



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

Course Syllabus

Course No. MEDT 402

Course Title: Clinical Hematology

Credits: 8 (through affiliated colleges/universities affiliation agreements)

Description:

Introduces students to the study of the hematopoietic system including the relationship of hematologic diseases to diagnostic characteristics. Discusses erythrocyte and leukocyte development and disorders; cellular morphology; mechanisms and disorders of hemostasis and fibrinolysis; and principles of test methodology. 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 using current diagnostic techniques and instrumentation to correlate lab results to disease processes.

Primary Didactic Instructor: Brenda Alibozek, MLS(ASCP)
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Additional Instructors: Dr. Suzanne Homan
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Clinical Instructor: Brenda Alibozek, MLS(ASCP)
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Required text: Rodak's Hematology 6th edition; E. Keohane, C. Otto, 2020
Hematology/Coagulation online procedures.

Reference text:

Anderson's Atlas of Hematology, 3rd edition, S. Anderson Young, K. Poulsen, 2020

Lecture: 1-1.5 hour lecture every week – August through May
Additional lectures scheduled as needed
Laboratory: 7 week clinical rotation in the Hematology 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, unknowns, evaluations, etc) to demonstrate competency of the following objectives.

Upon completion of the Hematology/Coagulation clinical and didactic course the student will:

1. Develop an entry-level knowledge of hematologic/coagulation tests used in the clinical laboratory and their importance in diagnosis and treatment of disease.
2. Explain the importance of cellular/morphologic characteristics in identifying certain hematologic disorders.
3. Discuss physiological mechanisms that lead to specific hematologic/coagulation disorders and disease states.
4. Discuss the current prevention and treatment for hematologic/coagulation disorders.
5. Explain the principles and methods of each test performed in the hematology/coagulation laboratory and the clinical significance.
6. Explain the importance of quality control and apply it in the laboratory setting.
7. Determine appropriate specimen collection, processing, and analysis of patient specimens by following established procedures and resolve issues as they arise.
8. Perform manual and automated testing on patient blood or body fluids that result in valid laboratory results in the Hematology/Coagulation department.
9. Differentiate and enumerate cells on a peripheral blood smear.
10. Assess RBC and platelet morphology on a peripheral blood smear.
11. Perform routine maintenance, trouble shooting, quality control, and calibrations on instrumentation in the Hematology/Coagulation department following established procedures.
12. Evaluate quality control data and determine course of action when quality control falls outside of range.
13. Interpret laboratory data generated from the Hematology/Coagulation laboratory regarding test accuracy and abnormal values.
14. Evaluate laboratory data and give possible cause of diagnosis for patient results.
15. Organize workflow for efficiency in lab testing turn-around-times.
16. Practice established confidentiality guidelines.
17. Demonstrate professional and ethical conduct with all healthcare professionals, consumers, patients, and other laboratory students.

Basis for Student Evaluation

Lecture evaluation will consist of exams and assigned exercises. The laboratory evaluation will consist of exercises, written exams, study questions, clinical performance, affective evaluation and identification of unknown hematologic disorders on peripheral blood smears. The final grade will be composed of 60% lecture and 40% laboratory. See Hematology grade sheet for specific breakdown.

Hematology Lecture Schedule

July - April

1. Intro to Hematology/Collection of specimens
2. Manual Counts/RBC indices
3. Automation

Quiz

4. ESR and Hemoglobin/Hematocrit

Quiz

5. RBC morphology
6. RBC morphology and WBC Anomalies
7. RBC production
8. Leukocytes and platelets

Quiz

9. Cytochemical stains/flow markers

Quiz

10. Bone marrow
11. RBC membrane

Quiz

12. Intro to anemias
13. Iron deficiency, sideroblastic, hemochromatosis
14. Megaloblastic anemia

Quiz

15. Lymphocytosis/mono
16. Lupus/Immune deficiency – ANA

Quiz

17. Hemolytic anemias 2 lectures
18. Aplastic anemia, PNH, PCH

Quiz

Midterm – 1st week of January

19. Intro to Leukemia and Myeloid leukemia part 1
20. Leukemia – myeloid part 2
21. Flow cytometry

Quiz

22. Myeloproliferative disorders (MPD)
23. Myelodysplastic Syndromes (MDS)

Quiz

24. Hemoglobinopathies 2 lectures
25. Thalassemias

Quiz

26. Lymphocytic leukemias
27. Lymphoid neoplasms part 1
28. Lymphoid neoplasm part 2
29. Myeloma

Quiz

Hematology Lecture Schedule

- 30. Coagulation – normal hemostasis
- 31. Coagulation – evaluation of hemostasis
- 32. Coagulation – platelets

Coag Quiz #1

- 33. Coagulation – DIC
- 34. Coagulation – Factor deficiencies

Coag Quiz #2

- 35. Coagulation – anticoagulants
- 36. Coagulation – hemorrhagic
- 37. Coagulation – hypercoagulation

Coag Quiz #3

May/June - Hematology Final

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 phone etiquette using BHS customer service standards.
3. Maintain a neat, clean, and orderly work area in the Hematology department.
4. Value the advice and opinion of others.
5. Accept responsibility for their own actions notifying the 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. Establish a good rapport with departmental staff and uphold the concept of teamwork.
10. Cooperate when situations arise and there is a necessary change in lecture schedule.
11. Comply with hospital and laboratory dress code and personal appearance policies.
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.

(Hematology syllabus)