MLAB 1201 - Introduction to Clinical Laboratory Sciences
Freshman
CRN 62069 - Fall 2010
Coleman College campus
Fall Hours: 2 hour lecture/2 hour lab)/16 weeks
64 Contact Hours
Type of Instruction: Web Enhanced Lecture and Lab

Administrative Notes
Instructor: Valerie Foley, BS, MT(ASCP)
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Course Schedule
Hours: Tuesday and Thursday 6:00-8:00 p.m.
Classroom: 365

Course Description
An introduction to clinical laboratory science, including quality control, laboratory math, safety, laboratory equipment, laboratory settings, accreditation, certification, professionalism, and ethics.

Learning Outcomes
Demonstrate laboratory safety; perform laboratory math; and describe quality control; demonstrate the use of laboratory equipment; explain accreditation and certification; identify the roles of laboratorians and various health care professionals; discuss ethics, professionalism and legal issues that concern healthcare.

Course Prerequisite
Acceptance into the program

Course Goals
Medical Laboratory Technicians must be proficient in the principles of measurement of chemical constituents in human body fluids and clinical implications of measurements. Information gained from this course by the students will be essential for successful completion of the clinical chemistry section of the Board of Certification exam and for obtaining employment as an entry-level medical laboratory technician.

Course Student Learning Outcomes
1. Apply principles of safety, quality assurance and quality control.
2. Identify the cognitive theories of Chemistry II.
3. Perform laboratory work skills.
4. Demonstrate ethical and professional behavior.

Learning Objectives
1.1 Demonstrate safe laboratory practices at all times.
1.2 Evaluate specimen quality prior to student lab procedures.
2.1 Demonstrate the cognitive theories of chemistry II by scoring 75% or better on all lecture exams.
3.1 Following instruction, demonstration and practice sessions, operate laboratory equipment independently as demonstrated by practical exams.
3.2 Perform quality control and follow all student lab procedures and practices.
4.1 Illustrate ethical and professional behavior by adhering to attendance polices, dress codes, and general rules and regulations.
4.2 Demonstrate respect and appropriate interpersonal skills with classmates and instructors.

Cognitive
With the use of course materials and various teaching methods, the student will demonstrate mastery of the following course objectives by scoring 75% or better on all examinations.
1. Describe characteristics of health care delivery organizations and professionals to include organizational structure, educational requirements, function, job descriptions, qualifications, certifications and accreditation.
2. Define common medical terminology and abbreviations.
3. Describe principles of infection control and safety practices.
4. Describe the basic anatomy and physiology of the human body.
5. Identify the principles of quality control and perform statistical analysis.
6. Describe characteristics of laboratory testing to include preparing and processing specimens, reagents, standards and controls, performing assays, interpreting test results, recording and reporting test results.
7. Describe basic concepts of communication, personal and patient interaction, stress management, professional behavior and legal implications of the work environment.
8. Perform mathematical calculations needed for laboratory work.

Psychomotor
Given appropriate instruction and all necessary supplies and equipment, the student will perform the following tasks and demonstrate mastery of each task as determined by the instructor and common standards of practice. (see skills checklist for more detail)
1. Instruct patients in collection procedures for blood, urine, sputum, and stool.
2. Follow Safety/infection control practices and properly use safety equipment.
3. Demonstrate appropriate communication skills.
4. Demonstrate good interpersonal skills.
5. Demonstrate appropriate ethical behavior.

Behavioral/ Affective assessments:
Upon receiving appropriate instructions, the student will demonstrate the following attitudes and behaviors at all times as determined by mid-term and end-term evaluations.
During the course of the semester, the students will:
1. attentively attend to verbal and demonstrative instruction
2. follow written and verbal instructions
3. communicate effectively in written and spoken English
4. engage in class/laboratory discussions by asking pertinent questions and responding respectfully to other student’s comments
5. demonstrate a willingness to learn and apply new ideas/technical skills to future endeavors
6. demonstrate a positive teamwork ethic by being willing to assist and cooperate with others
7. develop confidence by gradually working independently in a competent manner
8. prioritize and manage work flow within a restricted time frame
9. handle themselves at all times in a professional manner and perform at the highest level of standards
10. demonstrate honesty and integrity and abide by the Medical Code of Ethics
11. demonstrate commitment to the Medical Laboratory Technician profession
12. be punctual to class and do not abuse break times.

**SCANS Competencies or Core Curriculum Competencies**
This course does not have any designated SCANS skills assigned.

**Course Calendar**

**Week One**
Introduction to Course, Safety Films. Chapter Infection Control & Safety (3). Assignment Time Manage chart.

**Week Two**
Chapter Health Care Systems (1) and Infection Cont & Safety (3). Communication (Handout) Assignment DUE: Time Manage Chart. Journal article discussion.

**Week Three**

**Week Four**

**Week Five**
EXAM I (1,2,3,4). Chapter Circulatory system (6) Blood Collect Supplies(7) and Specimen Integrity (9)

**Week Six**
Factors Affecting Blood Collect & Specimen Integrity (9) and Non Blood Specimens (CH 13). Basic Math & Statistics handouts. Quiz: Chp. 5-7, 9, 13. Due: Journal Article #1

**Week Seven**
EXAM II (5,6,7,9,13). Basic Math & Statistics. Approval: Journal Article #2

Week Eight
Lab Math Handouts

Week Nine
Lab Math Handouts. Due: Journal Article Sum #2

Week Ten
Lab Math Handouts. Oral Presentation Discussion

Week Eleven

Week Twelve
Lab QC Handouts.

Week Thirteen
Lab QC Handouts. Chapter Computers (CH 14) and handouts

Week Fourteen
DUE: Oral Presentation. Review

Week Fifteen
EXAM IV (Math II, Computers, QC). Review for Final Exam

Week Sixteen
FINAL EXAM (1-7, 9, 13, 14, Handouts; Comprehensive exam)

Instructional Methods
Instructional strategies will include classroom lectures, guest speakers and demonstrations, hands-on practice sessions, case studies, computer-generated instructional programs, and internet access materials.

Student Assignments
Students should refer to the Course Outline and Course Calendar.

Student Assessments
Assessments will include hands-on lab assignments with corresponding questions concerning the pertinent chapters included in the labs. Refer to Course Requirements, Grading Scale, and Grading Criteria for more information.

Instructional Materials
The required textbook is Phlebotomy Essentials by McCall 4th edition. All MLAB books are sold at the West Loop Bookstore; the URL is: http://hccs.bkstore.com or http://hccs.bncollege.com.
Students can order HCC textbooks online and also reserve their textbooks online for in-store pickup at the HCC West Loop bookstore. HCC West Loop bookstore phone number is 713-218-0391. The student should not sell any books back to the Bookstore as these will be needed in order to study for the ASCP Board of Certification exam. Books may be sold after the student passes the BOC exam. The instructor will distribute supplemental handouts to the student.

The HCC Coleman College library is the Houston Academy of Medicine – Texas Medical Center library. It is located one mile and one METRO rail stop away at 1133 John Freeman Boulevard at Cullen Circle. Numerous reference books are available in the HAM-TMC Library and in faculty offices at Coleman College for Health Sciences. The HAM-TMC main phone number is 713 795 4200. Library hours are Monday through Thursday 7 a.m. - 10 p.m., Friday 7 a.m. - 9 p.m., Saturday 9 a.m. - 5 p.m., and Sunday 1 p.m. - 8 p.m. Parking is available underneath the Library in Garage 3 or Garage 4 and costs approximately $10.00 maximum per day. For more information, go to www.library.tmc.edu. Circulation Privileges: Present your student ID, current registration invoice, and registration form. The registration form can be downloaded at http://resource.library.tmc.edu/circ/docs/memberregisform.pdf Remote TMC Educational Access: Go to http://resource.library.tmc.edu/resources/

Disability Notification
Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at their respective college at the beginning of each semester. Faculty are authorized to provide only the accommodations requested by the Disability Support Services Office. If you have any questions, please contact the Disability Counselor at your college or the District Disability Office at 713-718-5165. Contact Dr. Raj Gupta, Coleman College ADA counselor, at 713-718-7631.

Academic Honesty
Plagiarism, cheating, and other forms of academic dishonesty are not only violations of the college system and the rules of this class, but are unethical and unprofessional. Students engaging in any form of academic dishonesty are subject to immediate dismissal from the program. You are expected to be familiar with the College's Policy on Academic Honesty, found in the catalog and student handbook. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty. “Scholastic dishonesty”: includes, but is not limited to, cheating on a test, plagiarism, and collusion.

Cheating on a test includes:
- Copying from another students’ test paper;
- Using materials not authorized by the person giving the test;
- Collaborating with another student during a test without authorization;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of a test that has not been administered;
- Bribing another person to obtain a test that is to be administered.

Plagiarism means the appropriation of another’s work and the unacknowledged incorporation of
that work in one’s own written work offered for credit. 

**Collusion** mean the unauthorized collaboration with another person in preparing written work offered for credit. Possible punishments for academic dishonesty may include a grade of 0 or F in the particular assignment, failure in the course, and/or recommendation for probation or dismissal from the College System. (See the Student Handbook).

**Student Attendance, Repeat Course Fee, Withdrawals**

Students will be dropped from any MLAB course for excessive absences. Absences in excess of 12.5% of the hours of instruction are considered excessive. Students will be dropped from any MLAB course for excessive tardiness. Ten minutes late for class will be considered tardy. Three tardies will count as one absence. Leaving class early without prior notification will be considered as absent time and will be noted.

Students are advised to communicate with the instructor about absences and tardies. **Call to inform the instructor of unexpected absences or tardies.** If a student knows in advance that they will be late or absent, they should notify the instructor in writing one week in advance. Excused absences may be given if the student notifies the instructor in advance and if the student provides appropriate documentation to explain the absence. Students are responsible for material missed because of absences. It is the student's responsibility to schedule all makeup work.

In the event of bad weather, the student is advised to listen to local radio or television stations for information about school closure.

**Repeat Course Fee**

The State of Texas encourages students to complete college without having to repeat failed classes. To increase student success, students who repeat the same course more than twice, are required to pay extra tuition. The purpose of this extra tuition fee is to encourage students to pass their courses and to graduate. Effective fall 2006, HCC will charge a higher tuition rate to students registering the third or subsequent time for a course. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

**Withdrawals**

Students are responsible for officially withdrawing from classes. The last day to drop with a “W” is 11/18/2010. Students who fail to withdraw from a class before this date will receive a grade of “F”. Before you withdraw from your course, please take the time to meet with the instructor to discuss why you feel it is necessary to do so. The instructor may be able to provide you with suggestions that would enable you to complete the course. Your success is very important.

To help you avoid having to drop/withdraw from any class, contact your professor regarding your academic performance. You may also want to contact your counselor to learn about helpful HCC resources (e.g. online tutoring, child care, financial aid, job placement, etc.). HCC has instituted an Early Alert process by which your professor may “alert” you and the counselors that you might fail a class because of excessive absences and/or poor academic performance.
Students should check HCC’s Academic Calendar by Term for drop/withdrawal dates and deadlines. Student may also check the course syllabus for the withdrawal date.

If a student decides to drop or withdraw from a class upon careful review of other options, the student can drop online prior to the deadline through their HCC Student Service Center:
https://hccsaweb.hccs.edu:8080/psp/csprd/?cmd=login&languageCd=ENG

Course Withdrawals-First Time Freshmen Students-Fall 2007 and Later
Under Section 51.907 of the Texas Education Code “an institution of higher education may not permit a student to drop more than six courses, including any course a transfer student has dropped at another institution of higher education.” Beginning in fall 2007, the Texas Legislature passed a law limiting first time entering freshmen to no more than SIX total course withdrawals throughout their educational career in obtaining a certificate and/or degree.

Classroom Behavior
Turn cell phones off and pagers to vibrate mode during class.
Attend to all personal business before the start of class.
Students will not be allowed to leave the classroom during a test.
Do not work on assignments or other course work during class.
Conflicts should be brought to the attention of the instructor as soon as possible.

HCC Student Services Information
Early alert: HCC has instituted an Early Alert process by which your professor will “alert” you through written contact actions and through counselors of concerns that you might fail a class because of excessive absences and/or poor academic performance. It is your responsibility to visit with your professor or a counselor to learn about what, if any, HCC interventions might be available to assist you – online tutoring, child care, financial aid, job placement, etc. – to stay in class and improve your academic performance.

Instructor Requirements
As your instructor, it is my responsibility to:
- Provide the grading scale and detailed grading formula explain how student grades are to be derived
- Facilitate an effective learning environment through class labs, lectures, power points, reviews, and other materials
- Description of any special projects or assignments
- Inform students of policies such as attendance, withdrawal, tardiness, and make up
- Provide the course outline and class calendar which will include a description of any special projects or assignments
- Arrange to meet with individual students before and after class as required
- Provide tutoring when students request it or ask the students to take advantage of our peer tutor

Student’s Responsibilities
• Read lecture material before class, define unknown terms and come prepared to ask questions
• Attend all classes, pay close attention to instructions given by the instructor, follow procedures and participate to the fullest extent
• Immediately after the lecture, review lecture material covered and answer learning objectives
• Students should not study the night before the exam. Rather, plan to study a certain amount each day to achieve academic success

Program/Discipline Requirements
The Program prepares individuals, under the supervision of clinical laboratory scientists/medical technologists, to perform routine medical laboratory procedures and tests and to apply preset strategies to record and analyze data. Includes instruction in general laboratory procedures and skills; laboratory mathematics; medical computer applications; interpersonal and communications skills; and the basic principles of hematology, medical microbiology, Immunohematology, immunology, clinical chemistry, and urinalysis.

Course Requirements, Grading Scale, and Grading Criteria
MLAB 1201 is a one to two-hour lecture, two-hour lab course. Students will be graded according to the following:

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<tr>
<td>Unit Exams</td>
<td>60%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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<td>Assignments</td>
<td>20%</td>
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There will be four unit exams for this course. Material for these exams will come from the textbook and handouts given to students during class. A thorough knowledge of unit objectives will ensure adequate performance on exams. Students must maintain a 75% average on unit exams. Students not maintaining a 75% average will receive a grade of "F" for the course.

Students will be allowed to repeat one exam on which they scored below 75%. This repeat exam must be taken within one week of the return date of the original exam. The highest grade allowed for the retake exam will be a 75%.

No makeup exams are given for unexcused absences. An absence on test day will result in a grade of "0". If a student must be absent for a test, the student is responsible for informing the instructor in advance and providing the instructor with appropriate documentation to explain the absence.

The final exam is comprehensive and counts for 20% of the course grade. The student must score a 75% or better in order to pass this course. Students failing the final exam will not be allowed to retest.

Assignments will count for 20% of the final grade. No late assignments are accepted. Unless otherwise stated, assignments are independent assessments and should reflect one individual’s performance. Specific lecture assignments will include a time management chart, journal
reviews, and an oral presentation. More information will follow. Quizzes may be given at the beginning of class. If a student is not present when quiz begins, the quiz grade will be a zero. They will consist of material covered the previous class and material to be covered during the current class period.

The following grading scale is used for all MLAB courses:

- 90 - 100 = A
- 80 - 89 = B
- 75 - 79 = C
- 0 – 74 = F

The Houston Community College Early Alert program has been established to assist in the overall effort to retain students who are at risk of failing, withdrawing, or dropping a course. This process requires instructional faculty and student support staff to identify students who are performing poorly as early as possible and provide relevant support services to help students overcome their deficiencies. A student is identified when an instructor notices academic or personal difficulties that affect student’s academic performance. The possible problem(s) could be tardiness, missed/failed test scores, excessive absences, or a number of other circumstances. Once a referral is made counselors will then contact students to discuss the issues and possible solutions to their academic difficulties.

**Study Strategies for Students**

Each unit of instruction will be accompanied by a set of learning objectives. Students, who demonstrate a thorough knowledge of the learning objectives, should score well on written exams. It is highly recommended that students attend all lab sessions, pay close attention to instructions given by the instructor, follow procedures, and participate to the fullest extent.

Students should not wait until the night before an exam to study. Studies have shown that students who study a certain amount each day are more likely to be successful. It is recommended that students read lecture material **before** a lecture is given, define unknown terms and prepare questions to ask the instructor during the lecture. Immediately after a lecture, the student should reread the lecture material and answer learning objectives as if they were study questions. Often, study questions will be given. These study questions are an excellent source of study material.

Tutoring is available to all students for lectures and labs in a course. It is the student's responsibility to fill out a request form and/or contact the instructor to schedule tutoring. It is imperative that students request tutoring as soon as the need develops. Do not wait until the last minute to begin needed work. Tutoring for lecture or lab will be scheduled outside of regular class meetings. HCC Askonline tutoring program link is: [www.hccs.askonline.net](http://www.hccs.askonline.net). This is a great program for help in your academic classes.

Activate your HCC student email account if you have not already done so. Go to [http://webmail.hccs.edu](http://webmail.hccs.edu) after you have registered for classes. Username will be firstname.lastname with Password being DOB date of birth (mm/dd/yyyy for example 09/15/1985). If an error occurs, you may have number after your last name in the data system.
To find your email username, press “students click here for help” link which will take you to a tutorial page. On second bullet line, press “click here” that opens a search engine to look up your email student identification. If you change your password, write down.

Blackboard E-mail is encouraged and is a good aid for asking questions both of the instructor and other students in the class. Do not hesitate to use it.

To sign on Blackboard: Go to http://www.hccs.edu and look at right hand side of the page under Connect. Click on Blackboard.

**Blackboard Student User ID:** Your Blackboard login user ID will be your unique HCC User ID, which is the “W” number you used for registration of classes. The default student password for the first time use is “distance” and this is all lower case without the quote marks. Students will then be prompted to change their password after their first login and should make this password something that will be remembered easily. If a student forgets their password for Blackboard, they must get help from the Computer Center on the first floor; the instructor does not know the password.

Please log on to Blackboard Vista at home computer to make sure that you have access there. Turn off the “pop-up block” and click the “Check Browser” button to make sure that your browser is compatible with Blackboard platform. Download the Adobe Acrobat reader, JavaScript and all other plug-ins. Log in with your W number and either use the default password “distance” or use the password that you created previously (you can make it the same as your HCC email password).

Various other methods to improve study are professional journals. As a student and a graduate of the MLT program, you will be challenged to maintain your level of knowledge in the field. New innovations and discoveries are constantly being introduced into the clinical lab. One way to keep current is to read the different scientific publications.

The following publications are available in the library and/or the student lab:

*Clinical Laboratory Science*
*Clinical Laboratory News*
*Advance for Medical Laboratory Professionals*
*MLO*
*Laboratory Medicine*
*American Journal of Infection Control*
*American Journal of Public Health*
*Journal of American Medical Association*
*Journal of Allied Health*
*New England Journal of Medicine*

The following are professional organizations that MLTS should join:

*American Society of Clinical Laboratory Science*
*American Society of Clinical Pathologists*
If you discover a good Web Site, please pass on this information and it will be added to the list of useful sites. The following medical websites can be used for further study on MLAB courses and these sites also represent the clinical laboratory profession, as a whole, and will broaden the outlook for the profession.

UTMB
http://sahs.utmb.edu/cls/conteduc.asp

ACLS –
http://www.ascls.org/education/index.asp

Colorado Association for Continuing Medical Laboratory Education

American Association for Clinical Chemistry
http://www.aacc.org/

American Medical Technologists
http://www.amt1.com/site/epage/home_315.htm

American Society for Clinical Pathologists
http://www.ascp.org/

Association of Public Health Laboratories
http://www.aphl.org/

Clinical Laboratory Management Association
http://www.clma.org/pubmain.cfm

College of American Pathologists
http://www.cap.org/

CDC
http://www.cdc.gov/

Morbidity and Mortality Report
http://www.cdc.gov/mmwr/

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