J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: MDL125 **Credits:** 3

Course Title: Clinical Hematology I

Course Description: Teaches the cellular elements of blood, including blood cell formation, and routine hematological procedures. Prerequisite or Co-requisite: MDL 101. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose: This course begins skill development in hematology, one of the designated content areas in the Medical Laboratory Technician major.

Course Prerequisites and Co-requisites:
Prerequisite or Co-requisite: MDL 101

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 document correctly;
c. Discuss routine hematology concepts;
d. Identify formed elements found under the microscope;
e. Demonstrate each procedure to the instructor;
f. Describe the general development of blood cells from the time of conception through adult life;
g. Describe the parts of a cell and their function;
h. Describe the maturation of erythrocytes, leukocytes, and platelets, and how each is regulated;
i. Describe the development of hemoglobin and its function in the body;
j. Describe the pathways of RBC metabolism and catabolism;
k. Describe proper procedure for collection of blood, the right tubes to collect for individual tests, and precautions which should be taken while drawing blood;
l. Describe the principles of the automated machines used in the clinical hematology laboratory;
m. Describe the changes that take place in a person from infancy to adulthood in the RBC count, WBC count, hemoglobin, hematocrit, MCV, and the differential;
n. Describe and state when abnormal forms of RBC and abnormal inclusions of RBC occur;
o. Describe the clinical picture and the blood picture which occur in patient with a hemoglobinopathy; and
p. Perform manual hematocrits, hemoglobins, WBC counts, platelet counts, reticulocyte counts, and normal differentials.

Major Topics to Be Included:
a. Blood function and development
b. Erythropoiesis
c. Leukopoiesis
d. Platelets
e. Other bone marrow cells
f. Hemoglobin
g. RBC metabolism
h. RBC catabolism
i. Venipuncture
j. Pediatric hematology
k. Automation
l. Introduction to anemias
m. Hemoglobinopathies
n. Hematologic procedures

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