Common Course Outline

MLTC 180

Principles of Hematology and Coagulation

4 **Credits**

Community College of Baltimore County

Description

MLTC 180 – Principles of Hematology and Coagulation presents the fundamental concepts in hematology and hemostasis, including hematopoiesis, anemias, hemoglobinopathies, qualitative leukocyte disorders, leukemias and myeloproliferative disorders. The course also presents hemostasis from normal platelet and clotting physiology to disorders in the clotting mechanism. Students learn to identify normal and abnormal cellular characteristics of peripheral blood smear examinations and associate abnormal morphologic findings with underlying disorders. Laboratories include manual and semi-automated hematological and coagulation tests and morphologic skills with an introduction to automated cell counters and coagulation test systems.

4 Credits: 3 lecture hours per week; 3 laboratory hours per week

Prerequisites: MLTC 150; MLTC 151; MLTC 200

Overall Course Objectives

Upon completion of this course students will be able to:

1. distinguish the cellular elements of the white cell, red cell and platelet series in their immature and mature states;
2. compare and contrast the anemias with respect to morphologic classification, pathophysiology, and peripheral smear findings;
3. describe the qualitative changes of white cells in response to disease processes;
4. describe the clinical features of the chronic leukemias;
5. categorize the acute leukemias with respect to the French-American-British (FAB) and World Health Organization (WHO) classification systems;
6. explain in detail the four systems of hemostasis;
7. classify the qualitative platelet disorders with regards to pathophysiology and laboratory diagnosis;
8. define the role of thrombin in the coagulation and fibrinolytic systems;
9. classify the therapeutic anticoagulants with regards to mode of action and laboratory testing;
10. distinguish the circulating inhibitors with regards to their mode of action and laboratory testing;
11. perform routine clinicial hematology tests with competency;
12. comply with standard operation procedure regarding laboratory safety;
13. recognize critical values and make specimen integrity decisions;

14. analyze pre-analytical, analytical and post analytical factors that affect coagulation laboratory results;
15. correlate laboratory results with normal health and disease processes; and
16. analyze quality control results with respect to hematology and coagulation procedures.

Major Topics

I. Erythrocytes
   A. Erythopoiesis, physiology, and destruction
   B. Hemoglobin synthesis and function
   C. Morphologic evaluation of erythrocytes
   D. Erythrocyte abnormalities
   E. Anemias
II. Leukocytes
   A. Leukopoiesis
   B. Leukocytpe morphology, kinetics, and function
   C. Leukocyte abnormalities, non-malignant
   D. Leukocyte abnormalities, myeloproliferative and lymphoproliferative
III. Hemostasis
   A. Coagulation and fibrinolysis
   B. Laboratory evaluation of coagulation and fibrinolysis
   C. Anticoagulant therapy
   D. Formation and function of thrombocytes
   E. Platelet disorders

Course Requirements

Grading procedures will be determined by the individual faculty member but will include the following:

Grading/exams

- A minimum of three (3) graded case studies
- Weekly laboratory assignments
- Weekly quizzes and assignments
- A minimum of three (3) lecture exams
- A minimum of three (3) laboratory proficiencies
- Professionalism
- A cumulative final examination

Written Assignments: Students are required to use appropriate academic resources.

Other Course Information

This course is a Medical Laboratory Technology Program core course.
This course is part of a program sequence that requires admission to the program.
This course is offered in the spring only.

Date Revised: 01/09/2018