Paramedical Program

Specialization	**Medical Laboratories**
Course Number	**21107222**
Course Title	**clinical chemistry**
Credit Hours	**(3)**
Theoretical Hours	**(2)**
Practical Hours	**(3)**

Brief Course Description:

This course introduces the students to the study of clinical aspects of assessment of organ function and dysfunction. It also deals with the endocrine function and analysis of disorders in liver ,cardiac, kidney, GI and pancreatic function test. Moreover ,it discusses the Therapeutic drug monitoring,and tumormarkers practices.

Course Objectives:

Upon the completion of the course, the student should be able to:

1- Assess organ function test
2- Introduce and learn certain advanced techniques to determine the concentration in biological fluids
3- Know What students need to know about hormone function, regulation, pathophysiology and how to evaluate the gland dysfunction
4- Learn about the specialty areas of clinical chemistry (therapeutic drug monitoring, toxicology and circulating tumor markers.

Detailed Course Description:

Unit Number	Unit Name	Unit Content	Time Needed
1	Component of the endocrine system	1-Hormones - mechanism of action - control **2-hypothalamus** - oxytocin, - ADH, -stimulators and releasing factors **3-Anterior pituitary hormones** -(GH, Prolactin, LH, FSH) control, action, excess, deficient and lab finding - Calcitonine, PTH (hypo, hyper and lab finding) **4-Adrenal gland** - aldosterone (control, hypo, hyper and assay) - Cortisol (function, Caushig syndrome, assay) - Catecholamines (biosynthesis, function and metabolic effect on fuel metabolism and assay) **5-Thyroid function** - biosynthesis, secretion, transport and action of thyroid hormones) - Regulation, thyroid function test -disorders and correlation with lab data	
2	liver function test	1-Assessment - (billirubin, bile acids, protein, albumin,…etc) 2-Clinical manifestations of liver disease 3-Dynamics of liver enzymes changes in liver diseases 4-Uses of the laboratory in the diagnosis of liver disease.	
3	Pancreatic &Gastrointestinal function test,	1-Assessment - Enzymes (pepsin, pepsinogen, gastrin…….etc) 2-diseases : - malabsorption - maldigestion & related disorders	

4	Renal function test	Assessment -Renal function -Rrenal clearance & glomerular filtration rate -Urea, cretinine, creatine, Uric acid. - Renal calculi	
5	Calcium & phosphate	Metabolism -Hormonal regulation -Diseases involving Ca, P -Homeostasis	
6	Practical part	1- Liver function test 2- Cardiac function test 3- Renal function test 4- Pancreatic function test 5- GI function test 6- CSF assay 7 - amniotic, cero-spinal, synovial fluid analysis	

Evaluation Strategies:

Exams		Percentage	Date
Exams	First Exam	20%	--/--/----
	Second Exam	20%	--/--/----
	Practical Exam	10%	--/--/----
	Final Exam	35%Theory 15%Practical	--/--/----

Teaching Methodology:

- Lectures
- Slides and posters
- Practice inside labs

Text Books & References:

Reference

1-Title M. Bishop et al Clinical chemistry – principles, procedures, correlation Lippincott's Williams and Wilkins Fifth edition 2005

2-Nancy A., C.L.S. Brunzel*Fundamentals of Urine & Body Fluid Analysis*
W B Saunders Co2004 ISBN-10: 0721601782

3-Norbert W. TietzFundamentals of Clinical Chemistry W B Saunders Co (3rd edition) 1986 ISBN-10: 0721688624