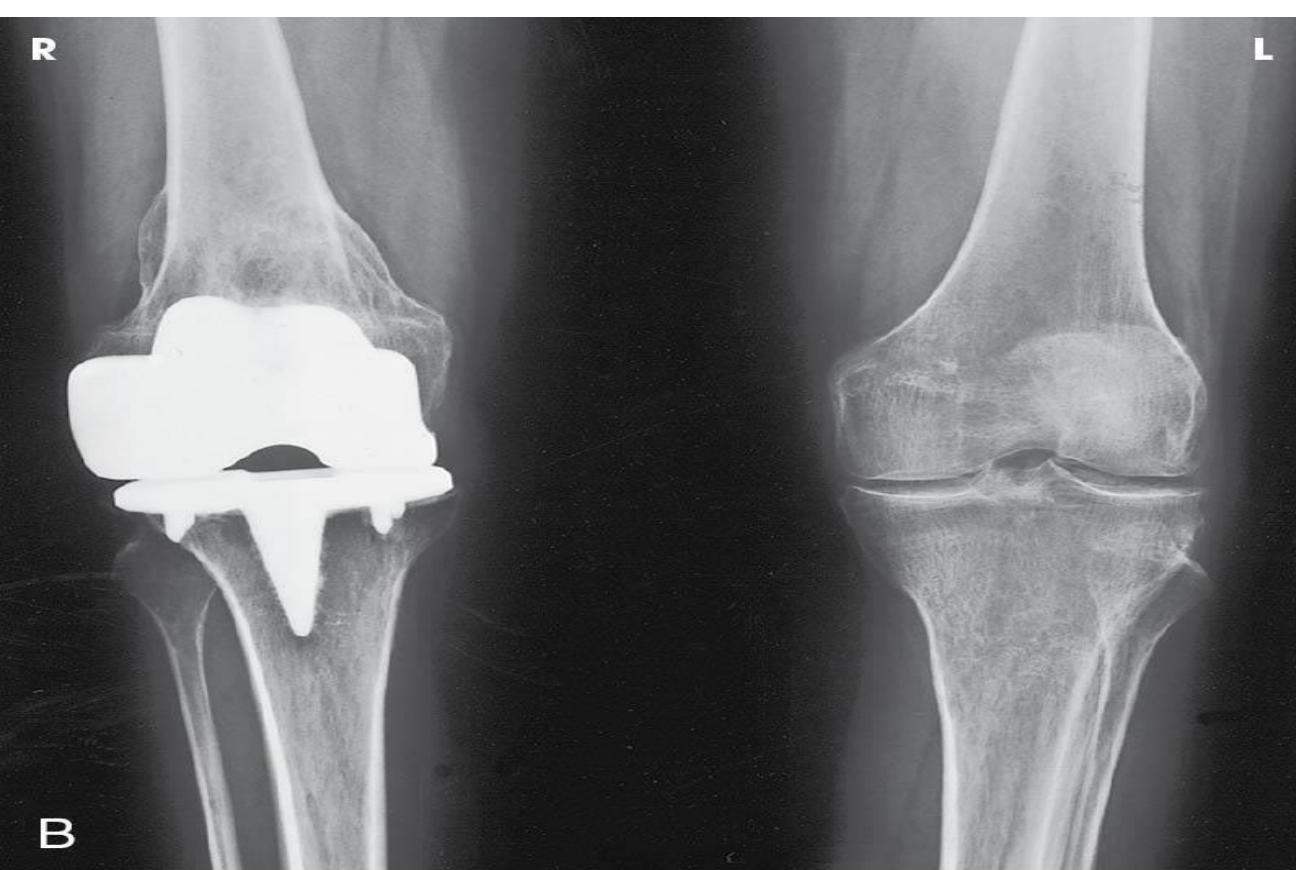


Humerus Lesion

(x-ray to help diagnose if lesion is cancerous)



Previously fractured Clavicle (collar bone)
(x-ray used during ORIF surgery)



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Knee Replacement (patient has arthritis)
(x-rays used to confirm placement after surgery)

Fractured Hip
(x-ray will be required in OR
during surgery)



Program Seat Capacity

Combined Laboratory & X-Ray

- 20 seats X 2 intakes = 40 in total (Competitive Entry)

Medical Laboratory Assistant

- 16 seats (FQFA)

Medical Laboratory Technology

- 40 seats (Competitive Entry)

Medical Radiologic Technology

- 20 seats (Competitive Entry)

Phlebotomy

- 16 seats X 3 intakes = 48 in total (FQFA)

DAY IN THE LIFE AS A STUDENT

- **Class hours are variable daily**
 - Evening and weekend classes may be required
 - Class and lab hours vary daily. Students are expected to check their weekly schedules.
- **Hours of homework expected per week vary between programs.**
 - 4-5 hours outside of scheduled class/lab daily have been noted by previous students.
- **Hands on learning (labs) are incorporated throughout your theory courses to assist with application of theory.**
- **Each program will have a significant clinical practicum experience.**
- **Delivery methods (on-campus delivery of theory, on-campus labs, online learning activities, clinical)**

Program entrance requirement summary

Program	Admission process	Admission process	Overall grade entrance requirements:	English Language Arts	Foundations of Math 30 or Pre-Calculus 30	* Physical Science 20	Chemistry 30	Biology 30	45 words per min. with 98% accuracy	CRC with VSS	Immunization records	TLR - client moving	TLR - object moving only	WHMIS
	2021-22	2022-23		A30 & B30										
CLXT	FQFA	Competitive Entry	Grade 12 with a min. in the following:	70%	70%	* 70%	70%	70%		Y	Y	Y		Y
MLA	FQFA	FQFA	Grade 12 with a min. in the following:	70%	* 70%		* 70%	* 70%	Y	Y	Y		Y	Y
MLT	Competitive Entry	Competitive Entry	Grade 12 with a min. in the following:	70%	70%	* 70%	70%	70%		Y	Y		Y	Y
MRT	Competitive Entry	Competitive Entry	Grade 12 with a min. in the following:	70%	70%	* 70%	70%	70%		Y	Y	Y		Y
PHLB	FQFA	FQFA	Overall grade 12 avg. of 60% with the following	yes	* yes		* yes	* yes	Y	Y	Y		Y	Y
					* MATH	* NOTE:	* Physical Science 20 also accepted	* Health Science 20 also accepted			COVID 19 vaccinations required			
					20 also accepted	Physics 30 will not be substituted								

The English Language requirements for CLXT, MLA, MLT & MRT admissions align with the professional body entry to practice requirements. Scores must meet or exceed to be deemed eligible to enter the program and for future professional license.

[For more information, please see the website and look at the Program-specific ELP requirements for your program of interest https://saskpolytech.ca/admissions/admission-requirements/english-language-proficiency-requirements.aspx](https://saskpolytech.ca/admissions/admission-requirements/english-language-proficiency-requirements.aspx) or contact Enrollment Services.

Students graduating after June 1, 2020 will be required to meet the new SSMLT English language requirements in order to be eligible to write the CSMLS national certification exam and to work in Saskatchewan.

First Qualified, First Admitted (FQFA): MLA & PHLB

- The First Qualified/First Admitted (FQFA)
 - The sooner an application is received with all of the required documentation (application, fee, transcripts, requested documents), the earlier that applicant may become 'qualified' for admission to a program.
 - The day that an application is considered complete is the FQFA date.
 - Qualified applicants are admitted in the order of their assigned FQFA dates.
 - If you are a high school student or upgrading, have your course schedule submitted to qualify conditionally
- Once the program is filled, qualified applicants are waitlisted in the same order.
 - If seats become available, additional admission offers are made.
 - Following the program start date, any waitlisted applicants who have not been offered a seat are invited to reapply for the next academic year, and by doing so will maintain their FQFA date.

Open all year round; sooner you apply and qualify the better chance of getting a seat in the program!

Competitive Entry: CLXT, MLT & MRT

➤ **Phase I:**

- All applicants will be required to complete and submit by March 1:
 - an **Essay of Traits**,
 - an **Awareness Questionnaire**
 - A **Situational Assessment**.
 - Note: the Situational Assessment is done by an external party and the cost will be the applicant's responsibility.
- Applicants are ranked according to their high school admission requirement average
- 2.5x the number of available seats will proceed to phase II

➤ **Phase II:**

- Post-secondary education will be assessed, scored and weighted
- Essay of traits is assessed, scored and weighted
- Situational assessment will be ranked (highest to lowest) and weighted

➤ **In Phase II, the additional selection criteria will be weighted as follows:**

- Relevant post-secondary education = 10%
- Essay of Traits = 40%
- Situational Assessment = 50%

Note:

- there will be no grandfathering from the current CLXT waitlisted applicants.
- All CLXT applicants must meet the entrance requirements and compete through the high demand process.

Top-ranked applicants are sent a letter of offer for a seat in the program.

Requirements prior to program start for accepted applicants in all programs

- **Criminal Record Check with Vulnerable Sector Search**
- **Provide a current immunization record and meet Saskatchewan Polytechnic immunization requirements**
- **WHMIS certification**
- **TLR client & object moving (CLXT and MRT only)**
- **TLR object moving (MLA, MLT & PHLB)**

- All associated costs are the responsibility of the student
- **MUST** be complete and valid prior to and throughout any clinical placement
- The programs recommend waiting to complete these requirements until a seat has been offered to avoid unnecessary cost and retraining.

Criminal Record Check & Vulnerable Sector Search

- **Admission requirement for all programs**
- **Must be less than 6 months old at program start date**
- **At the discretion of the practicum agency, you may be declined access to a clinical or work placement based on the contents of the Criminal Record Check and Vulnerable Sector Search.**
- **The cost of the Criminal Record Check and Vulnerable Sector Search is your responsibility.**

Immunization record and requirements

According to the Canadian Immunization Guidelines, health care workers' immunizations must be current (this includes students).

- This is a program requirement.

The campus health nurse will look up your blood work results online at eHealth Saskatchewan. Please DO NOT submit copies of lab results unless requested by the Health Nurse.

Record of Immunization and Blood Test results:

The Campus Health Nurse will determine what vaccines you need once she has reviewed your immunization information (International or Canadian) including required blood test results. The nurse will advise you of the plan to complete any missing requirements. Please avoid booking appointments for immunizations and/or TB skin tests through your Doctor's/Public Health Office until you have received a plan from the Campus Health Nurse. This will help avoid unnecessary Costs.

- MUST be valid prior to any on campus labs containing biohazard materials
- **NEW: COVID 19 vaccination is a requirement:**
 - a requirement for SaskPolytech campus access
 - to enter clinical placements

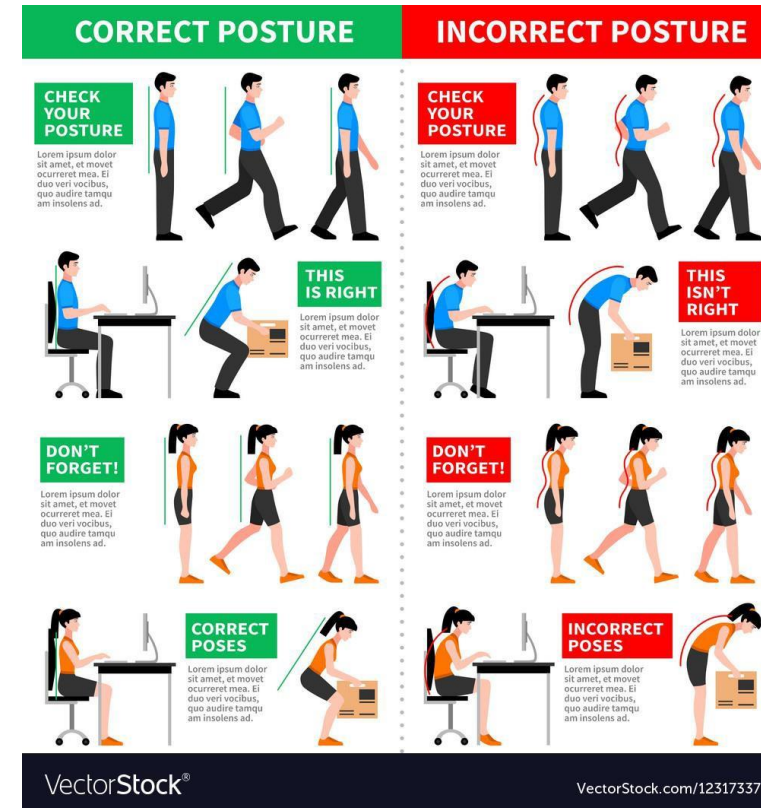
CLXT & MRT specific admission requirements

- Transfer, Lifting and Repositioning (TLR®) **CLIENT & OBJECT MOVING** certification
 - Required prior to program start date for admitted students
 - Courses may be available through Sask Polytech Continuing Education
 - Information on course providers and deadlines will be provided to accepted students before program registration day
 - Cost of testing is student responsibility



MLA, MLT & PHLB specific admission requirements

- Transfer, Lifting and Repositioning (TLR®) **OBJECT MOVING** certification
 - Required prior to program start date for admitted students
 - Courses may be available through Sask Polytech Continuing Education
 - Information on course providers and deadlines will be provided to accepted students before program registration day
 - Cost of testing is student responsibility



WHMIS

Admission requirement for all programs

- Accepted applicants are required to provide evidence of 2015 WHMIS Globally Harmonized System (GHS) certification upon admission into the program. Recertification will be required every three years to remain current.
- The cost of WHMIS certification is your responsibility
- **MUST** be valid prior to any on campus labs containing hazardous materials

Requirements prior to start of a clinical practicum

- N95 mask fit test (all programs)
- Canister respirator mask fit test (MLA & MLT)
- CPR with AED (CLXT & MRT)

- All associated costs are the responsibility of the student
- MUST be complete and valid prior to and throughout any clinical placement
- **You will be declined access to a clinical or work placement if requirements are not complete and valid (in-date/not expired)**

Program Preparation

- **New Student Orientation (NSO)**
- **Continuing Education (CE) offers some core classes***
 - MTER 180 (All MD programs)
 - INFC 180 (All MD programs)
 - APHY 191 (CLXT, MLT, MRT)
 - APHY 282 (CLXT, MLT, MRT)
 - APHY 189 (MLA only)

Notes:

- *Taking these courses through CE costs more than when taking them in the program
- *Student course load is decreased for only the first few weeks of the program.

Application Deadlines

➤ **FQFA Programs**

- Applications open all year.
- Applications received after July 1 are considered for the next academic year if the program is full.

➤ **Competitive Entry Programs**

- Applications are open from October 1 to February 15 only
- All supporting documentation must be received by Registration Services by February 28 (29)

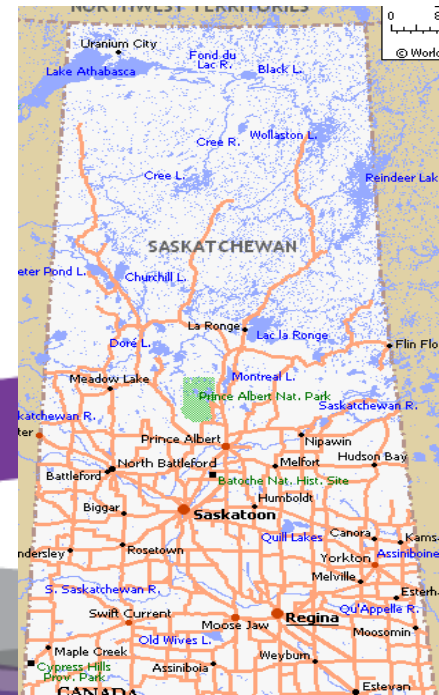
➤ **Admission/Registration Information?**

- Contact Sask Polytech Registration Services:
 - on the Sask Polytech website(www.saskpolytech.ca) under Admissions/resources

CLXT Clinical Training locations

➤ CLXT lab & X-ray Clinical Training

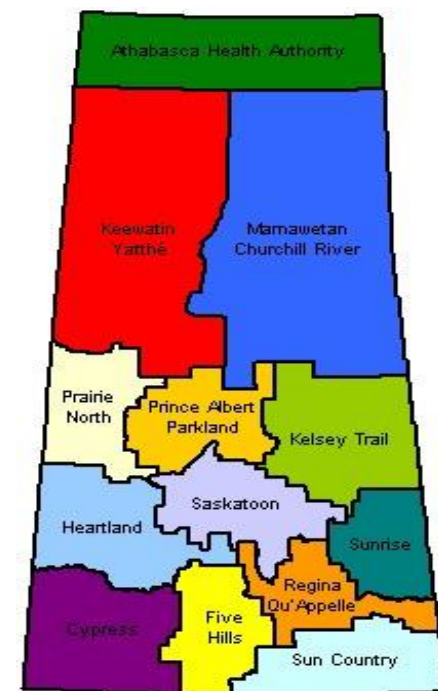
- Smaller centers throughout the province (moderate to small rural sites).
- Site availability evaluated yearly
- *All clinical education will require rotations through multiple clinical sites within the province (different communities) to enable completion of all competencies and experiences required for program completion.*



MLA Clinical Training Locations

➤ Clinical Practicum Experiences:

- Mid-size to large centers throughout the province.
- Clinical practicum placement may occur at any approved site in Saskatchewan.
- *All clinical education will require rotations through multiple clinical sites within the province (different communities) to enable completion of all competencies and experiences required for program completion.*



MLT Clinical Training locations

➤ Clinical Practicum Experiences:

- Clinical practicum placement may occur at **any** approved site in Saskatchewan.
- **Note:** *all sites require a rotation at an alternate site to meet program requirements*
- Approved sites located throughout Saskatchewan (urban and rural required).
- ***All clinical education will require rotations through multiple clinical sites within the province (different communities) to enable completion of all competencies and experiences required for program completion.***

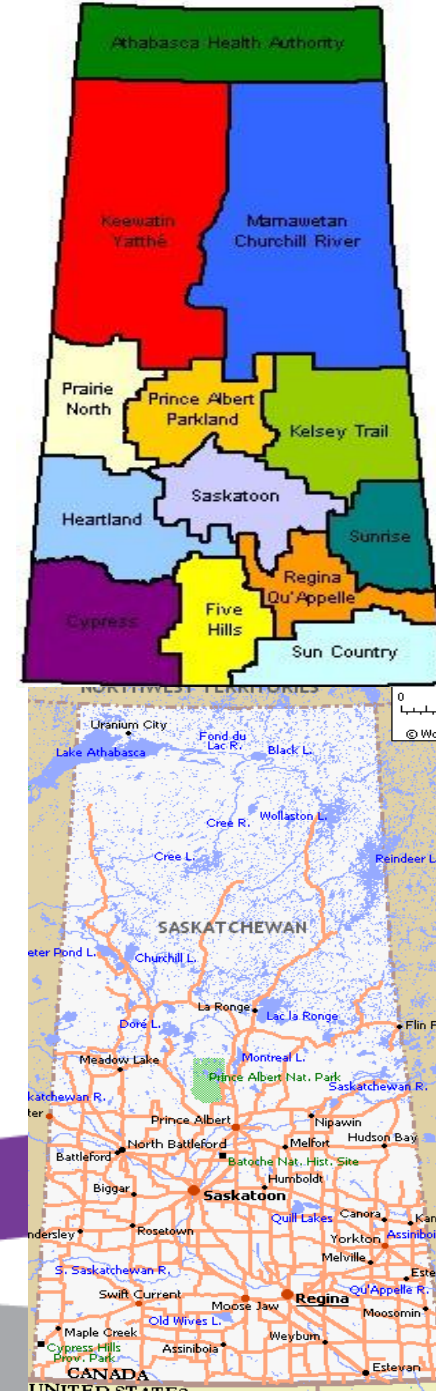
MRT Clinical Training Locations

➤ **Clinical Practicum Experiences:**

- Clinical practicum located in either Regina or Saskatoon.
- To complete their required competencies a student will move between several hospitals and clinics within their assigned placement.
- ***Alternate sites will be required to meet program requirements within each year of studies (alternate communities may be required).***

PHLEBOTOMY Clinical Training locations

- **Theory courses:** online distance learning which enables you to learn and study from home
- **Practical labs:** Saskatoon (designated weekend dates)
- **Clinical Practicum Experiences**
 - Clinical practicum placements (Monday to Friday) may occur at any approved site in Saskatchewan.
 - Supervised clinical experience: half-day of clinical with direct instructor led supervision on a designated date in Saskatoon
 - Clinical 2 (PRAC 110): nine days of practicum (2 consecutive weeks) at various sites around Saskatchewan



Program Info

- Program content reflects the ***National Competency Profiles*** and ***Provincial Stakeholder needs***.
- **National Certification Examinations** are written by students in the MLA, MLT and MRT programs upon successful completion of their programs.
- National Certification Exam fees are **not** part of Sask Polytech fees
 - National Exam fees are paid directly to National Societies when registering to write the Certification examination.

CLXT/MLA/MLT Labs

Saskatoon Idylwyld Campus



CLXT/MLA/MLT Labs



CLXT/MLA/MLT Labs



CLXT/MRT Labs





Need Sask Polytech Information?

Toll Free **1-866-467-4278** for all departments

- Program Information (CLXT, MLA, MLT, MRT)
 - program assistant- 306-659-4090
- Enrollment Services
 - 306-659-4067
- Career Counselling
 - 306-659-4012
- Indigenous Student Resources
 - 306-659-4802
- Student Counselling
 - 306-659-4050
- Sask Polytech Student Association (SPSA)



SASKATCHEWAN
POLYTECHNIC

Why MLT? - Voices from Medical Laboratory Technology professionals

Saskdocs & Health Careers in SK (MLT)

<https://vimeo.com/332023970>

My Career, My Reason (MLT)

<https://www.youtube.com/watch?v=s7Tc1kqGjlk>

Other resources to glimpse MLT professions at work:

- “CSMLS in the lab series” from the CSMLS (can be found on YouTube)
- https://www.youtube.com/watch?v=9gdILtSP6k8&list=PL9TWbZ2AvnM_q8MObrQM6_1lPeGIUWBZf&index=1