

MLS 3700 - Clinical Chemistry 2

Summer 2026 Syllabus, Section 01, CRN 30104,

Credit hours: 4

Instructor

Joan O'Connell

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Professional Qualifications:

Dr. Joan O'Connell

Doctor of Education Youngstown State University

Master's in Curriculum and Instruction Youngstown State University

Bachelor's degree in Medical Laboratory Science Youngstown State University

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Preferred Contact Method: University Email

Student Support Hours: Tuesday & Thursday 1:00 pm to 3:00 pm via Teams. Other times are available by appointment.

Communication Expectations: I will typically respond to emails within 24 hours during the week.

Course Description

3700. Clinical Chemistry 2. This course will explore the principles and procedures of routine clinical chemistry analysis, including correlation of test results with pathophysiology, testing criteria and variables that impact accuracy. Prereq.: MLS 2601/L. 4 s.h.

Course Readings

Group	Title	Author	ISBN
Required			

Students will need access to a laptop or computer with a web camera for online sessions.

Clinical Chemistry: Principles, Techniques, and Correlations Ninth Edition

by Michael L. Bishop, MS, MLS(ASCP)CM (Author); Edward P. Fody, MD (Author); Larry E. Schoeff, MS, MT(ASCP) (Author)

CLINICAL CHEMISTRY 9TH EDITION READING ASSIGNMENTS

CHAPTER 6: AMINO ACIDS AND PROTEINS: 164-166 AND 169-172

CHAPTER 7 NPNS 208-222

CHAPTER 8 ENZYMES 226-235

CHAPTER 10 LIPIDS AND LIPOPROTEINS 287-296 AND 306-310

CHAPTER 11 ELECTROLYTES 316-345

CHPATER 12 BLOOD GASES 349-354 AND 360 TO 365

CHAPTER 13 BASIC ENDOCRINOLOGY 371-372

CHAPTER 14 THYROID 396-408

CHAPTER 15 HPT 411-423

CHAPTER 16 ADRENAL FUNCTION 427-444

CHAPTER 18 PARATHYROID 470-482

CHAPTER 19 LIVER FUNCTION 487-503

CHAPTER 20 CARDIAC FUNCTION 518-535

CHAPTER 22 PANCREATIC 567-576

CHAPTER 27 TRACE AND TOXIC ELEMENTS AND VITAMINS 670-698

CHAPTER 28 TUMOR MARKERS 703-710 AND 713-721

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

Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Tue	6/30		Amino Acids, Proteins and NPNs	
Thu	7/2		AMINO ACIDS, PROTEINS AND NPNS ASSIGNMENT 1: AMINO ACIDS AND PROTEIN WORKSHEET 21 POINTS DUE TUESDAY JULY 8TH 9AM	*All assignments are due on Sunday by 9pm ** All quizzes are on Tuesday at the beginning of class Assignment due 7/5 Quiz 7/7
Tue	7/7		Enzymes Lipids Lipoproteins	Assignment due 7/12 Quiz 7/14
Thu	7/9		Enzymes, Lipids, Lipoproteins	
Tue	7/14		Electrolytes, blood gases, pH and acid base balance	Assignment due 7/19 Quiz 7/21
Thu	7/16		Electrolytes, blood gases, pH and acid base balance	
Tue	7/21		ENDOCRINE SYSTEM: THYROID, HYPOTHALAMUS, PITUITARY AND ADRENAL FUNCTION	Assignment due 7/26 Quiz 7/28
Thu	7/23		ENDOCRINE SYSTEM: THYROID, HYPOTHALAMUS, PITUITARY AND ADRENAL FUNCTION	
Tue	7/28		ENDOCRINE PART 2 : GONADAL FUNCTION, PARATHYROID, TRACE ELEMENTS, TOXIC METALS, VITAMINS, TUMOR MARKERS	Assignment due 8/2 Quiz 8/4
Thu	7/30		ENDOCRINE PART 2 : GONADAL FUNCTION, PARATHYROID, TRACE ELEMENTS, TOXIC METALS, VITAMINS, TUMOR MARKERS	
Tue	8/4		CARDIAC FUNCTION, PANCREAS AND LIVER	
Thu	8/6		CARDIAC FUNCTION, PANCREAS AND LIVER	
Tue	8/11		REVIEW AND FINAL EXAM.	
Thu	8/13		REVIEW AND FINAL EXAM.	Final exam 8/13

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.