

**PROVIDENCE SACRED HEART MEDICAL CENTER
SCHOOL OF MEDICAL LABORATORY SCIENCE**

PROGRAM CATALOG

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INTRODUCTION TO THE SCHOOL OF MEDICAL LABORATORY SCIENCE

The Providence Sacred Heart Medical Center (PSHMC) School of Medical Laboratory Science, established in 1932 and accredited by the [National Accrediting Agency for Clinical Laboratory Science \(NAACLS\)](#), trains highly qualified Medical Laboratory Scientists (MLS) for the healthcare sector. Laboratory Medicine plays a vital role in patient care—70% of medical decisions rely on lab results. MLS professionals perform diagnostic testing essential for disease diagnosis, treatment, monitoring, and prevention. PSHMC graduates are well-prepared, in high demand, and often become leaders in the field.

The Medical Laboratory Science certificate is intended for those with a bachelor's degree or 3+1 students at affiliate universities who are interested in science, medicine, and diagnostics. The program equips students to work behind the scenes, delivering critical lab results to clinicians. With a current shortage of skilled MLS professionals, this certificate offers practical, immediately applicable education to fill workforce needs. Please inquire for more information regarding academic and clinical affiliates associated with 3+1 concurrent enrollment and clinical rotation placement, respectively.

Training covers all major areas: Clinical Chemistry, Hematology, Hemostasis, Urinalysis & Bodily Fluids, Clinical Immunology, Immunohematology, Medical Microbiology, Molecular Diagnostics, and Lab Management and Operations.

Upon completion, graduates receive a certificate and, with a bachelor's degree, are eligible to sit for the [American Society for Clinical Pathology \(ASCP\) National Board of Certification exam \(BOC\)](#) exam. Certified graduates typically achieve 100% job placement as nationally certified MLS. Additional state licensure may be required.

PLEASE VISIT OUR [WEBSITE](#) FOR FURTHER INFORMATION REGARDING ADMISSIONS AND TO APPLY

NOTE: Further information regarding PSHMC SMLS policies & regulations is available upon request.

PROGRAM OVERVIEW

Our Mission

To prepare competent medical laboratorians with the skills, knowledge and attitudes needed to make positive contributions in the field of Laboratory Medicine.

Our Goals

- Offer sustainable curriculum utilizing field experts and cutting-edge resources
- Promote Phlebotomy and Medical Laboratory Assistant entry-level competencies
- Instill professionalism, service, and a commitment to excellent patient care
- Champion PSJH core values: Compassion, Dignity, Excellence, Integrity, and Justice
- Meet the medical laboratorian employment needs of Providence, our affiliates and our region.
- Comply with the accreditation requirements of the National Accrediting Agency for Clinical Laboratory Sciences

Our Philosophy

- We believe students learn most effectively as engaged learners with faculty facilitating learning experiences.
- We believe learning is measured by behavioral changes in the students, who together with faculty, share in the evaluation of the education.
- We are founded on the Christian principles of providing compassionate care with respect for the dignity of each person, including those who are poor and vulnerable.
- We are open to all qualified students, regardless of race, ethnicity, sex, gender, sexual orientation, disability status, age, cultural background, place of origin, veteran status, or creed.

About Us

Providence Sacred Heart Medical Center and Children's' Hospital (PSHMC) is part of Providence nationally, and Providence Inland Northwest Washington (PINWA), which includes four hospitals, and multiple clinics in Spokane and Stevens Counties. PSHMC is the largest of these hospitals with over 600 beds, specializing in comprehensive adult and pediatric care. PSHMC has been ranked the #1 hospital in Eastern Washington and #2 in WA State for the past several years.

The PSHMC Department of Laboratory Medicine performs high complexity and high-volume testing, which allows the School of Medical Laboratory Science to provide a wide range of experiences for students during the clinical year. PSHMC is a teaching hospital, and as a result, students work with experienced and expert staff who are skilled in educational techniques and have a commitment to training the next generation of medical laboratorians.

COURSE DESCRIPTIONS & STUDENT LEARNING OUTCOMES

LAB 300 Laboratory Practice

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of Medical Laboratory Science. Topics include lab safety, clinical lab orientation, basic techniques & methodologies, laboratory math and statistics, fundamentals of molecular biology, traditional and modern molecular methods, quality control & assurance, lab operations, confidentiality, teamwork, interprofessional development and educational skills. Instruction covers all phases of laboratory services: pre-analytical, analytical, and post-analytical.

Student Learning Outcomes:

1. Apply principles and practices of QC/QA to the components of laboratory services.
2. Follow safety and infection control standards as applied to laboratory practice.
3. Employ mathematical skills within the context of instrument operation and patient testing.
4. Explain the configuration of clinical and molecular laboratories.
5. Discuss the application of techniques to the clinical laboratory.
6. Outline the methodologies used in the clinical laboratory.
7. Demonstrate professional conduct and interpersonal/interdisciplinary communication skills with all staff, patients, healthcare professionals and the public.
8. Apply principles of interprofessional practice; seek opportunities to learn about, with and from other health professionals.
9. Adhere to all policies of confidentiality and HIPAA regulations.
10. Apply education techniques and terminology sufficient for entry-level teaching responsibilities.
11. Demonstrate entry-level competency and knowledge of laboratory information systems.
12. Discuss concepts and principles of laboratory management.
13. Develop proficiency in multi-tasking and prioritizing workload in a stressful environment while maintaining professionalism.
14. Promote the profession of medical laboratory science to other members of the community.

LAB 301 Phlebotomy

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of phlebotomy and specimen procurement. Topics include phlebotomy, specimen transport, processing and handling, regulatory and compliance, safety and blood-borne pathogens training, and patient relations.

Clinical application of the principles and techniques used in blood and non-blood collection, point of care and waived testing, and laboratory operations in the clinical laboratory.

Student Learning Outcomes:

1. Efficiently and skillfully perform all phlebotomy and skin puncture procedures utilizing proper technique.
2. Process all samples for testing and describe specimen collection and storage requirements for tests.
3. Follow age-related standards for various patient populations.
4. Complete specified number and type of collection procedures.
5. Employ laboratory safety practices.
6. Comply with the regulatory and accreditation agencies governing the clinical laboratory.
7. Demonstrate professional conduct and communication skills with patients and caregivers.
8. Perform as an entry-level Phlebotomist.

LAB 405 Advanced Operations Clinical Rotation

Course Description:

Clinical application of the principles and techniques used in applied laboratory management & compliance, clinical research, regulatory inspection, or other specialty rotation, as assigned.

- Topics in applied clinical research include the scientific method, research design and practice, method evaluation and validation, discussion of clinical laboratory research applications and techniques, evaluation of scholarly works, and introduction to data evaluation tools. Students complete a clinical lab-based project including the writing of a research proposal, creation of a poster, and a poster presentation.
- Topics in regulatory inspection include clinical application of safety, regulatory, and compliance practices. Students perform a mock regulatory inspection of designated divisions of the clinical laboratory. Project culminates in a summation conference where students present recommendations and deficiencies based on mock inspection findings.
- Topics in laboratory management include quality management, regulatory & compliance considerations, proficiency testing, training & competency assessment, progressive discipline, human resources & customer service, financial management, clinical application of laboratory management principles to the clinical laboratory.
- Topics in a specialty rotation, as otherwise assigned.

Student Learning Outcomes:

1. Applied Clinical Research:
 - a. Discuss research methods and applications in laboratory practice.
2. Apply research design principles to assess studies and professionally present results.
 - a. Develop a scholarly research proposal.
 - b. Produce a well-researched and clinically relevant research poster for presentation.
3. Mock Regulatory Inspection
 - a. Comply with safety and governmental regulations and standards as applied to laboratory practice.
 - b. Demonstrate knowledge of regulatory compliance for laboratory testing.
 - c. Demonstrate professional conduct and interpersonal/interdisciplinary communication skills with all staff.
 - d. Perform an inspection of the clinical laboratory in accordance with state and federal regulations.
 - e. Present findings in a professional and compliant manner.
4. Laboratory Management:
 - a. Apply principles of quality management to the laboratory.
 - b. Follow safety and governmental regulations and standards as applied to laboratory practice.
 - c. Demonstrate knowledge of regulatory compliance for laboratory testing.
 - d. Identify appropriate billing, coding and budgetary practices for the laboratory.
 - e. Describe the processes used for training & competency assessment.
 - f. Define the various acronyms used in the clinical laboratory.
 - g. Discuss best practices for recruitment & management of laboratory staff.
 - h. Demonstrate professional conduct and interpersonal/interdisciplinary communication skills with all staff, patients, healthcare professionals and the public.

LAB 410 Parasitology/Mycology

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of human parasitology and mycology. Topics include etiology of infection, lifecycles of organisms, pre-analytical components of testing, routine and specialized methods of analytical testing, including organism isolation and identification, direct smears, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Identify parasites of the gastrointestinal tract, blood-borne parasites, and parasites associated with other body sites.
2. Isolate and identify various fungi by differentiating potential pathogens and performing confirmatory testing.
3. Prepare and evaluate direct microscopic preparations to determine specimen quality and to differentiate the morphologies of microorganisms.
4. Determine the clinical significance of microorganisms and correlate microscopic evaluation and culture results with disease process of the patient, including underlying predisposing factors and routes of infection.
5. Evaluate all specimen types according to protocols for acceptance of specimens.
6. Perform and report specimen analyses according to established protocols for quality control, reportable conditions, and technical failures.
7. Employ laboratory safety practices.

LAB 411 Microbiology I

Course Description:

Lecture and laboratory covering the introduction to the process of testing for bacterial pathogenesis. Instructional areas progress from laboratory safety practices through basic concepts of microbiologic testing and quality management. Topics include infection etiology, pre-analytical components, microscopy, the study of colony morphologies, growth requirements, staining characteristics, and biochemical, enzymatic, and serological testing used in the identification of clinically significant bacteria, and antimicrobial susceptibility testing.

Student Learning Outcomes:

1. Demonstrate proper technique and an understanding of testing methodologies used in basic identification of organisms.
2. Isolate and identify bacterial organisms.
3. Evaluate microscopic preparations to differentiate the morphologies of microorganisms.
4. Apply standards of antimicrobial testing to appropriate isolates.
5. Discuss and identify appropriate specimen collection and transport for microbiology specimens.
8. Perform specimen analyses according to established protocols for quality control and technical failures.
9. Employ laboratory safety practices.

LAB 412 Microbiology II

Course Description:

Lecture and laboratory course covering the theories, concepts, and practices in the study of the relationship of bacteria and yeast to the various systems and areas of the body. Topics include pre-analytical components of testing, routine and specialized methods of analytical testing including interpretation of direct smears, evaluation of clinical cultures to differentiate pathogens from commensal organisms, correlation of culture results with possible disease states affecting specific body sites, determination of need for and interpretation of antimicrobial susceptibility testing, quality management, and post-analytical aspects of testing. Topics in special topics include mycobacteriology, epidemiology, specialized bacterial serologies, and advanced microbiology laboratory operations.

Student Learning Outcomes:

1. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens from all body sites for pathogenic microorganisms.

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2. Identify appropriate specimen collection, transport, and processing for microbiologic specimens from various body sites.
3. Process specimens for the recovery, isolation, and identification of pathogenic bacteria and yeast.
4. Prepare and evaluate direct microscopic preparations to determine specimen quality and to differentiate the morphologies of microorganisms.
5. Isolate and identify various bacteria by differentiating potential pathogens and performing confirmatory identification tests.
6. Apply standards of antimicrobial testing to appropriate isolates.
7. Determine the clinical significance of microorganisms and correlate culture results with disease process of the patient, including underlying predisposing factors and routes of infection.
8. Record results as is appropriate for culture type and source.
9. Employ laboratory safety practices.
10. Utilize quality assurance measures.

LAB 415 Microbiology Clinical Rotation

Course Description:

Clinical application of the principles and techniques used in diagnostic evaluation of human specimens and laboratory operations in the clinical microbiology, virology, parasitology, and mycology laboratories.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
2. Accurately perform calculations and dilutions required for patient specimens and testing reagents.
3. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens according to established protocols for quality assurance & control, critical values, and technical failures.
4. Recognize possible sources of error in test results and assess the clinical significance of these results.
5. Correlate results with the underlying pathophysiology and interpret tests that aid in diagnosis.
6. Employ laboratory safety practices.
7. Comply with the regulatory and accreditation agencies governing the clinical laboratory.
8. Demonstrate professional conduct and communication skills with patients and caregivers.
9. Perform in any area of the clinical microbiology laboratory as an entry-level Medical Laboratory Scientist.

LAB 421 Clinical Chemistry I

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of clinical chemistry related to organ systems, metabolic function, testing methodologies, and analytical instrumentation. Topics include pre-analytical components of testing, human anatomy and physiology, routine and specialized methods of analytical testing, correlation of diagnostic results to disease, manual and automated method maintenance, calibration, and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of clinical chemistry instrumentation.
2. Utilize quality assurance measures.
3. Explain the working principles of the various clinical chemistry instrumentation.
4. Determine the chemical principles, sensitivity and specificity of specific analyses.
5. Evaluate all specimen types according to protocols for acceptance of specimens.
6. Identify sources of error for each analysis.

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7. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
8. Determine the physiology and clinical significance for each analyte.
9. Correlate results with the underlying pathophysiology.
10. Employ laboratory safety practices.

LAB 422 Clinical Chemistry II/ Molecular Diagnostics

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of specialized clinical chemistry testing. Instructional areas cover organ systems, toxicology, and genetic disease. Topics include pre-analytical components of testing, specialized methods of analytical testing, such as separation techniques and immunochemical platforms, fundamentals of molecular biology, principles of traditional and modern molecular methods, characterization and differentiation of prominent genetic disorders, correlation of diagnostic results to disease, manual and automated method maintenance, calibration, and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Explain the working principles of the various clinical chemistry, separation science, and immunochemistry instrumentation.
2. Identify sources of error for each analysis.
3. Explain the chemical principles, sensitivity and specificity of specific analyses.
4. Determine the physiology and clinical significance for each analyte and molecular test, correlating results to underlying pathophysiology.
5. Apply regulatory practices to clinical lab chemical inventory and disposal.
6. Accurately perform calculations and dilutions required for specimens and testing reagents.
7. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
8. Utilize quality assurance.
9. Employ laboratory safety practices.

LAB 425 Chemistry/Immunology Clinical Rotation

Course Description:

Clinical application of the principles and techniques used in diagnostic evaluation of human specimens and laboratory operations in the clinical chemistry and immunology laboratories.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
2. Accurately perform calculations and dilutions required for patient specimens and testing reagents.
3. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens according to established protocols for quality assurance & control, critical values, reference intervals, delta checks and technical failures.
4. Recognize possible sources of error in test results and assess the clinical significance of these results.
5. Correlate results with the underlying pathophysiology and interpret tests that aid in diagnosis.
6. Employ laboratory safety practices.
7. Comply with the regulatory and accreditation agencies governing the clinical laboratory.
8. Demonstrate professional conduct and communication skills with patients and caregivers.
9. Perform in any area of the clinical chemistry, urinalysis and immunology laboratory as an entry-level Medical Laboratory Scientist.

LAB 430 Urinalysis

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of nephrology and diagnostic evaluation. Topics include pre-analytical components of testing, renal anatomy and physiology, routine and specialized methods of analytical testing including macroscopic and microscopic evaluation of urine, correlation of urinalysis results to renal disease and metabolic disorders, manual and automated method maintenance, calibration, and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of urinalysis instrumentation.
2. Utilize quality assurance measures.
3. Explain the working principles of the various urinalysis instrumentation.
4. Evaluate all specimen types according to protocols for acceptance of specimens.
5. Determine the chemical principles, sensitivity and specificity of specific analyses.
6. Identify sources of error for each analysis.
7. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
8. Evaluate urinalysis testing to determine if results are within established reference intervals.
9. Determine the physiology and clinical significance for each analyte.
10. Correlate results with the underlying pathophysiology.
11. Employ laboratory safety practices.

LAB 431 Hematology I

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of normal hematologic processes in the human body, testing methodologies, and analytical instrumentation. Topics include pre-analytical components of testing, blood cell anatomy and physiology, methods of analytical testing including manual and automated microscopic identification and quantification of blood cells, routine coagulation testing, automated method maintenance, calibration and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Perform manual and automated blood cell counts within the acceptable limits determined by the instructor.
2. Perform required maintenance, calibration, setup, and basic troubleshooting of hematology instrumentation.
3. Explain the working principles of the various hematology.
4. Evaluate all specimen types according to protocols for acceptance of specimens.
5. Identify sources of error for each analysis.
6. Utilize quality assurance measures.
7. Employ laboratory safety practices.

LAB 432 Hematology II

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of hematologic processes in the human body, testing methodologies, and analytical instrumentation. Topics include pre-analytical components of testing, methods of analytical testing including manual and automated microscopic identification and

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quantification of blood cells, correlation of diagnostic results to disease, automated method maintenance, calibration, and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Perform manual and automated complete blood cell counts, platelet counts, and reticulocyte counts within the acceptable limits determined by the instructor.
2. Operate, troubleshoot and discuss the theory of automated hematology instruments. Distinguish between normal and abnormal test results.
3. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
4. Perform and interpret tests that aid in the diagnosis of leukocytic and erythrocytic disorders; recognize possible sources of error in test results and assess the clinical significance of these results.
5. Analyze flow cytometry case studies, peripheral blood smears, bone marrow preparations and stains to arrive at a possible diagnosis.
6. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
7. Perform preventative and corrective maintenance of equipment and instruments.
8. Utilize quality assurance measures.
9. Employ laboratory safety practices.

LAB 433 Coagulation

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of hemostatic processes in the human body, testing methodologies, and analytical instrumentation. Topics include pre-analytical components of testing, coverage of primary and secondary hemostasis, routine and specialized coagulation testing, correlation of diagnostic results to disease, automated method maintenance, calibration, and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Operate, troubleshoot and discuss the theory of automated coagulation instruments. Distinguish between normal and abnormal test results.
2. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
3. Perform and interpret tests that aid in the diagnosis of hemostatic disorders; recognize possible sources of error in test results and assess the clinical significance of these results.
4. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
5. Perform preventative and corrective maintenance of equipment and instruments.
6. Utilize quality assurance measures.
7. Employ laboratory safety practices.

LAB 434 Bodily Fluids

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of bodily fluids, testing methodologies, and analytical instrumentation. Topics include pre-analytical components of testing, chemical and microscopic evaluation of bodily fluids, correlation of diagnostic results to disease, automated method maintenance, calibration, and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Accurately perform cell counts and differentials on various body fluid specimens, including CSF, serous fluid, synovial fluid, and semen; correlate these results and resolve any discrepancies.
2. Operate, troubleshoot and discuss the theory of automated instruments. Distinguish between normal and abnormal test results.
3. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
4. Perform and interpret tests that aid in diagnosis; recognize possible sources of error in test results and assess the clinical significance of these results.
5. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
6. Perform preventative and corrective maintenance of equipment and instruments.
7. Utilize quality assurance measures.
8. Employ laboratory safety practices.

LAB 435 Hematology/Coagulation/Urinalysis/Body Fluids Clinical Rotation

Course Description:

Clinical application of the principles and techniques used in diagnostic evaluation of human specimens and laboratory operations in the clinical hematology, coagulation, urinalysis, and body fluids laboratories.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
2. Accurately perform calculations and dilutions required for patient specimens and testing reagents.
3. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens according to established protocols for quality assurance & control, critical values, reference intervals, delta checks and technical failures.
4. Recognize possible sources of error in test results and assess the clinical significance of these results.
5. Correlate results with the underlying pathophysiology and interpret tests that aid in diagnosis.
6. Employ laboratory safety practices.
7. Comply with the regulatory and accreditation agencies governing the clinical laboratory.
8. Demonstrate professional conduct and communication skills with patients and caregivers.
9. Perform in any area of the clinical hematology, coagulation, and body fluids laboratory as an entry-level Medical Laboratory Scientist.

LAB 441 Immunohematology I

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of transfusion medicine, blood banking, testing methodologies, and analytical instrumentation. Topics include donor services, unit collection, processing and storage, pre-analytical components of testing, genetic and immunologic principles of transfusion, routine methods of analytical testing including standard pretransfusion testing, antibody identification and antiglobulin crossmatching, manual and automated method maintenance, calibration, and troubleshooting, quality management, issuance of transfusion products, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Correlate immunohematology theory with routine test procedures and results.
2. Perform all assigned test procedures including ABO grouping, Rh and other antigen typing, antibody screening and identification, compatibility testing, and direct antiglobulin testing.
3. Identify the appropriate follow-up testing when presented with basic serological problems.

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4. Discuss the requirements for donor selection process and management.
5. Describe the preparation, modification, labeling, transport, and storage of components.
6. Discuss the regulatory and accreditation agencies governing the Blood Bank, and the basis for their guidelines for safe blood collection and transfusion practices.
7. Explain white cell and platelet serology in the context of tissue transplantation, BMT etc.
8. Utilize quality assurance measures.
9. Employ laboratory safety practices.

LAB 442 Immunohematology II

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of transfusion medicine, blood banking, testing methodologies, and analytical instrumentation. Topics include specialized methods of analytical testing, complex pretransfusion testing, antibody identification and antiglobulin crossmatching, transfusion therapy and advanced immunohematology applications, manual and automated method maintenance, calibration, and troubleshooting, quality management, issuance of transfusion products, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Correlate immunohematology theory with routine test procedures and results.
2. Perform all assigned test procedures including all methods covered in LAB 440 and the resolution of ABO discrepancies and transfusion reactions, complex antibody identification, and special techniques.
3. Identify the appropriate follow-up testing when presented with basic serological problems.
4. Discuss the indications and exceptions for transfusion of each blood component and their expected outcomes.
5. Categorize unexpected reactions to transfusion, and demonstrate a basic understanding of their causes, treatment and prevention.
6. Utilize quality assurance measures.
7. Employ laboratory safety practices.

LAB 445 Immunohematology Clinical Rotation

Course Description:

Clinical application of the principles and techniques used in the collection, processing, evaluation and distribution of products for transfusion and laboratory operations in the clinical immunohematology laboratory.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
2. Accurately perform calculations and dilutions required for patient specimens and testing reagents.
3. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens according to established protocols for quality assurance & control, critical values, reference intervals, delta checks and technical failures.
4. Recognize possible sources of error in test results and assess the clinical significance of these results.
5. Correlate results with the underlying pathophysiology and interpret tests that aid in diagnosis.
6. Employ laboratory safety practices.
7. Comply with the regulatory and accreditation agencies governing the clinical laboratory.
8. Demonstrate professional conduct and communication skills with patients and caregivers.
9. Perform in any area of the immunohematology laboratory as an entry-level Medical Laboratory Scientist.

LAB 451 Clinical Immunology & Virology

Course Description:

Lecture covering the theories, concepts, and practices of clinical virology and diagnostic immunology and serology. Instructional areas include immune structure and function, cancer, immunodeficiency, infectious disease, pre-analytical, analytical, and post-analytical components of testing, and quality management. Topics include anatomy and physiology of the immune systems, antibody structure and function, hypersensitivity reactions, autoimmune, infectious diseases, principles of virus isolation, methods of identification, correlation of diagnostic results to disease, manual and automated method maintenance, calibration, and troubleshooting, quality management, and post-analytical recording and reporting of results.

Student Learning Outcomes:

1. Explain the clinical significance of immunologic/serological tests performed, observed and/or discussed.
2. Determine the physiology and clinical significance for each analyte, correlating results to underlying pathophysiology.
3. Identify different classes of viruses related to human disease and tests for detection.
4. Determine the clinical significance of microorganisms and correlate with disease process of the patient, including underlying predisposing factors and routes of infection.
5. Explain the working principles of the various instrumentation, and the sensitivity and specificity of specific analyses.
6. Identify sources of error in testing.
7. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
8. Utilize quality assurance.
9. Employ laboratory safety practices.

LAB 455 Special Topics

Clinical application of the principles and techniques used in diagnostic evaluation of human specimens and laboratory operations in the clinical laboratories.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
2. Accurately perform calculations and dilutions required for patient specimens and testing reagents.
3. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens according to established protocols for quality assurance & control, critical values, reference intervals, delta checks and technical failures.
4. Recognize possible sources of error in test results and assess the clinical significance of these results.
5. Correlate results with the underlying pathophysiology and interpret tests that aid in diagnosis.
6. Employ laboratory safety practices.
7. Comply with the regulatory and accreditation agencies governing the clinical laboratory.
8. Demonstrate professional conduct and communication skills with patients and caregivers.
10. Perform in any area of the clinical laboratory as an entry-level Medical Laboratory Scientist.

OVERVIEW OF PROGRAM SCHEDULE

Semester	SPRING		SUMMER		FALL
TERMS	1	2	3	4	5 - 6
MONTHS	JUL-AUG	SEP-OCT	NOV-DEC	JAN-FEB	MAR-JUN
	LAB 300	LAB 300	LAB 300	LAB 300	LAB 300
	LAB 301	LAB 412	LAB 410	LAB 405	LAB 4X5
	LAB 411	LAB 421	LAB 433	LAB 422	LAB 4X5
	LAB 431	LAB 432	LAB 434	LAB 430	LAB 4X5
		LAB 451	LAB 441	LAB 442	LAB 4X5
COURSE #	COURSE NAME		COURSE #	COURSE NAME	
LAB 300	Laboratory Practice		LAB 430	Urinalysis	
LAB 301	Phlebotomy		LAB 431	Clinical Hematology I	
LAB 405	Research/Management/Capstone Rotation		LAB 432	Clinical Hematology II	
LAB 410	Parasitology/Mycology		LAB 433	Coagulation	
LAB 411	Clinical Microbiology I		LAB 434	Bodily Fluids	
LAB 412	Clinical Microbiology II		LAB 435	Hematology/Coag/UABF Clinical Rotation	
LAB 415	Microbiology Clinical Rotation		LAB 441	Immunoematology I	
LAB 421	Clinical Chemistry I		LAB 442	Immunoematology II	
LAB 422	Clinical Chemistry II & MDX		LAB 445	Immunoematology Clinical Rotation	
LAB 425	Chemistry Clinical Rotation		LAB 451	Clinical Immunology & Virology	
			LAB 455	Special Topics Rotation	

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