Common Course Outline

MLTC 150

Principles of Blood Banking

3 Credits

Community College of Baltimore County

Description

MLTC 150 – Principles of Blood Banking introduces the theoretical and practical concepts of blood banking and transfusion medicine. Topics include donor screening and selection, basic blood group serology, component selection and therapeutic use, hemolytic disease of the fetus/newborn, and transfusion reactions. Laboratory exercises include ABO/Rh (Rhesus) grouping, antibody screening, compatibility testing, and single antibody identification.

3 Credits: 2 lecture hours per week, 3 laboratory hours per week

Prerequisites: MLTC 101; Admission to the Medical Laboratory Technology Program
Co-requisite: MLTC 151

Overall Course Objectives

Upon completion of this course students will be able to:

1. define the process of donor screening and selection for allogeneic whole blood donation and autologous pre-deposit donation;
2. explain the preparation, management, handling, and therapeutic use of the following blood products for transfusion: packed red blood cells, fresh frozen plasma, random/pooled platelets, and cryoprecipitate;
3. apply the principles and applications of direct agglutination testing (ABO/Rh[Rhesus]) as well as direct and indirect antiglobulin testing to identify unknown antibodies;
4. perform the following tests: ABO grouping, Rh (Rhesus) typing, antibody detection, compatibility testing, and single antibody identification by the test tube method;
5. compare and contrast the serologic characteristics, notable aspects, and clinical significance of the following blood group systems: ABO, Rh, Kell, Kidd, Duffy, MNSs, P, I, Lewis, and Lutheran;
6. evaluate the results of routine blood bank testing to recognize expected findings, discrepant ABO findings, and invalid antiglobulin results;
7. formulate a basic plan of action for investigating unexpected findings when given results of blood bank testing;
8. categorize hemolytic disease of the fetus/newborn, and autoimmune hemolytic anemia with regard to testing, cause, management, and treatment;
9. determine the process of investigating a suspected transfusion reaction as it relates to classification of the reaction, as well as, recommendations for future transfusions;
10. interpret quality control measures used in blood bank testing; and
11. demonstrate laboratory safety including universal standard precautions.

Major Topics

I. Basic genetics and hemagglution
II. ABO blood group system
III. Rh blood group system
IV. Other major blood groups
V. Antibody screen and identification
VI. Compatibility testing
VII. Direct antiglobulin test (DAT)
VIII. Special techniques
IX. Donor screening and whole blood donation
X. Autologous donation
XI. Blood component preparation, processing, storage, and selection
XII. Transfusion reactions
XIII. Hemolytic disease of the fetus/newborn (HDFN)
XIV. New technologies in blood banking

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 two (2) 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 fall only.

Date Revised: 01/09/2018