

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 was established in 1932 and is accredited through the [National Accrediting Agency for Clinical Laboratory Science \(NAACLS\)](#). Our school is committed to providing highly qualified medical laboratory scientists (MLS) to the healthcare community. Laboratory Medicine is critical to healthcare, impacting the health of every individual. MLS are the diagnostic laboratory professionals performing the analyses that assist physicians in the diagnosis, treatment, monitoring, and prevention of disease. 70% of all medical decisions are based on laboratory test results. Graduates of the PSHMC School of MLS are competent to enter the laboratory profession, are highly recruited, and become leaders in Laboratory Medicine.

The certificate in Medical Laboratory Science is a professional healthcare program designed for B.S. graduates and 3+1 students concurrently enrolled in affiliate universities, who are interested in science, medicine, and the diagnostic laboratory. The MLS certificate will equip graduates to be behind the scenes healthcare professionals, using diagnostic methods to provide laboratory results to clinicians. The field of medical laboratory science is experiencing a significant shortage of qualified individuals. This certificate will provide students education that is 100% applicable to the clinical laboratory and supports the workforce need for qualified laboratory professionals.

The MLS certificate includes comprehensive training in all aspects of the clinical laboratory, including Clinical Chemistry, Hematology, Immunology, Immunohematology, Microbiology, Molecular Diagnostics, and Laboratory Management and Operations.

The SMLS accepts two cohorts per year, one in January and one in July. The SMLS certificate has two learning options available for students. There is an accelerated 12-month (3 semester), in-person (Spokane, WA) program option available in both the January and July cohorts. There is also an 18-month (4.5 semester) option that may be in-person (Spokane, WA) or hybrid, available for the January cohort students only. The 18mo option requires the first 16 weeks (1 semester) of in-person, full-time core learning in Spokane, WA. The remaining 56 weeks (3.5 semesters) are divided between 24 weeks (2.5 semesters) of part-time in-person (Spokane, WA) or distance learning (hybrid at your assigned site), and 16 weeks (1 semester) of full-time clinical rotations (in-person at your assigned site). The availability of cohort and learning options should be confirmed with the School prior to applying. Please inquire for more information regarding academic and clinical affiliates associated with 3+1 concurrent enrollment and clinical rotation placement, respectively.

Graduates of the SMLS, receive a certificate of completion. This certificate plus a baccalaureate degree, qualifies the graduate to take the [American Society for Clinical Pathology \(ASCP\) National Board of Certification exam \(BOC\)](#). Once certified, graduates of this program are anticipated to have 100% workforce placement as nationally certified medical laboratory scientists. Some states may require additional licensure.

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 laboratory scientists 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 MLS entry-level competencies
- Instill professionalism and a commitment to MLS through professional society membership and participation
- Champion PSJH core values: Compassion, Dignity, Excellence, Integrity, and Justice
- Meet the MLS employment needs for 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

PSHMC is part of Providence St. Joseph Health (PSJH) nationally, and Providence Health Care (PHC), which includes four hospitals, and multiple clinics in the Spokane and Stevens County areas. PSHMC is the largest of these hospitals with over 600 patient beds, specializing in comprehensive adult and pediatric care. PSHMC has been ranked the #2 hospital in WA State by US News & World Report 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 laboratory scientists.

COURSE OVERVIEWS & STUDENT LEARNING OUTCOMES

LAB 300 Laboratory Practice

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of Medical Laboratory Science. Subjects include confidentiality, quality management, safety, laboratory management, regulatory and compliance, laboratory operations, interprofessional development, educational methodologies, and an overview of laboratory techniques. Instructional areas comprise the pre-analytical, analytical, and post-analytical components of laboratory services.

Student Learning Outcomes:

1. Apply principles and practices of quality management to the components of laboratory services.
2. Follow safety and governmental regulations and standards as applied to laboratory practice.
3. Demonstrate knowledge of regulatory compliance for laboratory testing.
4. Demonstrate professional conduct and interpersonal/interdisciplinary communication skills with all staff, patients, healthcare professionals and the public.
5. Apply principles of interprofessional practice; seek opportunities to learn about, with and from other health professionals.
6. Adhere to all policies of confidentiality and HIPAA regulations.
7. Apply education techniques and terminology sufficient for entry-level teaching responsibilities.
8. Demonstrate entry-level competency and knowledge of laboratory information systems.
9. Discuss concepts and principles of laboratory management.
10. Develop proficiency in multi-tasking and prioritizing workload in a stressful environment while maintaining professionalism.
11. 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. Subjects include phlebotomy, specimen transport, processing and handling, regulatory and compliance, safety and blood-borne pathogens training, and patient relations.

Student Learning Outcomes:

1. Efficiently and skillfully perform all phlebotomy and skin puncture procedures.
2. Process all samples for testing and describe specimen collection and storage requirements for tests.
3. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, other healthcare professionals and the public.
4. Follows age-related standards for various patient populations.
5. Follow universal precautions when handling all body source specimens.

LAB 405 Special Topics Clinical Rotation

Course Description:

Clinical application of the principles and techniques used in applied clinical research, mock regulatory inspection, molecular diagnostics, phlebotomy clinical rotation, or other specialty rotation, as assigned.

- Subjects 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.
- Subjects in mock 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.
- Subjects in molecular diagnostics include clinical application of the principles and techniques used in diagnostic evaluation of human specimens and laboratory operations in the molecular diagnostics laboratory.
- Subjects in the phlebotomy clinical rotation include clinical application of the techniques used in phlebotomy and specimen procurement.
- Subjects in a specialty rotation, as otherwise assigned.

Student Learning Outcomes:

1. Applied Clinical Research:
 - a. Discuss research methods and applications in laboratory practice.
 - b. Apply knowledge of research design to evaluate published studies and present findings in a professional manner.
 - c. Develop a scholarly research proposal.
 - d. Produce a well-researched and clinically relevant research poster for presentation.
2. 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.
3. Molecular Diagnostics Clinical Rotation
 - a. Demonstrate sterile technique
 - b. Explain the working principles of the various molecular diagnostic instrumentation.
 - c. Explain the clinical significance of tests performed, observed and/or discussed.
 - d. Identify sources of error for each analysis.
 - e. Correlate results with the underlying pathophysiology.
 - f. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
 - g. Utilize quality assurance.
 - h. Employ laboratory safety practices.
 - i. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, and other healthcare professionals.
 - j. Perform in any area of the molecular diagnostics laboratory as an entry-level Medical Laboratory Scientist.
4. Phlebotomy Clinical Rotation
 - a. Utilize proper techniques when performing phlebotomy procedures.
 - b. Follow universal precautions when handling all body source specimens.
 - c. Complete specified number and type of collection procedures.

- d. Promote professional, compassionate, and safe practice during phlebotomy procedures with all patients.
- e. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, and other healthcare professionals.
- f. Perform as an entry-level Phlebotomist.

LAB 410 Parasitology/Mycology

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of human parasitology and mycology. Subjects 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. Subjects 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. Subjects 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.

Student Learning Outcomes:

1. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens from all body sites for pathogenic microorganisms.
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 413 Virology/Special Microbiology/Molecular Diagnostics

Course Description:

Lecture covering the theories, concepts, and practices of clinical virology, molecular diagnostics, and specialized microbiology and serology. Instructional areas include pre-analytical, analytical, and post-analytical components of testing, and quality management. Subjects in clinical virology include the basic principles of virus isolation, and identification by culture and non-culture methods. Subjects in molecular diagnostics include the fundamentals of molecular biology, principles of traditional and modern molecular methods, and characterization and differentiation of prominent genetic disorders. Subjects in special topics include mycobacteriology, epidemiology, specialized bacterial serologies, and advanced microbiology laboratory operations.

Student Learning Outcomes:

1. Determine the clinical significance of microorganisms and correlate culture results with disease process of the patient, including underlying predisposing factors and routes of infection.
2. Differentiate automated and manual isolation methods used in molecular testing; compare and contrast the different Real-time PCR technologies.
3. Explain the configuration of the molecular lab to avoid contamination.
4. Discuss the application of molecular diagnostic techniques in microbiology.

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 and report patient specimen analyses according to established protocols for quality control, critical values, reportable diseases, and technical failures.
2. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
3. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
4. Demonstrate technical skill and theoretical understanding necessary to examine and analyze specimens from all body sites for pathogenic microorganisms.
5. Process clinical specimens for the recovery, isolation, and identification of pathogenic bacteria, fungi, and parasites.
 - a. Determine if specimen was correctly labeled and submitted with a requisition containing pertinent patient information.
 - b. Determine if correct specimen type was submitted and adequate quantity for tests requested.
 - c. Select appropriate primary isolation media, inoculate, and incubate cultures in appropriate atmospheric conditions.
6. Prepare and evaluate direct microscopic preparations to determine specimen quality and to differentiate the morphologies of microorganisms.
7. Isolate and identify various bacteria by differentiating potential pathogens and performing confirmatory identification tests.
8. Apply standards of antimicrobial testing to appropriate isolates.
9. Isolate and identify various fungi by differentiating potential pathogens and performing confirmatory testing.
10. Identify parasites of the gastrointestinal tract, blood-borne parasites, and parasites associated with other body sites.
11. Determine the clinical significance of microorganisms and correlate culture results with disease process of the patient, including underlying predisposing factors and routes of infection.
12. Demonstrate the ability to apply molecular diagnostic techniques in microbiology and virology testing.
13. Perform and report patient specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
14. Communicate principles of infection control with other healthcare workers involved in patient care.
15. Employ laboratory safety practices.
16. Utilize quality assurance measures and participate in the quality control program of the Microbiology department.
17. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, and other healthcare professionals.
18. Perform in any area of the clinical microbiology laboratory as an entry-level Medical Laboratory Scientist.

LAB 420 Urinalysis

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of nephrology and diagnostic evaluation. Subjects 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 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. Subjects 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.
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/Immunology II

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of specialized clinical chemistry testing and diagnostic immunology and serology. Instructional areas cover organ systems, immune structure and function, toxicology, cancer, immunodeficiency, and infectious disease. Subjects include pre-analytical components of testing, anatomy and physiology of the immune systems, antibody structure and function, hypersensitivity reactions, autoimmune and infectious diseases, specialized methods of analytical testing, such as separation techniques and immunochemical platforms, 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. Accurately perform calculations and dilutions required for specimens and testing reagents.
5. Explain the clinical significance of immunologic/serological tests performed, observed and/or discussed.
6. Design protocols for diagnosis and differentiation of viral hepatitis.
7. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
8. Correlate results with the underlying pathophysiology.
9. Utilize quality assurance.
10. Employ laboratory safety practices.

LAB 425 Chemistry/Urinalysis/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, urinalysis and immunology laboratories.

Student Learning Outcomes:

1. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
2. Utilize quality assurance measures and participate in the quality control program for the clinical laboratory.
3. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
4. Identify sources of error for each analysis.
5. Accurately perform calculations and dilutions required for patient specimens, and testing reagents.
6. Perform and report patient specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
7. Evaluate testing to determine if results are within established reference intervals.
8. Correlate results with the underlying pathophysiology.
9. Employ laboratory safety practices.
10. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, and other healthcare professionals.
11. Perform in any area of the clinical chemistry, urinalysis and immunology laboratory as an entry-level Medical Laboratory Scientist.

LAB 431 Hematology I/Coagulation I

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of normal hematologic and hemostatic processes in the human body, testing methodologies, and analytical instrumentation. Subjects include pre-analytical components of testing, blood cell anatomy and physiology, overview of primary and secondary hemostasis, 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 and coagulation testing within the acceptable limits determined by the instructor.
2. Perform required maintenance, calibration, setup, and basic troubleshooting of hematology and coagulation instrumentation.
3. Explain the working principles of the various hematology and coagulation instrumentation.
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/Coagulation/Body Fluids II

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of abnormal hematologic and hemostatic processes in the human body, of other bodily fluids, testing methodologies, and analytical instrumentation. Subjects include pre-analytical components of testing, methods of analytical testing including manual and automated microscopic identification and quantification of blood cells, routine and specialized coagulation testing, chemical and microscopic evaluation of other 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. Perform manual and automated complete blood cell counts, platelet counts and reticulocyte counts within the acceptable limits determined by the instructor.
2. 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.
3. Operate, troubleshoot and discuss the theory of automated Hematology instruments. Distinguish between normal and abnormal test results.
4. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
5. Perform and interpret tests that aid in the diagnosis of leukocytic, erythrocytic, and hemostatic disorders; recognize possible sources of error in test results and assess the clinical significance of these results.
6. Analyze flow cytometry case studies, peripheral blood smears, bone marrow preparations and stains to arrive at a possible diagnosis.
7. Perform and report specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
8. Perform preventative and corrective maintenance of equipment and instruments.
9. Utilize quality assurance measures.
10. Employ laboratory safety practices.

LAB 435 Hematology/Coagulation/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, and body fluids laboratories.

Student Learning Outcomes:

1. Perform and report patient specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
2. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
3. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
4. 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. Discuss and participate in the quality control program of the clinical hematology, coagulation, and body fluids laboratory; make judgments concerning the results of quality control measures and institute appropriate actions to maintain valid results.
6. Recommend a plan, perform the necessary procedures and evaluate the results of a coagulation study to aid the clinician in diagnosis.
7. Employ laboratory safety practices.
8. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, and other healthcare professionals.
9. Perform in any area of the clinical hematology, coagulation, and body fluids laboratory as an entry-level Medical Laboratory Scientist.

LAB 440 Immunoematology

Course Description:

Lecture and laboratory covering the theories, concepts, and practices of transfusion medicine, blood banking, testing methodologies, and analytical instrumentation. Subjects include donor services management, pre-analytical components of testing, genetic and immunologic principles of transfusion, routine and specialized methods of analytical testing, unit collection, processing and storage, standard pretransfusion testing, antibody identification and antiglobulin crossmatching, transfusion therapy and advanced immunoematology 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 immunoematology 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. Successful performance includes these competencies:
 - a. Appropriate documentation of serologic results, interpretation, and reporting of results.
 - b. Selection/application of suitable controls for basic testing; evaluation of control results to determine testing validity.
 - c. Recognition of "unexpected" results in routine testing.
3. Identify the appropriate follow-up testing (initial vs. advanced techniques) when presented with basic serological problems.
4. Discuss the requirements for donor selection process and management.
5. Describe the preparation, modification, labeling, transport, and storage of components.

6. Discuss the indications and exceptions for transfusion of each blood component and their expected outcomes.
7. Categorize unexpected reactions to transfusion, and demonstrate a basic understanding of their causes, treatment and prevention.
8. Discuss the regulatory and accreditation agencies governing the Blood Bank, and the basis for their guidelines for safe blood collection and transfusion practices.
9. Explain white cell and platelet serology in the context of tissue transplantation, BMT etc.
10. Utilize quality assurance measures.
11. Employ laboratory safety practices.

LAB 445 Immunoematology 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 immunoematology laboratory.

Student Learning Outcomes:

1. Perform and report patient specimen analyses according to established protocols for quality control, critical values, reference intervals, delta checks and technical failures.
2. Perform required maintenance, calibration, setup, and basic troubleshooting of all instrumentation.
3. Recommend and evaluate all specimen types according to protocols for acceptance of specimens and make appropriate recommendations.
4. Correlate immunoematology theory with routine test procedures and results.
5. Perform the appropriate follow-up testing (initial vs. advanced techniques) when presented with basic serological problems.
6. Discuss the indications for transfusion of each blood component and their expected outcomes. Include exceptions to the "normal" transfusion: the special techniques and procedures used in emergency transfusion and MTP protocols, transfusion of neonates, and exchange transfusions.
7. Categorize unexpected reactions to transfusion, and demonstrate a basic understanding of their causes, treatment and prevention.
8. Comply with the regulatory and accreditation agencies governing the Blood Bank.
9. Employ laboratory safety practices.
10. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, and other healthcare professionals.
11. Perform in any area of the immunoematology laboratory as an entry-level Medical Laboratory Scientist.

OVERVIEW OF PROGRAM SCHEDULE

| TERMS | SPR I | SPR II | SUM I | SUM II | FALL I | FALL II | SPR I | SPR II | SUM I |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| COHORT | JAN-FEB | MAR-APR | MAY-JUN | JUL-AUG | SEP-OCT | NOV-DEC | JAN-FEB | MAR-APR | MAY-JUN |
| 12 MONTH | | | | LAB 300 | LAB 300 | LAB 432 | LAB 300 | LAB 300 | LAB 300 |
| JUL START | | | | LAB 301 | LAB 440 | LAB 422 | LAB 413 | LAB 4X5 | LAB 4X5 |
| Full-time In-person | | | | LAB 431 | LAB 412 | LAB 410 | LAB 4X5 | | |
| | | | | LAB 421 | LAB 420 | | | | |
| | | | | LAB 411 | | | | | |
| 12 MONTH | LAB 300 | LAB 300 | LAB 432 | LAB 300 | LAB 300 | LAB 300 | | | |
| JAN START | LAB 301 | LAB 440 | LAB 422 | LAB 413 | LAB 4X5 | LAB 4X5 | | | |
| Full-time In-person | LAB 431 | LAB 412 | LAB 410 | LAB 4X5 | | | | | |
| | LAB 421 | LAB 420 | | | | | | | |
| | LAB 411 | | | | | | | | |
| 18 MONTH* | LAB 300 | LAB 300 | LAB 432 | LAB 300 | LAB 4X5 | LAB 422 | LAB 300 | LAB 300 | LAB 300 |
| JAN START | LAB 301 | LAB 440 | | LAB 413 | | LAB 410 | LAB 4X5 | LAB 4X5 | LAB 4X5 |
| Variable time Hybrid | LAB 431 | LAB 412 | | LAB 4X5 | | | | | |
| | LAB 421 | LAB 420 | | | | | | | |
| | LAB 411 | | | | | | | | |
| * 16wk Core and last semester of clinical rotations are full-time for 18mo students. All other 18mo terms are part-time . | | | | | | | | | |
| WEEKS | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| <ul style="list-style-type: none"> Term dates are approximate and vary with calendar year <ul style="list-style-type: none"> 1 Term = 8weeks; 1 semester = 16weeks Schedule is subject to change. Please contact us for the most current schedule | | | | | | | | | |

| COURSE # | COURSE NAME | COURSE # | COURSE NAME |
|----------|--|----------|--------------------------------------|
| LAB 300 | Laboratory Practice | LAB 421 | Clinical Chemistry I |
| LAB 301 | Phlebotomy | LAB 422 | Clinical Chemistry II (Immunology) |
| LAB 405 | Research/Capstone/Phlebotomy Clinical Rotations | LAB 425 | Chemistry Clinical Rotation |
| LAB 410 | Parasitology/Mycology | LAB 431 | Clinical Hematology I (Coag I) |
| LAB 411 | Clinical Microbiology I | LAB 432 | Clinical Hematology II (Coag II, BF) |
| LAB 412 | Clinical Microbiology II | LAB 435 | Hematology Clinical Rotation |
| LAB 413 | Clinical Virology, Special Micro, Molec. Diagnostics | LAB 440 | Immuno-hematology |
| LAB 415 | Microbiology Clinical Rotations | LAB 445 | Immuno-hematology Clinical Rotation |
| LAB 420 | Urinalysis | | |

PSHMC SMLS

CONTACT US:

Website:

<https://gme.providence.org/washington/dental-pastoral-and-laboratory-programs/school-of-medical-laboratory-science/>

Email:

PSHMCSMLS.PROVIDENCE.ORG

Address:

PSHMC School of Medical Laboratory Science
101 W 8th Ave
Spokane, WA 99204

Phone:

509-474-3382

Fax:

509-474-3396