Jordan University of Science and Technology

Faculty of Applied Medical Sciences

Allied Medical Sciences Department

LM311 Clinical Biochemistry (1) - JNQF Level: 7

First Semester 2023-2024

Course Catalog
2 Credit Hours. This course is an introduction to general fundamentals and principles of clinical bio-analytical chemistry. It is a combined lectures and laboratory course covering methods of analysis, as well as the biochemical components of body fluids. Topics include analysis of blood electrolytes, blood gases, amino acids, plasma enzymes, proteins, carbohydrates, and lipids. Quality control and assurance are also covered in this course.
Teaching Method: On Campus

Text Book	
Title	Clinical Chemistry-Techniques, Principles, and Correlations
Author(s)	Michael L. Bishop, Edward P. Fody, Carleen Van Siclen, James March Mistler, Michelle Moy
Edition	9th Edition
Short Name	Ref #1
Other Information	Publication year: 2023

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #2	Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics	Nader Rifai	9th Edition	Publication year: 2023

Instructor	
Name	**Dr. REFAT NIMER**
Office Location	-

Office Hours	Sun : 09:00 - 11:00 Sun : 13:00 - 14:00 Tue : 12:00 - 13:00 Wed : 12:00 - 13:00 Thu : 09:00 - 11:00 Thu : 13:00 - 14:00
Email	rmnimer@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Thu : 11:30 - 12:30 Room: NB53

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	Basic Principles and Practices of Clinical Chemistry	**Handouts** From **Ref #1**
Week 3	Quality Management in the Clinical Laboratory	**Handouts** From **Ref #1**
Week 4	Amino acids: Aminoacidopathies, Amino Acids analysis	**Handouts** From **Ref #1**
Week 5	Proteins: Plasma proteins , Total Protein Abnormalities, Methods of Analysis	**Handouts** From **Ref #1**
Week 6	Nonprotein Nitrogen Compounds: Creatinine, Urea, Uric Acid, and Ammonia	**Handouts** From **Ref #1**
Weeks 7, 8	Enzymes: Plasma enzymes (ALP, ALT, amylase, Lipase, AST, CK, GGT, LDH, Acid phosphatase)	**Handouts** From **Ref #1**
Week 9	Carbohydrates: Pancreatic function: regulation of blood sugar (hyperglycemia, hypoglycemia)/ Diabetes (FBS, RBS,2hr PP, OGTT, HbA1c, Ketones, Microalbuminuria)	**Handouts** From **Ref #1**
Week 10	Lipid profile I (lipoproteins, cholesterol, triglycerides)	**Handouts** From **Ref #1**
Week 11	Lipid profile II (lipoproteins, cholesterol, triglycerides)	**Handouts** From **Ref #1**

Week 12	Electrolytes : Water and osmolality, Electrolytes (sodium, potassium, chloride, bicarbonate, magnesium, calcium, phosphate), Anion Gap	**Handouts** From **Ref #1**
Week 13	Electrolyte disorders, Osteoporosis, Paget's disease of bone, and Osteomalacia	**Handouts** From **Ref #1**
Week 14	Blood Gases, pH, and Buffer Systems: Blood gases, transport of CO2 in the human body, and formation of blood buffer/ Acid-base balance: Measurement & Interpretation of Results	**Handouts** From **Ref #1**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	**Course Outcome Weight (Out of 100%)**	**Assessment method**
Perform accurate laboratory calculations and unit conversion for reliable lab results and interpretation. [1SLO3] [1L7S1]	10%	
Explain the proper use of laboratory equipment and supplies. [1SLO2] [1L7C4]	10%	
Define key clinical chemistry terms, including those related to quality control, to ensure reliable laboratory results. [1SLO1] [1L7K1]	10%	
Describe the structure, physiology, and metabolism of biochemical components in body fluids. [1SLO1] [1L7K1]	10%	
Explain the clinical significance of biochemical components in body fluids. [1SLO1] [1L7S2]	15%	
Correlate altered concentrations of biochemical components in body fluids with specific diseases. [1SLO3] [1L7C2]	20%	
Describe the causes of abnormal levels of biochemical components in body fluids. [1SLO1] [1L7S2]	10%	
Learn the appropriate specimen types, collection techniques, transport protocols, storage conditions, and principles of measurement methods for components in body fluids. [1SLO2] [1L7C4]	15%	

Relationship to Program Student Outcomes (Out of 100%)											
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	MSLO1	MSLO2	MSLO3	MSLO4	MSLO5	MSLO6
45	25	30									

Relationship to NQF Outcomes (Out of 100%)				
L7K1	L7S1	L7S2	L7C2	L7C4
20	10	25	20	25

Evaluation	
Assessment Tool	**Weight**

First Exam	30%
Second Exam	30%
Final Exam	40%

Policy	
Statement on Professionalism	Professional behavior is expected of students at all times. Attitude and professional behavior are the minimum criteria for passing this class. Examples of unprofessional behavior include but are not limited to: missing classes, tardiness, lack of attention for a speaker, talking to others during lecture, leaving a lecture before its completion without prior authorization of the instructor, working on other class material during class, and sleeping during class.
Attendance and Absence	All absences will be entered electronically into the university site. If absence is more than 20%, the student will be banned from the course after electronic notification from the university through student e-mail (Please review university regulations for more details). Attending the lectures will significantly enhance your grade. The student is responsible for any information discussed in lecture sessions. It is imperative to attend all classes!
Cheating	University regulations will be applied on cases of cheating and/or plagiarism.
Cell phone	The use of a cellular phone is prohibited in classrooms and during exams. The cellular phone must be switched off in class rooms and during exams.
Make-up Exam	Make-up exams are entitled to students who miss the exam with an accepted legal or medical excuse endorsed by the instructor within 24 hours after the scheduled exam (please review university regulations for more details).
Feedback	Concerns, complaints, questions, and feedback are appreciated and should be expressed to the course instructor in the first instance. You can contact your instructor using e-mail or during office hours.

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