

MLS 4807 - Advanced Clinical Chemistry

Fall 2026 Syllabus, Section 01, CRN 42449,

Credit hours: 4

Instructor

Farhana Mueez

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Public Instructor Information

Instructor Title:

Farhana Mueez M.D., M.H.A., MLS (ASCP)cm

Program Director Medical Laboratory Science Programs

Instructor Professional Qualifications:

M.D., ECFMG Certified-2011

M.H.A., University of Phoenix-2006

MLS (ASCP)cm: University of Kentucky-2017

Instructor Office Location:

Dept. of Health Professions

Cushwa Hall Room # 2450

Instructor Office Phone:

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Course Description

4807. Advanced Clinical Chemistry. The study of fundamental principles of chemical analysis in the laboratory and correlation to pathological disease states. Web based lecture Prereq.: Acceptance into the MLS Advanced placement online completion program . 4 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Clinical Chemistry Principles, Techniques and Correlations-9th Edition	Michael L. Bishop, Edward P. Fody, Carleen Van Siclen, James March Mistler & Michelle Moy	9781284238860
Optional	Tietz textbook of Clinical Chemistry and Molecular Diagnostic 8th edition	Nader Rifai & Andrea Rita Horvath, Carl T. Wittwer	978-0-323-53044-6
Optional	Laboratory Mathematics -Medical and Biological Applications 5th Edition	Joe Bill Campbell and June Mundy Campbell	0-8151-1397-8
Optional	Medical Laboratory Science Review 5th ed	Robert R. Harr	9780803668270

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule Fall 2026 (This Schedule is subjected to change according to the class requirement)

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
8/24	Chapters # 1 pg- 2 Chapter # 3 pg-57	Lecture# 1 Introduction to Clinical Chemistry Lecture # 2 Quality Assurance & Quality Control Lecture # 3 Dilutions and Lab Math Discussion Question # 1	Discussion Question # 1 open from 08/24 till 08/30
8/31	Chapter # 6 pgs- 162 Chapter # 7 pg- 207 Chapter # 8 pg-225	Lecture # 4 Amino Acids and Proteins Lecture # 5 Non Nitrogen Compounds Lecture # 6 Enzymes Quiz# 1 (lectures # 1,2 and 3) Quiz# 2 (lecture # 4) Assignment # 1 HW	Quiz# 1 open 08/31 till 09/06 Quiz# 2 open 08/31 till 09/06 Assignment # 1 HW due 9/14
9/7	Chapter# 9 pg-260 Chapter# 10 pg- 286	Lecture# 7 Carbohydrates Lecture# 8 Lipids and Lipoproteins Quiz# 3 (lectures # 5&6) Quiz# 4 (lecture # 7) Assignment case studies # 2	Quiz # 3 open from 09/07 till 09/13 Quiz # 4 open from 09/07 till 09/13 Assignment # 2 Case studies due 9/21
9/14	Chapter # 11 pg - 316 Chapter # 12 pg- 348	Lecture # 9 Electrolytes Lecture# 10 Blood Gases, pH, and Buffer system Midterm Exam (comprehensive lectures 1-10) Discussion Question # 2	Midterm Exam open from 09/14 till 09/23 Discussion Question # 2 open 09/14 till 09/20
9/21	Chapter # 22 pgs- 566 Chapters 13-18 pge- 370-469	Lecture # 11 Pancreatic and GIT Functions Lecture # 12 Endocrinology Quiz # 5 (lecture # 11) Assignment # 3 Media Lab	Quiz # 5 open from 09/21 till 09/27 Assignment # 3 Media Lab due 09/27
9/28	Chapter # 19 pg- 486 Chapter # 20 pg- 517 Chapter # 21 pg- 539 Chapter # 28 pg- 703	Lecture# 13 Cardiac Markers Lecture# 14 Liver Functions Lecture # 15 Renal Functions Lecture # 16 Tumor Markers Discussion Question # 3 Quiz # 6 (lecture # 12) Assignment # 4 Case Studies	Discussion Question # 3 open 09/28 till 10/04 Quiz# 6 open 09/28 till 10/04 Assignment # 4 Case Studies due 10/11
10/5	Chapter # 27 pg- 669 Chapter # 25 pg- 622 Chapter 26 pg- 646	Lecture # 17 Trace Elements Lecture# 18 Vitamins Lecture#19 TDM Lecture# 20 Toxicology Quiz # 7 (lectures # 13 & 14) Quiz # 8 (lectures # 15 & 16) Discussion Question # 4	Quiz # 7 open from 10/05 till 10/11 Quiz # 8 open from 10/05 till 10/11 Discussion Question # 4 open from 10/05 till 10/11

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.