South Central College

MDLT 1830 Hematology II

Course Outcome Summary

Course Information

Description   This course is a continuation of MDLT 1815 Hematology I. It includes the study of anemias and leukemias, and the correlation of these disease processes. Instruction includes lecture and laboratory case studies, and the use of automated hematology analyzers. (Prerequisite: MDLT 1810 & MDLT 1815 with a grade of C or higher.)

Total Credits   3
Total Hours   48

Types of Instruction

Instruction Type	Credits/Hours
Online	2/16
On campus lab	1/32

Pre/Corequisites

MDLT 1810 & MDLT 1815 with a grade of C or higher.

Institutional Core Competencies

Communication - Students will be able to demonstrate appropriate and effective interactions with others to achieve their personal, academic, and professional objectives.

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1.   **Apply laboratory safety practices.**

     Learning Objectives
     Explain management and disposal of hazardous and regular waste.
     Discuss management of a safe laboratory environment.
     Describe collection, transportation, handling, packaging, and processing precautions of hematology specimens.

2.   **Demonstrate standard quality assurance practices to ensure quality patient outcomes.**

Learning Objectives
List the major components of a hematology QA program.
Define terminology related to a hematology QA program.
Interpret QA data.
Discuss the using and reporting of QA data.
Discuss corrective action measures for QA data.

3. **Explain, discuss, and demonstrate proper hematology specimen collection, transportation, and processing procedures, and the common preanalytical variables that affect them.**

Learning Objectives
List, explain, and demonstrate the common types of hematology specimen collection, transportation, and processing procedures.
Discuss common preanalytical variables that affect hematology specimen collection, transportation, and processing procedures.

4. **Identify, and use terminology related to the study of Hematology, the formed elements of the blood, and related pathologic conditions.**

Learning Objectives
Recognize terminology related to the study of hematology.
Apply terminology related to the study of hematology.

5. **Identify the normal maturation sequence of the formed elements of the blood.**

Learning Objectives
List the cells that make up the normal maturation sequence of the formed elements of the blood.
Identify the general characteristics of the cells that make up the normal maturation sequence of the formed elements of the blood.

6. **Identify common abnormalities and/or inclusions found within the formed elements of the blood.**

Learning Objectives
List the different types of common abnormalities or inclusions that can be found within the formed elements of the blood.
Identify the common characteristics of the different types of common abnormalities or inclusions that can be found within the formed elements of the blood.

7. **Differentiate, explain the causes of, recognize the diagnostic picture, and discuss treatment of the different types of common leukemias.**

Learning Objectives
Define leukemia.
Discuss common ways to classify leukemias.
List the common acute and chronic leukemias.
Identify laboratory tests that indicate acute and chronic leukemias.
Recognize the characteristics of common leukemic pathologic conditions.
Interpret laboratory tests that indicate leukemias by correlating peripheral blood leukocyte numbers and types with possible pathologic conditions.
List and discuss common leukemic treatment options.
Define relative leukocyte count.
Define and calculate absolute leukocyte counts.
List normal patient leukocyte reference ranges (whole blood and leukocyte types).
Compare patient leukocyte results with normal patient leukocyte reference ranges to recognize deviations from normal patient leukocyte results.

8. **Define, classify, discuss common clinical features and laboratory results (changes) as well as pathogenetic similarities of the common Myeloproliferative Disorders.**

Learning Objectives
Define myeloproliferative disorders (MPDs).
List the most common diseases included in the classification of MPDs, and recognize their abbreviations.
Discuss the theory of pathogenesis of the most common MPDs.

Identify major morphologic changes in the bone marrow and peripheral blood commonly observed in patients with MPDs with emphasis on affected cell lines.
List diagnostic criteria and progression of the common MPDs.
Given complete blood counts, recognize those consistent with each MPD.

9. **Define, classify, discuss common morphologic features, etiology, laboratory results (changes), prognosis, and treatment and management of the common Myelodysplastic Syndromes.**

Learning Objectives
Define myelodsyplastic syndrome (MDS).
Explain the sequence of events thought to lead to MDS.
Recognize morphologic features of dyspoiesis in bone marrow and peripheral blood.
Correlate peripheral blood and bone marrow findings in MDS with French-American-British (FAB) and World Health Organization (WHO) classification systems.
Discuss modes of management for MDS.

10. **Define, classify, explain lymph node processing of, discuss common clinical features prognosis and treatment of the common lymphoproliferative disorders.**

Learning Objectives
Define lymphoma.
Describe the peripheral blood findings in the most common lymphoid neoplasms.
Describe the approach for the diagnosis of lymphomas as outlined by the WHO.
List and discuss the most commonly occurring mature lymphoproliferative disorders including clinical presentation, pathophysiology, lymph node history, and any peripheral blood and/or bone marrow findings.

11. **Define, differentiate, explain the causes of, recognize the diagnostic picture, and discuss treatment of the different types of common anemias.**

Learning Objectives
Define anemia.
Given complete blood counts and appropriate reference ranges, recognize the most common anemias.
Describe clinical signs and symptoms of anemia, and recognize them in clinical scenarios.
List procedures that are commonly performed for the detection and diagnosis of anemia.
Discuss methods to classify anemias.
Discuss common treatment options for anemias.

12. **Define, discuss etiology, diagnosis and pathophysiology and treatment of the common hemoglobinopathies.**

Learning Objectives
Define hemoglobinopathies.
Compare and contrast hemoglobinopathies with thalassemias.
Describe the peripheral blood cell profile, chemistries, and other laboratory procedures used in the diagnosis of hemoglobinopathies.
Discuss the clinical presentation of the most common hemoglobinopathies.
Discuss various treatments and their purposes for the most common hemoglobinopathies.

13. **Define, classify, discuss etiology, diagnosis, pathophysiology and treatment of the common thalassemias.**

Learning Objectives
Define thalassemia.
Describe the hemoglobin defect found in thalassemias.
Define heterozygous and homozygous thalassemias.
Explain the pathophysiology caused by the imbalance of the globin chain synthesis in thalassemia.
Recognize the laboratory findings associated with thalassemias.
List the clinically defined thalassemic syndromes associated with genetic defects of the alpha and beta gene clusters.
Differentiate thalassemias from iron deficiency anemia (IDA).
Discuss various treatments for the most common thalassemias.

14. **Differentiate, explain the causes of, recognize the diagnostic picture, and discuss treatment of the different types of common thrombocytic (platelet) disorders.**

Learning Objectives

List laboratory tests used to differentiate among common hemorrhagic platelet disorders.
Discuss the the causes of localized versus generalized, acquired versus congenital bleeding disorders.
Define thrombocytopenia and thrombocytosis.
Recognize the clinical presentation of patients with dysfunctional platelets.
Describe the sequence of treatment options for the most common thrombocytic disorders.

15.   Explain, and demonstrate the proper procedure for manual cell differential counting.

Learning Objectives

Explain the features of a well made, well stained blood smear.
List the steps involved in performing the Wright's stain procedure.
Explain the steps involved in the performance of a manual differential cell count.
Perform manual differential cell counts.

16.   Explain the principle of operation of common hematology analyzers.

Learning Objectives

Discuss the different principles of automated cell counting.
Discuss laser technology.
Discuss and interpret patient data from histograms/cytograms/scatterplots.
Identify sources of error in automated cell counting and determine appropriate corrective action measures.

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations.   North Mankato: Room B-132, (507) 389-7222;   Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

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