وزارة التعليم العالي والبحث العلمي
جامعة المستقبل
كلية العلوم
قسم الكيمياء الحياتية

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Clinical Biochemistry I I**			**Module Delivery**	
Module Type	Basic			☒**Theory** ☒**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	UOMU036361				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	3		**Semester of Delivery**	2	
Administering Department	Biochemistry department		**College**	College of Science	
Module Leader			**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Review Committee Approval Date			**Version Number**	1.0	

RelationwithOtherModules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	none	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	• Expand students' understanding of biochemical changes associated with specific diseases and clinical conditions. • Enable students to interpret and correlate laboratory data with clinical symptoms. • Familiarize students with diagnostic biochemical markers related to endocrine disorders, cancer, metabolic diseases, and autoimmune conditions. • Prepare students for clinical laboratory practice through practical sessions and case-based discussions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course, students should be able to: 1. **Introduction to Clinical Diagnosis and Disease Biomarkers** 2. **Biochemistry of Endocrine Disorders**.Thyroid function tests, adrenal and pituitary hormones 3. **Diabetes Mellitus and Glycemic Control** .Blood glucose, HbA1c, insulin resistance, ketoacidosis 4. **Tumor Markers in Cancer Diagnosis** .CEA, AFP, PSA, CA-125, clinical applications and limitations 5. **Biochemical Aspects of Cardiovascular Diseases** .Lipid profiles, CRP, homocysteine, troponins 6. **Renal and Hepatic Disorders** .Renal clearance tests, proteinuria, bilirubin metabolism 7. **Acid-Base and Electrolyte Imbalance** .Causes and compensation mechanisms 8. **Inborn Errors of Metabolism (IEMs)** .Aminoacidopathies, organic acidemias, galactosemia 9. **Autoimmune and Inflammatory Diseases** .Autoantibodies, complement system, CRP, ESR 10. **Prenatal and Neonatal Biochemical Screening** **11.Laboratory Techniques in Clinical Biochemistry** .ELISA, electrophoresis, immunoassays, automation basics **12. Interpretation of Clinical Case Studies .**Dietary lipids, statins, PUFA roles
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• . Lectures supported by visual and interactive media • Laboratory practical sessions • Case-based learning and clinical discussions • Group assignments and mini-presentations

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	96	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظر ي	
	Material Covered
Week 1	Introduction to Advanced Clinical Biochemistry
Week 2	Thyroid Disorders
Week 3	Adrenal and Pituitary Glands
Week 4	Diabetes Mellitus: Diagnosis and Monitoring
Week 5	Acid-Base Balance and Blood Gases
Week 6	Electrolyte Imbalance and Osmolality
Week 7	Calcium and Phosphorus Metabolism
Week 8	Lipid Disorders and Cardiovascular Risk Assessment
Week 9	Tumor Markers
Week 10	Cardiac Markers in Acute Myocardial Infarction
Week 11	Drug Monitoring and Toxicology
Week 12	Pediatric and Geriatric Clinical Biochemistry
Week 13	Automation and Laboratory Information Systems
Week 14	Review and Case-Based Problem Solving
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1 -2	Lab orientation and case-based discussion
Week 2 -4	Thyroid hormone assays
Week 3	Cortisol and ACTH testing
Week 4	HbA1c and glucose tolerance tests
Week 5	Blood gas analysis
Week 6	Serum osmolality and ion-selective electrodes

Week 7	Calcium and phosphorus testing
Week 8	HDL/LDL cholesterol testing
Week9	AFP, CEA, PSA analysis
Week 10	Troponin and CK-MB assays
Week 11	Therapeutic drug monitoring
Week 12	Age-specific clinical case interpretation
Week 13	Demonstration of automated analyzers
Week 14	Interpretation of lab reports and case data

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics – Burtis, Ashwood, Bruns 2.Clinical Chemistry: Principles, Techniques, and Correlations – Bishop, Fody, Schoeff	*Clinical Chemistry*
Recommended Texts	• *Tietz Fundamentals of Clinical Chemistry* – Norbert W. Tietz • *Henry's Clinical Diagnosis and Management by Laboratory Methods* – McPherson & Pincus • Recent clinical research articles and departmental lab manuals.	*Fundamentals of Clinical Chemistry*
Websites	https://handbook.csu.edu.au/subject/2024/bms302	

APPENDIX:

GRADING SCHEME مخطط الدرجا ت				
Group	**Grade**	التقدي ر	**Marks (%)**	**Definition**

Success Group (50 - 100)	**A** - Excellent	امتيا ز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرا ر	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة يف وزارة التعليم العا يل والبحث العل ي م