J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: MDL 225 **Credits:** 3

Course Title: Clinical Hematology II

Course Description: Teaches advanced study of blood to include coagulation, abnormal blood formation, and changes seen in various diseases. Prerequisite: MDL 125. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose: This course is designed to develop further laboratory skills in hematology. Students apply the knowledge and skills from Hematology I in the study of disease processes and the implications to laboratory testing in the hematology laboratory.

Course Prerequisites and Co-requisites:
Prerequisite: MDL 125

Student Learning Outcomes:
Upon completing the course, the student will be able to

a. Demonstrate a regard for the safety of self and others;
b. Perform each procedure and correctly document on report forms;
c. Discuss routine hematology concepts;
d. Identify formed elements found under the microscope;
e. Demonstrate each procedure to the instructor;
f. Describe the clinical picture and the blood picture of all diseased stated of anemia;
g. Describe the clinical picture and the blood picture of red cell proliferative disorders;
h. Describe the clinical picture and the blood picture of reactive white cell abnormalities;
i. Describe the clinical picture and the blood picture of malignant white cell disorder;
j. Describe the clinical picture and the blood picture of congenital anomalies of leukocytes;
k. Perform the following test procedures: automated cell counter, eosinophil counts, indices, sickle cell test, ESR, and abnormal differentials;
l. Discuss the basic concepts and theory of hemostasis and blood coagulation;
m. Describe the role of the vasculature system in hemostasis and to discuss vascular disorders in terms of etiology, clinical characterization, and laboratory diagnosis;
n. Describe the role of platelets in hemostasis and to discuss platelet disorders in terms of etiology, pathogenesis, clinical manifestations, and laboratory diagnosis;
o. Describe the clotting factors involved in blood coagulation;
p. Discuss clotting disorders in terms of causes, pathogenesis, clinical manifestation, laboratory diagnosis, and treatment;
q. Discuss the theory of the fibrinolytic system in terms of components, function, and factors affecting mechanisms of action;
r. Discuss abnormalities of the fibrinolytic system in terms of etiology, clinical characterization, and laboratory diagnosis;
s. Discuss thrombosis in terms of definition, types of disorders, etiology, clinical characterization, and laboratory diagnosis;
t. Discuss the role of the clinical laboratory in monitoring anticoagulant therapy; and
u. Perform laboratory test procedures used to evaluate:
    1. disorders of hemostasis
    2. anticoagulant therapy

Major Topics to Be Included:

a. Thalassemias
b. Anemias of blood loss
c. Anemias of bone marrow failure
d. Microcytic and hypochromic anemias
e. Megaloblastic anemias
f. Hemolytic anemias
g. Red cell proliferative disorders
h. Reactive white cell abnormalities
i. Leukemias
j. Lymphomas
k. Plasma cell dyscrasias
l. Congenital anomalies of leukocytes
m. Coagulation
    1. Vascular system and vascular disorders
    2. Platelets and platelet disorders
    3. Theory of blood coagulation
    4. Blood coagulation disorders
    5. Fibrinolytic systems and disorders of the fibrinolytic system
    6. Thrombosis and thrombotic disorders
    7. Laboratory evaluation of hemostasis

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