

Semester 1 - Fall

AMML110 - Gross and Micro-Anatomy

This course will introduce the learner to the four basic tissues and their specific morphological structures and various body systems and their specific organs and tissues. The learner will examine digitized Histology slides and will be required to annotate their collection of images. The gross anatomy will be discussed in theory only. The learner will then apply this knowledge to the normal microanatomy of the various systems, which will be studied and discussed in detail during the length of the course.

BAIP113 - Foundations of Interprofessional Collaboration I

Foundations of interprofessional communication and teamwork provides the learner with the context for patient centered collaborative practice and effective team development within this model and will introduce various modes of effective communication and reflective practice to support continuous professional development. In this course the learner will have an opportunity to develop skills for effective verbal and nonverbal communication and feedback and conflict management skills. The use of a variety of instructional strategies are intended to help the learners in this course to learn about, from and with each other and other's professional roles and to advance the understanding of intra and inter professional relationships.

CCML112 - Clinical Chemistry I

This course provides the learner with the basic knowledge and skills necessary for practice in a Clinical Chemistry laboratory. Lectures and tutorials discuss the function and metabolism of proteins, carbohydrates, lipids, enzymes, and fluids and electrolytes, and their clinical significance. Laboratory sessions introduce the learner to basic laboratory equipment and techniques. Some aspects of this course require independent study. The principles and procedures mastered in this course will enable learners to perform, and understand why we perform, more advanced biochemical specimen examinations in the laboratory investigation and diagnosis of disorders of the body systems.

HEML112 - Introduction to Hematology

This course provides the learner with an introduction to the basic knowledge and techniques necessary for the study of Hematology including the morphology of blood cells and the preparation, staining, and examination of peripheral blood films. Laboratory sessions introduce the learner to the use of the microscope, blood film preparation, staining and

identification of blood cells. The procedures introduced in this course will enable learners to perform hematological specimen examinations used in the laboratory investigation and diagnosis of disease.

MIML113 - Microbiology and Immunology

This course provides the learner with the basic knowledge and skills necessary for distinguishing between the normal microbial flora, opportunistic microorganisms and pathogenic microorganisms. Laboratory sessions introduce the learner to techniques for isolation and identification of significant microorganisms and for measuring the products of the immune response. The learner will also be introduced to aspects of control and prevention of infection.

PPML110 - Normal and Patho- Physiology

This course will introduce the learner to normal and pathophysiology and begin to integrate them with the laboratory disciplines of clinical chemistry, histotechnology, immunology, microbiology, hematology and transfusion science. The course will progress through the various organ systems, emphasizing the interrelationship of structure and function. Studies will include the relationship between the body systems, how they contribute to maintain normal homeostasis, as well as breakdowns in homeostasis (Pathophysiology). This course is intended to provide the learner with the necessary foundation in order to assume the role of clinical laboratory scientist in the investigation, diagnosis and monitoring of disease. Because structure and function are closely linked, the sequence of topics in PPML110 runs in close parallel with those in AMML110.

Semester 2 - Winter

BAIP124 - Foundations of Interprofessional Collaboration II

Interprofessional practice has become a preferred mode of team based practice in health care nationally and internationally. This course provides an overview of the ethical, societal and personal factors that influence and impact health. The role of the health care provider and the dynamics of the provider/patient relationship will be examined from a critical perspective. This course will also address the historical perspective of the Canadian healthcare model and the move towards collaborative practice. The first step towards interprofessional practice is a solid foundation of your role and scope of practice, ethics, boundaries, patient advocacy and regulatory guidelines. A variety of instructional strategies are intended to help us learn with, from and about each other to advance our understanding of intra- and interprofessional practice.

HEML120 - Hematology and Hemostasis

This course provides the learner with an introduction to the basic knowledge and techniques necessary for the study of Hematology and Hemostasis. These include the theory of abnormal red blood cell formation and clot formation and dissolution. Laboratory sessions introduce the learner to the operation of automated cell counters and coagulation equipment as well as providing further opportunities to improve microscopy skills. The procedures introduced in this course will enable the learners to perform hematological and hemostatic examinations used in the laboratory investigation and diagnosis of anemia and bleeding disorders.

HIML110 - Introduction to Histology

This course provides the learner with an introduction to the basic knowledge and techniques necessary for the study of Histotechnology including the preparation and staining of tissue specimens. Laboratory sessions introduce the learner to the use of fixation, embedding, microtomy, and staining. The procedures introduced in this course will enable learners to perform histological specimen examinations used in the laboratory investigation and diagnosis of disorders of the body systems.

INML120 - Clinical Instrumentation

This course provides the learner with the knowledge, skills and behaviour necessary for the performance of specimen examinations using a variety of clinical instruments. The use of lectures enhances the information delivered in first semester, specifically in the principles of light measurement, electrochemical measurement, and immunoassay measurement techniques. Quality Management and Quality Control procedures are introduced as a means of validating patient test results. Laboratory sessions introduce the learner to the maintenance, operation and reporting of chartable patient test results using several Clinical Chemistry instruments.

MIML121 - Applied Microbiology

This course provides the learner with the necessary tools for classifying and identifying medically important microorganisms encountered in clinical specimens. The learner will also be provided with information on the epidemiology and pathogenicity of these organisms. Laboratory sessions provide the learner with procedures and techniques for identifying bacteria, yeast and opportunistic fungi. In addition, the learner is introduced to susceptibility testing for bacterial pathogens

VPML120 - Specimen procurement

This course provides the student with the knowledge and skills necessary for the performance of specimen collection, handling and processing, and basic troubleshooting of phlebotomy techniques.

Semester 3 - Fall

CCML240 - Clinical Chemistry II

This course provides the learner with advanced knowledge of the Digestive, Nervous, Endocrine, Musculo-Skeletal and Cardiovascular body systems. The use of lectures enhances the information delivered in PPML110 and CCML112, specifically focusing on the primary disorders of each system. Laboratory sessions focus on the technical skills developed in INML120; the learner uses a variety of clinical instruments to perform relevant biochemical investigations. Learners correlate the results of these investigations with the primary disorders of each body system.

HEML240 - Hematology I

This course expands on the theory and methodology introduced in HEML120. The student will further explore hemostasis, concentrating on the fibrinolytic components and disorders and treatment of thrombosis. The student will continue to explore the pathophysiology and laboratory diagnosis of anemias with the emphasis on the hemolytic anemias. The laboratory sessions will help to develop the technical skills necessary for the investigation of hemostatic disorders and anemias including operating automated analyzers and performing manual methods. The concepts are introduced in complimentary lectures and laboratories enhancing the student's learning. The course concentrates on abnormal peripheral blood cell morphology, interpretation and validation of the CBC, tests used to investigate hemostatic disorders and the investigation of hemolytic anemias including abnormal hemoglobins.

MIML240 - Clinical Microbiology & Infectious Diseases I

This is the first of two courses that provide the learner with a survey of major infectious diseases and the pathogenic microorganisms associated with them. The material is presented by body system/anatomical site. Viral, bacterial, fungal and parasitic agents will be discussed, emphasizing laboratory analyses to detect and identify clinically significant bacteria and yeast-like fungi, and to determine the susceptibility of bacterial infectious agents to antibiotics. Diagnostic immunological techniques will be discussed.

RMIP231 – Research

This course offers an examination of contemporary issues relevant to interprofessional education and research as applied in health and education settings. The course uses conceptual foundations of interprofessional education as a framework for articulating applied practice and research. Learners will engage in multiple education modalities for the purposes of obtaining competency in distinguishing high quality research, analyzing the steps involved in conducting a literature review and developing a research proposal. Research directions for interprofessional education and practice will be articulated in light of exiting literature and identified needs for the construction of future knowledge.

TSML230 - Transfusion Science

This course provides the learner with the basic knowledge and skills to perform the routine and investigative procedures in a clinical transfusion science laboratory. Laboratory sessions introduce the learner to blood grouping techniques, antibody investigation and compatibility testing, as well as the investigation and resolution of antibody or transfusion-related disorders such as hemolytic disease of the newborn, autoimmune hemolytic anemia and transfusion reactions

Semester 4 - Winter

CCML250 - Clinical Chemistry III

This course provides the learner with advanced knowledge of the Reproductive, Urinary, and Respiratory body systems. The use of lectures and tutorials enhances the information delivered in ANML110, PPML110 and CCML112, specifically focusing on the primary disorders of each system. Laboratory sessions focus on the technical skills developed in INML120; the learner uses a variety of clinical instruments to perform relevant biochemical investigations. Learners correlate the results of these investigations with the primary disorders of each body system. The principles and application of Therapeutic Drug Monitoring (TDM) and Clinical Toxicology are also introduced in this course

HEML250 - Hematology II

This course provides the learner with advanced knowledge of the pathophysiology and diagnosis of infection, leukemia and other abnormal leukocyte disorders. In addition, skills necessary for the performance of manual laboratory analyses are introduced and /or reinforced. The use of lectures and laboratory sessions enhances the information delivered in the first didactic year, as well as the first semester in the second didactic year. Leukocyte

morphology and cytochemical staining results are validated using the principles of Quality Control and Quality Assurance. Laboratory sessions introduce the learner to abnormal leukocyte characteristic of certain diseases and disorders.

IPCL251 - Interprofessional Simulated Clinical

This course is designed to build upon previous interprofessional foundational courses and to further develop your interpersonal and interprofessional competencies required in the simulated and clinical practica. Themes of Communication and Feedback, Quality and Safety and Ethical Patient Care are the foci of this course. Using a variety of simulation-based learning modalities (e.g., online, video debrief, standardized patients, small group), you will practice using communication strategies and models to support ethical patient-centred care and interprofessional practice. As well, we will use a variety of tools and models developed and/or used by the MSR Israel Center for Medical Simulation at the Sheba Medical Center including the MSR Debriefing Model. MSR is one of the world's foremost centers for patient safety and education and considered an international leader in simulation enhanced education. MSR describes simulation-based health education as a complement to cognitive learning and offers students a safe environment to learn from errors without risk of harming real patients. This learning modality enables controlled proactive exposure of students to regular and complex clinical/health scenarios; as well as opportunities for team learning, an important contributing factor enhancing patient safety. You will learn how to model your professional role within a collaborative interprofessional team while planning to optimize ethical patient care and safety.

HIML251 - Histotechnology & Special Staining

This course provides the learner with a continuation and expansion of histotechnique, and staining theory introduced in HIML110. Laboratory sessions introduce the learner to a variety of special stain techniques used for identifying various tissue constituents and components, both normal and abnormal as learned in the microanatomy course. The procedures introduced in this course will enable learners to perform histological specimen preparation used in the laboratory investigation and diagnosis of disorders of the body systems.

MIML250 - Clinical Microbiology & Infectious Diseases II

MIML 250 is the second of two microbiology courses that provide the learners with a survey of clinically significant microorganisms and the major infectious diseases these microorganisms cause in the Urinary, Reproductive, Respiratory, and Cardiovascular systems. Materials are presented according to body system. Bacterial, viral, fungal, and parasitic agents are discussed, and the emphasis will be on identification and susceptibility testing of clinically significant bacteria, and yeast-like fungi. Students will enhance their knowledge of identifying

multiply resistant microorganisms. Laboratory exercises are conducted in smaller groups where reinforcement of theoretical concepts occur, and safe laboratory practices are highlighted. The learners experience and perform hands-on practice of analytical techniques in microbiology to correctly identify and perform susceptibility testing on the clinically significant microorganisms isolated from given simulated specimens. The laboratory sessions consist of unmarked and marked laboratory exercises, where the primary goal of the unmarked laboratory exercises is to introduce the different clinically significant microorganisms and normal flora that can be isolated from specific body systems. In addition, students are introduced to molecular diagnostic techniques and its relevance to microbiology.

TSML242 - Transfusion Practices

This course provides the learner with a continuation and expansion of the theory of transfusion science begun in TSML230. While the previous course concentrated on the testing to determine compatibility of red cell products and included a large practical component, this course will explore the blood products themselves and is exclusively theory based. Students will use current web pages of the Canadian Blood Services as well as the required text to investigate the most up-to-date information on the production, management and indications for use of all components produced from blood donation. The course will be facilitated as group discussions regarding current practices and the benefits and risks associated with transfusion. Upon completion of this course the learner will be able to select the appropriate blood component for the conditions and appreciate the complex issues surrounding blood transfusion in Canada.

Semester 5 - Summer

CLML252 - Clinical Education I

This course provides the students with an experience in a simulated laboratory environment prior to their real Clinical Education course. The students will be assessed on specific laboratory competencies in the five Medical Laboratory Science disciplines as well as their overall readiness to attend the clinical semester. The simulated laboratory is meant to more closely resemble the typical laboratory, with regards to work volume, work flow and requirement for multi-tasking, than the laboratory sessions given throughout the previous semesters of the program. Students will be assessed on laboratory techniques as well as communication, professionalism and team work as it applies to Medical Laboratory Science.

Semesters 6/7 - Fall/Winter

CLML361 Clinical Education II

This course provides the students with 20 weeks clinical experience in the clinical laboratory environment prior to graduation from their program and writing the CSMLS National Certification Exam. The students will be assessed on specific laboratory competencies in the five Medical Laboratory Science disciplines as well as their overall readiness to enter practice as a medical laboratory technologist. This clinical education course is meant to provide students with a more typical laboratory work volume, work flow and requirement for multi-tasking, than was provided by the simulated laboratory sessions in the previous semester. Students will be assessed on laboratory techniques as well as Michener's core abilities: communication, professionalism and team work as it applies to Medical Laboratory Science. Clinical competencies have been harmonized with UOIT and St. Lawrence College Medical Laboratory Science Programs.