

Course Syllabus typical Format (CSTF)

First: Course Information

1	College: Pharmacy	2	Department: Pharmaceutical Chemistry
3	Academic Semester: First Semester	4	Academic year: 1442 / 1443
5	Course Name: Clinical Biochemistry	6	Course code and number: PDPC432
7	Number of credit hours: .3. Units (...2... theoretical/lecture, ...,1... Practical/lab/[Training])		
8	Course requirement in program: [<input checked="" type="checkbox"/>] Required (obligatory) [<input type="checkbox"/>] Optional (Elective)		
9	Course type: [<input type="checkbox"/>] University Requirement [<input checked="" type="checkbox"/>] College Requirement [<input type="checkbox"/>] Departmental Requirement		
10	Pre-requisite (code and number) (if applicable): PDPC0432		

Second: Instructor Information

1	Instructor's name: Mohammed Al-Gayyar		
2	Sections of the course that I teach (All)		
3	Office phone number: 3896	4	Mobile number (optional):
5	Office location and number: First Floor (Room 2104)		
6	Office hours: Tuesday, Wednesday and Thursday (9:00-11:00 am)		
7	Website: http://www.ut.edu.sa/ar/web/u58053		
8	E-mail: malgayyar@ut.edu.sa		

Third: Lecture and lab timetables

Section	Days	Time	Place (Building/Room)
Division 1	Sunday	10:00 am – 12:00 pm	Blackboard
	Monday	1:00 – 3:00 pm	Blackboard

Fourth: Course description

Course description as found in the University Catalogue in both Arabic and English

The course deals with the clinical laboratory diagnostic tests and procedures related to the identification and diagnosis of systemic disorders of the human body.

يتناول هذا المقرر الاختبارات والإجراءات التشخيصية والتحاليل المعملية الطبية ذات الصلة والتي تساعد على تحديد وتشخيص الاضطرابات للجسم البشري.

Fifth: General Objectives and Teaching Strategies

<p>General course objectives (designate the sections and goals that are related to the course content)</p> <ul style="list-style-type: none"> ▪ Familiarize students with the specific characteristics of a laboratory of clinical biochemistry. ▪ Understanding the pathophysiology and molecular basis of the most prevalent diseases. ▪ Know the analytical methods commonly used in the clinical laboratory. ▪ Know how can contribute the clinical laboratory to assess the health status of individuals. 	<p>Teaching strategies and instructional aids (Tradition lecture, Blended teaching, Brain storming, Demonstration, Group Presentation, Discussion, Problem solving and PowerPoint)</p> <ol style="list-style-type: none"> 1. Lectures using power point and blackboard. 2. Tutorial hours. 3. Group discussion.
<p>Cognitive Domain:</p> <ul style="list-style-type: none"> ▪ Evaluate scientific and professional literature critically to be utilized in evidence-based practice and problem solving. 	<ol style="list-style-type: none"> 1. Tutorial hours. 2. Continuous discussion groups. 3. Assignments. 4. Problem solving.
<p>Affective Domain:</p> <ul style="list-style-type: none"> ▪ Plan effective time management schedules in completing assignments and research. ▪ Interpret information obtained from different biochemical resources to provide creative solutions for complex problems and case studies. 	<ol style="list-style-type: none"> 1. Small group discussion 2. Research groups 3. Assignments 4. E-library and textbooks.

Sixth: Course or Curriculum units, subjects, specific objectives, and time schedule in the academic semester (first, second, or third semester (summer))
(Example)

Week number	Units		Instructional Objectives (Actions that prove the students adoption of specified behavior and achievement, learning outcomes, content)	Readings		Keywords
	Unit Number	Unit/Chapter/Subject title		Reference Number	Pages	
First		<p>First meeting:</p> <ul style="list-style-type: none"> - Introduction to Clinical Biochemistry - Introducing the course content - Review of the previous prerequisite. - Highlighting the knowledge and skills the curriculum is based on 	<ul style="list-style-type: none"> - Presenting the introduction to clinical biochemistry. - Presenting an overview of the course content and extent - Clarifying curriculum requirements - Specifying methods of communication between students and their instructors - Clarifying the assessment methods 			Introduction, general policies and exam purpose

			- Clarifying policies concerning instruction, classroom participation and assessment			
Second	First chapter: Carbohydrates	<ul style="list-style-type: none"> - Insulin - Diabetes mellitus. - Complications of diabetes - Laboratory findings of diabetes - Gestational diabetes mellitus. - Hypoglycemia. 	<ul style="list-style-type: none"> - Differentiate types of diabetes by clinical symptoms and laboratory findings. - Relate expected laboratory results and clinical symptoms to metabolic complications of diabetes. - Describe laboratory tests used for evaluation of hypoglycemia. - Describe the specimen of choice and processing of glucose samples. - Demonstrate the clinical importance of changes in hematological data. 	1	288-307	Diabetes mellitus, diagnosis of diabetes, gestational diabetes, hypoglycemia and diagnosis of hypoglycemia
		- Training: Hematological analysis	<ul style="list-style-type: none"> - Describe the structure and functions of major classes of lipids. - Identify common lipid and lipoprotein disorders from clinical and laboratory data. - Demonstrate the clinical importance of changes in hematological data. 			
Third	Second chapter: Lipids and lipoproteins	<ul style="list-style-type: none"> - Lipid chemistry - Diagnosis of lipid disorders - Arteriosclerosis - Dyslipidemias 	<ul style="list-style-type: none"> - Describe the structure and functions of major classes of lipids. - Identify common lipid and lipoprotein disorders from clinical and laboratory data. - Demonstrate the clinical importance of changes in hematological data. 	1	308-335	Lipoproteins, cholesterol, LDL, HDL, triglycerides, Hyperlipoproteinemia and hypolipoproteinemia
		- Training: Hematological analysis				
Fourth	Second chapter: Amino acids and proteins	<ul style="list-style-type: none"> - Amino acids - Aminoacidopathies 	<ul style="list-style-type: none"> - Demonstrate methods of analysis of amino acids in blood and urine. - Illustrate different types of aminoacidopathies. - Demonstrate the clinical implications of changes in the physical characters of urine. 	1	203-211	Alkaptonuria, cystinuria, maple syrup disease, phenylketonuria and tyrosinemia
		- Training: Urine analysis				
Fifth	Third chapter: Amino acids and proteins	<ul style="list-style-type: none"> - Proteins - Total protein abnormalities - Methods of analysis of proteins - Plasma proteins - Proteins in urine 	<ul style="list-style-type: none"> - Identify methods of analysis of proteins in blood and urine. - Outline importance of selected proteins in the body. 	1	212-241	Albumin, CRP, ceruloplasmin, fibrinogen, globulin, haptoglobin, alpha fetoprotein and prealbumin
		- Training: Urine analysis				
Sixth	Fourth chapter: Electrolytes	<ul style="list-style-type: none"> - Water - Sodium - Potassium 	<ul style="list-style-type: none"> - Illustrate clinical significance of water inside the body. - Illustrate clinical significance of 	1	339-349	Anion, cation, extracellular fluid, intracellular fluid,

		<ul style="list-style-type: none"> - Chloride - Training: Semen analysis 	<ul style="list-style-type: none"> selected electrolytes inside the body. - Demonstrate the clinical implications of changes in the semen characters. 			sodium, potassium and chloride
Seventh	Fourth chapter: Electrolytes	<ul style="list-style-type: none"> - Bicarbonate - Magnesium - Calcium - Phosphate - Lactate - Training: Semen analysis 	<ul style="list-style-type: none"> - Illustrate clinical significance of selected electrolytes inside the body. - Demonstrate the clinical implications of changes in the semen characters. 	1	350-365	Bicarbonate, magnesium, calcium, phosphate and lactate
Eighth		Midterm exam				
Ninth	Fifth chapter: Renal function	<ul style="list-style-type: none"> - Creatinine clearance - Non-protein nitrogen compounds - Protein markers - Renal disease - Training: Clinical cases 	<ul style="list-style-type: none"> - Demonstrate and calculate glomerular filtration rate. - Describe renal diseases and how laboratory tests are used in these disorders. - Apply knowledge and practice skills relevant to the situations the student face. 	1	553-574	Urea, uric acid, creatinine, albuminuria and renal failure
Tenth	Sixth chapter: Liver function	<ul style="list-style-type: none"> - Bilirubin - Jaundice - Liver diseases - Assessment of liver function - Training: Clinical cases 	<ul style="list-style-type: none"> - Define and classify different types of jaundice. - Discuss the basic disorders of the liver and which laboratory tests may be performed to diagnose them. - Demonstrate various types of hepatitis. - Apply knowledge and practice skills relevant to the situations the student face. 	1	504-529	Alanine aminotransferase, alkaline phosphatase, aspartate aminotransferase, bile, bilirubin, cirrhosis, drug related liver diseases, hepatocellular carcinoma and hepatitis
Eleventh	Seventh chapter: Markers of cardiac damage	<ul style="list-style-type: none"> - Initial markers of acute myocardial infarction - Heart failure - Inflammation and coagulation markers - Markers of coronary heart disease risk - Training: Clinical cases 	<ul style="list-style-type: none"> - Compare and contrast clinical utility of serum cardiac markers. - Demonstrate markers used in diagnosis of heart failure. - Apply knowledge and practice skills relevant to the situations the student face. 	1	530-552	Aspartate aminotransferase, CRP, creatine kinase, lactate dehydrogenase, myoglobin and natriuretic peptide
Twelfth	Eighth chapter: Endocrine disorders	<ul style="list-style-type: none"> - Hypothalamic and pituitary function - Thyroid function 	<ul style="list-style-type: none"> - Demonstrate laboratory tests used for assessment of hypothalamic and pituitary function. 	1	425-439 476-487	Acromegaly, ACTH, dwarfism, FSH, LH, gigantism, Graves'

		- Training: Clinical cases	- Demonstrate laboratory tests used for assessment of thyroid function. - Apply knowledge and practice skills relevant to the situations the student face.			disease, growth hormone, thyroid, prolactin and thyrotoxicosis
13 th	Eighth chapter: Endocrine disorders	- Adrenal function - Gonadal function	- Demonstrate laboratory tests used for assessment of adrenal function. - Demonstrate laboratory tests used for assessment of gonadal function.	1	440-475	Adrenal insufficiency, aldosteronism, amenorrhea, Cushing's syndrome, hirsutism, menorrhagia, menopause and oligomenorrhea
		- Training: Clinical cases	- Apply knowledge and practice skills relevant to the situations the student face.			
14 th	Ninth chapter: Tumor markers	- Types of tumor markers - Application of tumor markers - Frequently ordered tumor markers	- State the major clinical value of tumor markers. - Describe the major properties, methods of analysis and clinical use of selected tumor markers.	1	546-661	AFP, CA-125, CA 15-3, CEA, hCG, HE4 and PSA
		- Training: Clinical cases	- Apply knowledge and practice skills relevant to the situations the student face.			

Seventh: Assessment and evaluation plan

Assessment tools	Date and duration (day/date/ time)	Subject matter covered in the exam	Type of questions	Grades out of 100	Guidelines and instructions
Mid-term exam	Eighth week One and a half hours	Lectures 1-7	MCQ and Short essays	30 marks	- Choose the appropriate answer - Write about a topics
Student activity	Tenth week	Report	Report: presentation and oral discussion	10 marks	Write a scientific report about a topic related to the course
Practical exam	Fifteenth week One hour	Practical 1-12	Clinical cases	20 marks	Multitask exam measuring all kinds of the students talents
Final exam	Sixteenth week Two hours	Lectures 1-14	MCQ, Short essays, complete and draw	40 marks	Multitask exam measuring all kinds of the students talents

Eighth: Readings and further References

1	Main Reference (Textbook) (correct citation in accordance to APA or other citation standards specific to discipline) From where student can get the textbook? Clinical Chemistry: Techniques, principles and correlations How can I get the reference? In the University library
Extra reading references and citations (books, internet cities, research papers)	
2	Clinical Biochemistry: An illustrated color text
3	Tietz, Fundamentals of Clinical Chemistry
4	Color Atlas of Biochemistry

Ninth: The instructor's policy of dealing with students within the framework of the university laws, regulations, and guidelines (examples and prototypes).

1	Late attendance: Over 10 min delays will be considered absent.
2	Cheating and plagiarism: University rules will be applied.
3	Absences: University rules will be applied.
4	Late work policy: 5% of the activity mark will be reduced for each day delay.
5	Exiting during the lecture period: Allowed after permission.
6	Seating and student placement in the classrooms: Allowed any place in the lecture room.
7	Absence from an exam: University rules will be applied.
8	Mobile phone use in the classroom: Prohibited.
9	Eating and drinking: Prohibited

Tenth: (for the instructor) Final and formative evaluation for the course instruction

- 1) Comments and reflections on students' answers of open ended question in the Course Evaluation Form.
- 2) Comments and reflections on students' statistical or numerical ratings of the items in the Course Evaluation Form(s).
- 3) Instructor's reflections and comments on students' performance and marks/grades statistical distribution in the course
- 4) Obstacles faced by the instructor in implementing the course plan
- 5) Points of strength found in the implementation of the course plan
- 6) Expected changes that need to be adopted into the course plan
- 7) Adopted assumptions by the instructor proven to be false
- 8) Mark/grade optimization in light of possible measurement or assessment (by tests or rubrics) sources of errors