BARTON COMMUNITY COLLEGE
COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: MLTC 1508
Course Title: MLT Immunohematology
Credit Hours: 6
Prerequisites: Fundamentals of General Chemistry and General Microbiology and Anatomy & Physiology or equivalents, passed with a minimum of a C or instructor permission.
Division/Discipline: Workforce Training and Community Education Division, Medical Laboratory Technology Program
Course Description: A study of the immunology of blood, including those principles and practices that are known collectively as blood banking. An overview of blood component collection and component preparation is presented. Basic concepts of genetics, immunology, and antiglobulin testing are included as a foundation for the understanding of the blood group systems and antibody detection and identification. Current transfusion practices are discussed. The student will gain experience in performance of techniques in immunohematology to include blood typing, cross-matching, direct and indirect coombs testing and antibody identification. Hands-on laboratory time is required.

II. INSTRUCTOR INFORMATION

III. COLLEGE POLICIES

Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

Plagiarism on any academic endeavors at Barton Community College will not be tolerated. The student is responsible for learning the rules of, and avoiding instances of, intentional or unintentional plagiarism. Information about academic integrity is located in the Student Handbook.

The College reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage.)

Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at disabilityservices@bartonccc.edu

IV. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This is one of a series of technical courses for the Medical Laboratory Technology Program. This course is designed to develop the knowledge and competencies related to immunohematology and to develop useful job-oriented skills and safety practices for the medical laboratory professional and includes information, at a minimum, from the current American Society of Clinical Laboratory Science *Body of Knowledge for Medical Laboratory Technicians*

Students planning to transfer credit for a baccalaureate degree will be granted transfer credit only as determined by the four year institution.

The transferability of all college courses will vary among institutions, and perhaps even among departments, colleges, or programs within an institution. Institutional requirements may also change without prior notification. Students are responsible to obtain relevant information from intended transfer institutions to ensure that the courses the student enrolls in are the most appropriate set of courses for the transfer program

V. ASSESSMENT OF STUDENT LEARNING/COURSE OUTCOMES

Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

<u>Course Outcomes, Competencies, and Supplemental Competencies</u>

A. Relate the proper specimen collection and handling, type of quality control used, reference ranges, principle of analysis currently available, and sources of analytical errors for each of the analytes discussed or approached in the course.
   1. Compare and contrast of Quality Control (QC) and Quality Assurance (QA).
   2. Identify and explain all aspects for proper specimen management.
   3. Demonstrate proper use and care of associated laboratory equipment.
   4. Explain procedures involved for QA in blood banking.

B. Perform all procedures with regard to prescribed safety protocol and confidentiality.
   1. Exhibit safe laboratory practices according to established laboratory protocol.
   2. Exhibit safe laboratory practices according to established laboratory protocol.
   3. Demonstrate proper affective behavior.
   4. Exhibit professional conduct and positive interpersonal communication skills with patients, laboratory personnel and other health care professionals.

C. Correlate abnormal results with the most likely disease process by determining the clinical significance of the findings.

1. List the most common blood group antigens/antibodies that correlate with results.

D. Describe the theory and principles of immunogenetics and immunohematology.
   1. Describe Blood Group inheritance patterns.
      a. Interpret the inheritance pattern of a trait or gene.
      b. Explain the inheritance of human blood groups.
   2. Describe the role of the immune system in Blood Banking.
      a. Describe the characteristics and function of cells in the immune response
      b. Describe the structure and explain the significance of immunoglobulins in relation to blood banking.
   3. Name the immunoglobulin types associated with blood banking antibodies.
      a. Name the three immunoglobulin types associated with blood banking.
      b. List and describe the properties associated with each of the three blood bank immunoglobulins.
   4. Distinguish between in “vivo” and “vitro” antigen-antibody interactions.
   5. Identify the factors that influence antigen-antibody reactions.

E. List the major blood group systems and the major antigens and associated antibodies of each system.
   1. Define the ABO systems.
   2. Define the Rh systems.
   3. Define Lewis, I, P, MNSs, Kell, Duffy, Kidd and Lutheran systems.

F. Describe the theory and principles of routine blood banking procedures.
   1. Evaluate basic techniques.
   2. Evaluate ABO Rh typing.
   3. Evaluate antiglobulin testing.
   4. Evaluate antibody detection.
   5. Evaluate compatibility testing.

G. Perform routine blood banking procedures with competency (as judged with the use of control materials).
   1. Perform Pre-transfusion Testing.
      a. Perform ABO Rh Typing procedures.
      b. Perform (indirect antibody testing) IAT & (direct antibody testing) DAT procedures.
      c. Perform antibody detection and identification procedures.
      d. Perform compatibility testing procedures.
      e. Perform testing for Hemolytic Disease of the Newborn (HDN).
   2. Perform post-transfusion testing.
      a. Perform transfusion reaction workup procedures.
      b. Evaluate emergency use of blood and blood products.

H. Demonstrate the proper use and care of selected associated laboratory equipment.
   1. Define immunofuges and their uses.
   2. Define dry incubators and their uses.

3. Describe macroviewers and their uses.
4. Compare refrigerators and freezers used in immunohematology vs chemistry.

I. Illustrate the basic concepts of donor selection and the therapeutic use of blood components.
   1. Evaluate blood products, processing and storage.
   2. Evaluate donor requirements.
   3. Evaluate collection and storage of blood and components.

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

VII. TEXTBOOKS

VIII. REFERENCES

IX. METHODS OF INSTRUCTION AND EVALUATION:

X. ATTENDANCE REQUIREMENTS

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