

Montgomery County Community College  
MLT 234  
Clinical Chemistry Laboratory  
2-0-6

**COURSE DESCRIPTION:**

The student develops proficiency in basic laboratory analyses in chemistry (including urinalysis and body fluids). Emphasis is on frequently performed tests, spectrophotometry, manual procedures, developing organizational skills and quality control. Instrumentation is introduced. This course is subject to a course fee. Refer to <http://mc3.edu/adm-fin-aid/paying/tuition/course-fees> for current rates.

**REQUISITES**

*Previous Course Requirements*

- MLT 110 Introduction for the Medical Laboratory Technician with a minimum grade of “C”
- BIO 130 Introductory Anatomy and Physiology with a minimum grade of “C”
- CHE 132 Chemistry for Technology II with a minimum grade of “C”

*Concurrent Course Requirements*

None

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
1. Evaluate the suitability of specimens for analyses requested in the clinical chemistry laboratory.	Laboratory Practice Assigned Readings	Daily Laboratory Evaluation Practical Examinations
2. Perform routine tests in chemistry and urinalysis selecting the appropriate procedure, organizing samples, equipment and reagents and following laboratory procedures in a manual.	Laboratory Practice Software Tutorial Assigned Readings	Daily Laboratory Evaluation Practical Examinations

3. Use appropriate units in recording results of analyses including patient and quality control values.	Laboratory Practice Writing Assignments	Daily Laboratory Evaluation Practical Examinations Laboratory Reports/ Discussion Questions
4. Evaluate validity of tests by detecting errors and their sources and by determining acceptability of control values.	Laboratory Practice Writing Assignments	Daily Laboratory Evaluation Practical Examinations Laboratory Reports/ Discussion Questions
5. Prepare, handle and store reagents.	Laboratory Practice	Daily Laboratory Evaluation Practical Examinations
6. Use established safety protocols to promote a safe working laboratory environment.	Laboratory Practice	Daily Laboratory Evaluation Practical Examinations
7. Operate common laboratory equipment and instruments used in the clinical chemistry laboratory while identifying malfunctions and performing routine maintenance.	Laboratory Practice AV/Multimedia Materials	Daily Laboratory Evaluation Practical Examinations
8. Demonstrate behaviors and attitudes consistent with those of laboratory professionals.	Laboratory Practice	Daily Laboratory Evaluation

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Associate Vice President of Academic Affairs. The benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria*.

#### SEQUENCE OF TOPICS:

1. Macroscopic Urinalysis, Phlebotomy
2. Confirmatory Tests on Urine, Microscopic Urinalysis
3. Full Urinalysis, Blood Urea Nitrogen
4. Creatinine, Introduction to Vitros DT/Glucometer
5. Glucose Hexokinase, Lactate

6. Total Protein, Albumin
7. Cholesterol/HDL, Triglyceride
8. Drug Screen Kits
9. Iron/UIBC
10. Electrolytes/Calcium and Magnesium
11. GGT/Cholinesterase
12. Total and Direct Bilirubin

#### LEARNING MATERIALS:

Bishop, Fody and Schoeff. (2013). *Clinical Chemistry Techniques, Principles, Correlations* (7<sup>th</sup> ed.). Lippincott, Williams & Wilkins.

Brunzel. (2013). *Fundamentals of Urine and Body Fluid Analysis* (3<sup>rd</sup> ed.). Saunders/Elsevier.

Laboratory Manual (Provided by Instructor)

Other learning materials may be required and made available directly to the student and/or via the College's Libraries and/or course management system.

#### COURSE APPROVAL:

Reapproved by: Bradley Gottfried Date: 12/3/1998

Prepared by: Bradley Gottfried Date: 8/1998

Revised by: Debra Lynn Eckman Date: 1/2009

VPAA/Provost Compliance Verification: Dr. John C. Flynn, Jr. Date: 12/3/1998

Revised by: Debra Lynn Eckman Date: 10/2012

VPAA/Provost or designee Compliance Verification:  
Victoria L. Bastecki-Perez, Ed.D. Date: 11/5/2012

Revised by: Debra Lynn Eckman Date: 1/2013

VPAA/Provost or designee Compliance Verification:  
Victoria L. Bastecki-Perez, Ed.D. Date: 1/9/2013

Revised by: Debra Lynn Eckman Date: 1/2015

VPAA/Provost or designee Compliance Verification:  
Victoria L. Bastecki-Perez, Ed.D. Date: 1/21/2015

Revised by: Debra Lynn Eckman M.S., MT (ASCP) Date: 10/13/2017

VPAA/Provost or designee Compliance Verification: Date: 11/13/2017



*This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.*