



**Berkshire Medical Center
School of Medical Laboratory Science**

Course Syllabus

Course No. MEDT 405

Course Title: Clinical Immunohematology (Blood Bank)

Credits: 5 (through affiliated colleges/universities affiliation agreements)

Prerequisites: Successful completion of the prerequisite courses required for entry into the MLS program.

Description:

Introduces the student to the different human blood groups, blood components, the antibody screening and identification process, transfusion protocols, blood donor screening, and state and federal regulations. Describes the controllable and non-controllable pre-analytical, analytical, and post-analytical variables that can affect testing. The student applies this theory in the clinical lab to process blood and its components, determine blood product compatibility, apply appropriate quality control, and correlate patient results to blood disorders.

Primary Didactic Instructor: Kristen Prew, B.S., MLS(ASCP)
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Additional Didactic: Suzanne Homan, M.D.
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Required text: Basic and Applied Concepts of Blood Banking and Transfusion Practices; Kathy Blaney and Paula Howard, 5th ed (2021). The Blood Bank Department online procedures.

Reference text: Technical Manual, 21st edition, AABB (2023)

Lecture: 1.0 hour lecture every week starting in October through April
Additional lectures scheduled as needed

Laboratory: 7 week clinical rotation in the Blood Bank Department.
**See individual student schedule for dates



Course Goals and Objectives

Based on the didactic material and clinical instruction students will score an average of 75% or better on evaluation tools (i.e. exams, evaluations, exercises, etc) to demonstrate competency of the following objectives.

Upon completion of the Blood Bank clinical and didactic course the student will:

1. Develop an entry-level knowledge of blood banking and transfusion medicine and their importance in patient care.
2. Explain the importance of patient identification as it relates to transfusion medicine and patient safety.
3. Discuss physiological mechanisms that lead to specific bleeding disorders or hemolytic states and describe the clinical manifestations.
4. Discuss the current prevention and treatment for blood disorders that require blood product intervention.
5. Discuss the criteria for blood donation.
6. Explain the use of each blood product stored in the blood bank and state storage requirements.
7. Explain the principles and methodologies of each test performed in the Blood Bank and the clinical significance.
8. Explain the importance of quality control and apply it in the Blood Bank.
9. Determine appropriate specimen collection, processing, and analysis of patient specimens by following established procedures and resolve issues as they arise.
10. Perform manual and automated testing on patient blood or body fluids that result in valid laboratory results in the Blood Bank.
11. Prepare blood donor units for retrieval of plasma.
12. Differentiate the different ABO/Rh types following testing.
13. Evaluate screening results and/or antibody panel results for possible antibody identification.
14. Choose appropriate course of action for transfusion following discovery of patient antibody.
15. Perform routine maintenance, troubleshooting and quality control on instrumentation in the Blood Bank following established procedures.
16. Evaluate quality control data and determine course of action when quality control falls outside of range.
17. Interpret laboratory data generated from the Blood Bank regarding test accuracy and abnormal values.
18. Evaluate laboratory data and give possible cause or diagnosis for patient results.
19. Assess results of transfusion reaction work-ups.
20. Organize workflow for efficiency in lab testing turn-around-times.
21. Practice established confidentiality guidelines.
22. Demonstrate professional and ethical conduct with all healthcare professionals, consumers, patients, and other laboratory students.

Basis for Student Evaluation and Grading

Lecture evaluation will consist of periodic exams, a midterm and a final. The laboratory evaluation will consist of exercises, written exams, affective evaluation, clinical performance and unknowns. The final grade will be composed of 60% lecture and 40% laboratory. See Blood Bank grade sheet for specific breakdown.

Blood Bank Lecture schedule:

Blood Bank Introduction

ABO (3 lectures)

ABO discrepancies (2 lectures)

BB Quiz #1

Antiglobulin testing (2 lectures)

BB Quiz #2

Lewis Blood Group, Other Carbohydrate Antigens

Kell, Duffy, Kidd

MNS, Other Blood Groups

BB Quiz #3 (Lewis, Other Carbohydrate Antigens, Kell)

BB Quiz #4 (Duffy, Kidd, MNS, Other Blood Groups)

BB Midterm (quizzes 1 – 4)

Rhesus Blood Group (3 lectures)

Alloantibody ID (2 lectures)

BB quiz #5

Pretransfusion testing

Blood Component Therapy (3 lectures)

Adverse Outcomes (2 lectures)

BB quiz #6

Transfusion Transmitted Diseases

Blood donor requirements

Blood Storage

BB quiz #7

Hemolytic Disease of the Fetus and Newborn (HDFN) (2 lectures)

BB Quiz #8

Case Studies (2 lectures)

BB final exam – May

Affective behaviors

Didactic

Following appropriate training, during didactic instruction the student will:

1. Exhibit professional behavior during didactic instruction.
2. Attend lectures in a timely manner.
3. Respect other students and members of the laboratory.
4. Contribute to a positive learning environment.
5. Demonstrate an interest in the subject matter.
6. Comply with hospital and laboratory dress code and personal appearance policies.
7. Comply with institutional policies concerning safety and confidentiality.
8. Cooperate when situations arise and there is a necessary change in lecture schedule.
9. Participate in creating an inclusive learning environment.

Clinical

Following appropriate training, during clinical instruction the student will:

1. Comply with all hospital, laboratory, and school policies.
2. Demonstrate proper phone etiquette using BHS customer service standards.
3. Maintain a neat, clean, and orderly work area in the Blood Bank department.
4. Value the advice and opinion of others.
5. Accept responsibility for the their own actions notifying instructor or supervisor of any errors.
6. Be dependable and punctual for the clinical experience.
7. Organize their time to complete assignments and daily training.
8. Accept constructive feedback and use it as a tool for improved performance.
9. Comply with institutional policies concerning safety and confidentiality.
10. Cooperate when situations arise and there is a necessary change in the clinical schedule.
11. Establish a good rapport with departmental staff and uphold the concept of teamwork.
12. Contribute to a positive, inclusive clinical training environment.

Attendance

Students follow the School of MLS attendance policy. Students are allotted 80 hours for personal time and sick time during the course of the internship. The Program Director and clinical department must be notified of any sudden absence as soon as possible. The main lab number may be called 24 hours a day to notify the lab of an absence. The Program Director should be emailed to document the absence.

Any coursework or clinical training missed over the 80 hours allowed, will require consultation with the Program Director as to the course of action to make up lost training time.

Snow days

Cancellation of classes or clinical training due to inclement weather will be at the discretion of the Program Director.

(Blood Bank syllabus)