

Montgomery County Community College
MLT 233
Clinical Chemistry Lecture
3-3-0

COURSE DESCRIPTION:

A comprehensive course emphasizing the principles and procedures of routine clinical chemistry analyses, including instrumentation, correlation of results with pathophysiology, quality control, toxicology and urinalysis.

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. Describe the principles on which clinical chemistry tests are based for a variety of classes of substances.	Lecture/Discussion Assigned Readings	Examinations
2. Describe the principles of operation and application of instruments and equipment used in the clinical chemistry laboratory.	Lecture/Discussion Assigned Readings AV/Multimedia Materials Research Resources Oral Presentation	Examinations Presentation Grading Rubric

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
3. Discuss the relationship between clinical chemistry test data and other pertinent information including clinical pathology of common diseases, physiological conditions which lead to abnormal results, reference values associated with the tests, and high and low values.	Lecture/Discussion Assigned Readings Written Assignments	Examinations Case Studies and Discussion Questions

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. Physical Urinalysis
2. Chemical Urinalysis
3. Urine Microscopy, Renal Function
4. Body Fluids, Quality Control
5. Carbohydrates
6. Tumor Markers
7. Proteins
8. Lipids
9. Toxicology/TDM
10. Minerals/Iron, Electrolytes
11. Acid-Base Balance
12. Enzymology
13. Liver Function
14. Endocrinology
15. Automation/Instrumentation

LEARNING MATERIALS:

Sunheimer and Graves. (2018). *Clinical Laboratory Chemistry* (2nd ed.). Pearson.

Brunzel. (2018). *Fundamentals of Urine and Body Fluid Analysis* (4th ed.). Saunders/Elsevier.

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: John C. Flynn, Jr.	Date: 8/1998
Revised by: Debra Lynn Eckman, M.S., MT (ASCP)	Date: 1/2009
VPAA/Provost Compliance Verification: Dr. John C. Flynn, Jr.	Date: 9/11/2009
Revised by: Debra Lynn Eckman, M.S., MT (ASCP)	Date: 10/2012
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 11/5/2012
Revised by: Debra Lynn Eckman, M.S., MT (ASCP)	Date: 1/2015
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 1/23/2015
Revised by: Kathleen Perlmutter	Date: 4/2017
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 4/17/2017
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.