



Hematology Clinical Practice

MLAB 1261

COURSE SYLLABUS

REVISED:
2009-2010

**McLennan Community College
Medical Laboratory Technician Program**

Course Syllabus

MLAB 1261 Hematology Clinical Practice

Course Description

This course provides clinical training in a working medical laboratory. The course will emphasize a basic understanding and knowledge of hematology using related instrumentation. The student will perform routine and special procedures using both manual and automated methods. The student will learn to correlate disease conditions with laboratory test results. Also, typical workflow patterns, preventive maintenance, quality control, and general laboratory policies will be addressed.

Prerequisite or Corequisite: MLAB 1415 and approval by the program director/course instructor.
Semester hours: 2

Course Goal and General Course Objectives

The student will describe basic laboratory techniques used in the hematology section; identify principles and procedures of hematology tests to include sources of error and clinical significance of results; and evaluate normal and abnormal erythrocyte morphology and related diseases. The student will evaluate normal and abnormal leukocyte morphology and related diseases; and perform routine hematology tests to include a CBC and peripheral smear evaluation.

MLAB 1261 is designed to prepare students to function at an entry-level position in a routine hematology laboratory. Lectures, demonstrations, practice sessions, laboratory exercises, clinical experiences, Internet exercises, and resource applications will be used during the course. Emphasis will be placed on the identification of normal, mature cells seen in the peripheral blood. Abnormal cells will be studied in relationship to the different diseases of the blood.

After completion of MLAB 1261 Hematology Clinical Practice the student should be able to meet the following general course objectives:

1. Collect, process, and analyze hematology specimens. (F01, F02, F03, C01, C02, C03, C04, C05)
2. Recognize and apply principles related to the use of laboratory information systems used in the hematology. (F01, F02, F03, C01, C02, C03, C04, C05)
3. Perform analytical tests on body fluids, cells, and other substances tested in the department. (F01, F02, F03, C01, C02, C03, C04, C05)
4. Recognize factors that affect methods and test results and take appropriate actions within established guidelines using the skills of critical thinking and problem solving. (F01, F02, F03, C01, C02, C03, C04, C05)
5. Recognize the clinical significance of laboratory procedures in the diagnosis and treatment of disease. (F01, F02, F03, C01, C02, C03, C04, C05)

6. Perform and monitor routine departmental quality control within established guidelines by applying the principles of critical thinking and problem solving. (F01, F02, F03, C01, C02, C03, C04, C05)
7. Perform preventive and corrective maintenance of equipment and instruments and refer to appropriate sources as necessary. (F01, F02, F03, C01, C02, C03, C04, C05)
8. Apply and encourage the use of the principles of laboratory safety, including Standard Precautions. (F01, F02, F03, C01, C02, C03, C04, C05)
9. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, other health care professionals, and with the public. (F01, F02, F03, C01, C02, C03, C04, C05)
10. Recognize the responsibilities of other laboratory and health care personnel and interact appropriately with them for quality patient care. (F01, F02, F03, C01, C02, C03, C04, C05)
11. Apply basic scientific principles in learning new techniques and procedures. (F01, F02, F03, C01, C02, C03, C04, C05)
12. Relate laboratory test results to common disease processes by recognizing the principles and methodologies practiced in the department. (F01, F02, F03, C01, C02, C03, C04, C05)
13. Establish and maintain continuing education as a function of growth and maintenance of personal and professional competence. (F01, F02, F03, C01, C02, C03, C04, C05)

SCANS Criteria

The Secretary's Commission for Achieving Necessary Skills, or the SCANS criteria, is incorporated into the learning outcomes and activities for the course. They are identified in each general course objective as well as in each specific course objective or learning outcome and address basic skills and workplace competencies:

- maximize resource allocations (C01)
- employ interpersonal skills (C02)
- use information skills (C03)
- use systems concepts (C04)
- use technology (C05)
- enhance basic skills (F01)
- apply thinking skills (F02)
- display appropriate personal qualities (F03)

Rationale

Medical laboratory technician students must demonstrate entry-level proficiency in the practice of hematology as a fundamental part of the MLT training. This course is designed to aid students academically, mentally and emotionally for experiences they may encounter in the workplace setting.

Learning Outcomes

Learning outcomes, or specific course objectives, for the cognitive, affective, and psychomotor domains are listed on separate pages for each clinical rotation and will be made available to the students via Blackboard.

Learning Activities

The student will be taught by the use of various learning methods and activities. These include lectures, demonstrations, laboratory exercises, Internet applications, individualized projects, self-paced worksheets, prepared blood slides, Kodachrome slides and other resource-based learning activities. Resources are also available in the student laboratory, campus library, and hospital libraries as well as at the clinical sites. A SCANS matrix for the learning activities used with the course is attached to the list of learning outcomes or specific course objectives.

Clinical Rotation Schedule

Clinical rotation schedules are assigned on an individual basis. Distance/online students will be required to find a clinical affiliate and arrange a rotation schedule. If the hospital/clinic does not have an affiliation agreement with MCC already, please inform the Program Director as soon as possible in order to develop an agreement. Placement of students into clinical rotations may be on a rotating basis due to the limited number of clinical sites available and the hours the students are available to attend clinical rotations.

Students will be placed into clinical rotations only after submitting a copy of his/her immunization records (including completion of the Hepatitis B series) and a negative drug screen/criminal background check. These records will be submitted to and kept by the Program Director as stated in the student handbook.

Textbook

Clinical Hematology and Fundamentals of Hemostasis 5th Ed, Denise Harmening, F.A. Davis 2009
ISBN 13: 978-0-8036-1732-2

Recommended atlas:

Clinical Hematology Atlas 2nd edition, Jacqueline H. Carr and Bernadette F. Rodak ISBN-10 0-7216-0395-5 (Optional). (www.elsevierhealth.com)

Course Outline:

- I. Introduction to Hematology and Routine laboratory evaluation of blood cells
 - A. Safety in the hematology laboratory
 - B. Specimen collection to include venipuncture and capillary punctures
 - C. Blood smear preparation and staining of blood smears
 - D. Routine testing in hematology
 - E. Examination of the peripheral blood smear
 - F. Introduction to hematology instrumentation

- II. Hematopoiesis
 - A. Morphology and function of cellular components
 - B. Hematopoietic theory
 - C. Erythrocyte production and destruction
 - D. Metabolism of the erythrocyte
 - E. Bone marrow overview
 - F. Hemoglobin metabolism
 - G. Leukopoiesis

- III. Hematopathology: erythrocyte disorders
 - A. Anemias: RBC morphology and approach to diagnosis

- B. Disorders of iron metabolism
 - C. Anemias caused by defects of DNA metabolism
 - D. Bone marrow failure
 - E. Introduction to increased destruction of erythrocytes
 - F. Intracorpuseular defects leading to increased erythrocyte destruction
 - G. Extracorpuseular defects leading to increased erythrocyte destruction-nonimmune causes and immune causes.
 - H. Structural defects in hemoglobin-hemoglobinopathies
 - I. Thalassemias (brief overview)
- IV. Nonmalignant alterations of leukocytes
- A. Qualitative alterations of leukocytes
 - B. Quantitative alterations of leukocytes
- V. Hematopathology: malignant disorders of leukocytes
- A. Introduction to leukocyte neoplasms
 - B. Acute leukemias
 - C. Chronic leukemias
 - D. Myeloproliferative disorders
 - E. Lymphoproliferative disorders
 - F. Myelodysplastic syndromes (brief overview)
 - G. Treatment of leukocyte neoplasia
- VI. Supplemental information
- A. Flow cytometric analysis in diagnostic hematology
 - B. Cytochemistry
 - C. Immunocytochemistry
 - D. Cytogenetics
 - E. Molecular diagnostics in the clinical laboratory

Grading Policy

Letter Grade	Cumulative Percentage Earned
A	90-100%
B	80-89%
C	75-79%
D*	70-74%
F*	69% and below

* Any student earning a 74 or below on any paper is required to schedule conference time with the Program Director.

Grade Criteria

Category of Work	Percentage Toward Final Grade
Assignments	30%
Discussion Boards	20%
Checklist and Competency Evaluation Forms	30%
Final Examination	20%
	Total 100%

At the beginning of the rotation:

- Students will be expected to read Chapter 32 in Harmening's text. This chapter introduces the student to the automated instrumentation that will be encountered in the clinical lab rotation.

During the rotation:

- Tally sheets are to be completed by the student and signed electronically by the clinical instructor. It is the student's responsibility to make sure that the tally sheets are accurate regarding the testing performed each day.
- The hours a student spends in a clinical rotation will vary based on how quickly a student reaches entry level competency.
- A mid-term evaluation checklist and a final competency evaluation form will be available for the student/instructor to view and eventually complete online. The checklist should serve as a guideline regarding what each student should be able to accomplish during the clinical rotation.
- Hematology students will be expected to master manual differentials without the assistance of the hospital/clinic staff. This may involve using online resources or the student laboratory at MCC. The hospital/clinic staff does not routinely scan normal blood smears due to time limitations. Students are expected to understand when and why a differential is ordered in the hospital/clinic and work with the clinical instructor to understand the more complicated differentials. Remember, normal manual differentials should be mastered without the assistance of the hospital/clinic staff.
- Assignments and tutorials will be posted on Blackboard for the student to complete. The assignments must be completed in a timely fashion according to the schedule of assignments.
- If a clinical rotation does not offer all of the required testing from the competency/evaluation checklist, the student may be required to find another clinical site that performs the testing. This may include the student laboratory on campus.
- The student also may be required to report to campus for additional training in the student lab, library, or computer lab. If the student is unable to report to campus, alternative methods will be used to help the student reach entry level competency.

At the end of the rotation:

- A comprehensive final exam will be given
- Assignments, tally sheets, and checklists must be completed and submitted either electronically or manually to the MCC faculty according to the calendar of assignments and syllabus guidelines.

Clinical rotation grades will not be given until ALL work and documentation is completed and turned in.

Examinations

There is one major comprehensive final examination.

Attendance/Tardiness

Regular and punctual attendance is expected of all students. The daily tally sheet completed with the clinical instructor will serve as a record of the student's attendance. Students will be counted absent from clinicals missed; beginning with the first official day the rotation is scheduled to begin. Absence from clinical rotations will affect the student's ability to reach competency. It is the responsibility of the student to notify the clinical site prior to being absent so that the clinical site knows that you will not be present that day. If attendance at the clinical site is problematic, the clinical instructor will contact the MCC instructors and a remediation plan will be arranged for the student to complete the rotation. Providing the student cooperates with the remediation plan the student will be allowed to complete the rotation. Students whether present or absent, are responsible for all material presented or assigned for a course. Students will be allowed to make up work and assignments missed due to absences caused by (1) authorized participation in official college functions, (2) personal illness, (with a signed physician's release) or (3) a death in the immediate family. The instructor has the prerogative of determining whether a student may make up work missed due to absences for other reasons. Students will be held accountable for all assigned materials in the determination of the course grade.

Instructors and Office Hours

Diane L. Schmaus, MA, MT (ASCP), Director, MLT & Phlebotomy Programs
Office hours are posted by office door SB 321. Office phone number is 254-299-8417.
E-mail address is dschmaus@mcclennan.edu

Alisa J. Petree, MHSM, MT (ASCP), Instructor and Clinical Coordinator, MLT & Phlebotomy Programs
Office hours are posted by office door SB 320. Office phone number is 254-299-8406.
E-mail address is apetree@mcclennan.edu

Supply List

Navy blue scrubs with MCC arm patch
Long white lab coat with MCC arm patch
White walking shoes and white socks
Name badge
Watch with a second hand
Sharpie permanent marker
Black ink pen

Cellular Telephones and Personal Telephone Calls

Students are not to receive or place telephone calls or text messages during clinical hours. Electronic devices such as cellular telephones are to be turned off or put on vibrate before entering the clinical sites.

Plagiarism and Cheating:

“Plagiarism” is the use of someone else's words or ideas without giving proper credit for those words or ideas. It includes, but is not limited to, the use, by paraphrase or direct quotation of the published

or unpublished work of another person without full and clear acknowledgment (this includes material from the internet). It is a serious offense and grounds for disciplinary action. “Cheating” includes but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) dependence upon the aid of sources beyond those authorized by the instructor; or (3) the acquisition, without permission, of tests or other academic material belonging to the MCC faculty or staff. Any reported incidents of cheating will be investigated and documented with proper disciplinary action taken as necessary.

Equal Opportunity Statement

McLennan Community College provides equal educational opportunity for all qualified students and does not discriminate on the basis of sex, disability, race, creed or religion, color, age, national origin or any other unlawful factors in its educational programs, activities, or employment as required by Title VI and Title VII of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, title IX of the Educational Amendments Act of 1972 and the Age discrimination Act of 1978.

Official ADA Statement

In accordance with the requirements of the Americans with Disabilities Act (ADA), and the regulations published by the United States Department of Justice 28 C.F.R. 35.107(a), MCC’s designated ADA co-coordinators, Mr. Gene Gooch - Vice President, Finance and Administration and Dr. Santos Martinez – Vice President, Student Services shall be responsible for coordinating the College’s efforts to comply with and carry out its responsibilities under ADA. Students with disabilities requiring physical, classroom, or testing accommodations should contact Mr. Marcus Sweatt, Disabilities Specialist, at 299-8122 or msweat@mclennan.edu.

Subject to Change Disclaimer

The policies, regulations, procedures, and fees associated with this program are subject to change without prior notice, if necessary, to keep College and program policies in compliance with State and Federal laws and/or with rules related to the program’s accrediting agency. The College and the program reserve the right to change curricula, rules, fees, and other requirements, of whatever kind, affecting students in any way. The provisions of this document do not constitute a contract, express or implied, between any applicant, student, faculty or staff member and McLennan Community College or this program.