University of Management & Technology
School of Science
Department of Life Science

BC-314 Clinical Biochemistry

Lecture Schedule	Tuesday (12:30 PM -13:45 PM) Friday (09:30 AM -10:45 AM)	**Semester**	Spring 2021
Pre-requisite	---	**Credit Hours**	3
Instructor	Ms Hina Batool	**Contact Moodle link**	hina.batool@umt.edu.pk
Office	3S-37	**Office Hours**	See office window

Course Description

Understand the basic concepts of clinical biochemistry and enhance the understanding of biochemical basis of human disease with relevance to clinical diagnosis.
This course includes;
Diagnostically important plasma enzymes & proteins: Identification and treatment of enzyme deficiencies, Assessment of cell damage, factors affecting results of plasma enzyme assays.
Abnormal plasma enzymes activities: isoenzymes in plasma (Lactate dehydrogenase, Creatine kinase, Amylase).
Immunoglobin deficiencies.
Liver Diseases (cirrhosis', specific liver diseases, hepatitis, obstructive jaundice).
Disorders of Lipid Metabolism (hyperlipidemia, cholesterol and cardiovascular diseases). Disorders of purine and pyrimidine metabolism (Gout, Arthritis).
Metabolic Bone Diseases (Calcium balance, Biological functions of calcium, phosphate and magnesium metabolism).
Hemoglobinopathies, Disorders of iron and porphyrin metabolism.
Cancer diagnosis, tumor markers, ectopic hormone production, consequences of cancer treatment.

Expected Outcomes

Upon successful completion of the course, the student will be able to:

- Identify, interpret and perform the role of plasma enzymes in the diagnosis of various clinical disorders.
- Assess the severity of disorder/cell damage.
- Correlate the enzymes deficiencies with inborn errors of metabolism
- Determine the role of enzymes as prognostic indicators.

Textbook(s)

Clinical Biochemistry E-Book: An Illustrated Colour Text,by Allan Gaw 3rd edit 2014 Churchill livin stone

Clinical Biochemistry second edition by Dr. Nessar Ahmed

Grading Policy	• Quizzes 10% • Assignment 05% • Presentation 05% • Midterm: 25% • Lab 20% • Final Exam: 35%

Course Schedule

Week	Lecture #	TOPICS	Chapter Name
1	1 2	Introduction of the body fluids Plasma functional and non–functional enzymes	General introduction
2	1 2	Use of laboratory Interpretation of results	Ch. 1. The clinical biochemistry laboratory Ch.2. The use of laboratory Ch.3. The interpretation of results
3	1 2	Clinically important proteins and enzymes Isoenzymes in clinical tests	Ch.25. Proteins and Enzymes
4	1 2	Immunoglobulins Liver function tests	Ch.25. Proteins and Enzymes Ch.28. Liver function tests
5	1 2	Jaundice Types of jaundice	Ch.29. Jaundice
6	1 2	Acute liver disease Chronic liver disease	Ch.30. Liver disease
7	1 2	Liver Cancer Kidney function tests	Ch.30. Liver disease Ch.14. Investigation of renal function (1)
8	1 2	Assessment of glomerulus and tubular functions. Urinalysis	Ch.15. Investigation of renal function (2) Ch.16. Urinalysis
9	1 2	**Midterm Exam** **Review**	
10	1 2	Proteinuria Acute and chronic renal failure	Ch.17. Proteinuria Ch.18. Acute renal failure Ch.19. Chronic renal failure
11	1 2	Disorders related to carbohydrate metabolism Hyperglycaemia and diabetes	Ch.31. Glucose metabolism and diabetes mellitus Ch.32. Diagnosis and monitoring of diabetes mellitus.
12	1 2	Diabetic ketoacidosis Hypoglycaemia and carbohydrate storage diseases	Ch.33 Diabetic ketoacidosis Ch. 34 Hypoglycaemia

13	1 2	Disorders related to lipoproteins metabolism Cardiovascular disorders and their markers	Ch. 66 Lipoprotein metabolism Ch.67. Clinical disorders of lipid metabolism Ch.27. Myocardial Infarction
14	1 2	Disorders related to nucleotides (Hyperuricaemia) Disorders of mineral metabolism and bone diseases	Ch.72. Hyperuricaemia Ch.38. Bone diseases Ch.39 Osteoporosis
15	1 2	Iron and haemoglobinopathies Cancer and its markers	Ch.57 Iron Ch.69 Cancer and its consequences Ch.70. Tumor markers