جامعة التراث
AL-TURATH UNIVERSITY

Academic Program and Course Description Guide

For

Forensic evidence science department

College of science

2026

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

Institute name: .AL-TURATH university .....

Scientific Department: .... forensic evidence science .....

Academic or Professional Program Name: .....

Final Certificate Name: ...bachelor forensic evidence science in .....

Academic System: .....Bologna

Description Preparation Date: 2026/7/1

File Completion Date: 2026/8/5

Signature:

Head of Department Name:

Dr. Sanan Thaer abdalwahab

Date:

Signature:

Scientific Associate Name:

Abdul-Jabbar Abbas

Date: 1/8/2026

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

2026/8/5

Approval of the Dean

1. Program Vision

The program aspires to achieve excellence and leadership in the field of Forensic Science locally, regionally, and internationally by contributing to the preparation of highly qualified professionals who promote justice and enhance community safety

2. Program Mission

To prepare qualified scientific professionals equipped with forensic analysis skills and laboratory expertise required for crime detection and scientific evidence examination through modern academic curricula that integrate theoretical knowledge with practical applications, while promoting professional ethics, scientific research, and community service

3. Program Objectives

* Prepare specialized graduates with solid theoretical knowledge and practical skills.
* Provide students with scientific foundations in forensic analysis and modern laboratory techniques.
* Develop students' scientific research and critical thinking skills in forensic sciences.
* Qualify students to use advanced instruments and technologies for evidence examination and analysis.
* Support the justice system by preparing specialists capable of crime investigation.
* Promote adherence to professional and ethical standards in forensic and laboratory practice.

* Keep pace with scientific and technological developments in various forensic science disciplines.
* Establish academic and practical partnerships with security institutions and forensic laboratories.
* Contribute to scientific research that serves society and supports national security.
* Develop students' teamwork and effective communication skills.

4. Program Accreditation

There is no accreditation, and the department is currently working on preparing the program.

5. Other external influences

Program Sponsors:

1- Twinning College / College of Science / Al-Karkh University of Science

2- The Job Market

3- Competition

6. Program Structure /course system program *

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	8	15	13.05%	
College Requirements	8	26	22.6%	
Department Requirements	32	74	64.35%	
Summer Training				
Other			%100	

* start work with 2022-2023, 2023-2024, 2024-2025, 2025-2026

7. Program Structure / Bologna *				
Program Structure	**Number of Courses**	**Credit hours**	**Percentage**	**Reviews***
Institution Requirements		**625**	**10.5%**	
College Requirements		**125**	**2%**	
Department Requirements		**5250**	**87.5%**	
Summer Training				
Other / total		**6000**	**100%**	

- Bologna education program start 2023-2024, 2024-2025, 2025-2026 and continued working

8. Program Description / Bologna levels 1,2,3				
Year/Level 1	**Course Code**	**Course Name**	**Credit Hours**	
Semester 1			**theoretical**	**practical**
	KUS1101	**mathematics**	**2**	
	KUS1102	**Fundamental of computer science**	**2**	**2**
	KUS1103	**Democracy and human rights**	**2**	
	SCI1104	**General biology 1**	**2**	**2**
	SCI1105	**General Chemistry**	**2**	**2**
	FOR1100	**Principles of forensic sciences**	**2**	
Semester 2			**2**	
	FOR12012	**General Biology 2**	**2**	**2**
	FOR12023	**Organic chemistry**	**2**	**2**
	FOR12002	**Legal regulation of the criminal expert**	**2**	
	KUS12010	**Arabic language**	**2**	
	KUS12011	**English language**	**2**	
	SCI12012	**General physics**	**2**	**2**

Level 2				
Semester 1				
	KUS23016	**Crimes Baath Regime in Iraq**	**2**	
	FOR23003	**Biochemistry**	**2**	**2**
	FOR23004	**Genetics**	**2**	**2**
	FOR23005	**Anatomy and physiology**	**2**	**2**
	FOR23006	**Secretions and vital fluids**	**2**	**2**
	FOR23007	**Statistics and forensic applications**	**2**	
	FOR23008	**Crime scene**	**2**	
Semester 2	FOR24009	**Molecular Biology**	**2**	**2**
	FOR24010	**Analytical chemistry**	**2**	**2**
	KUS24011	**Laboratory equipment and technique**	**2**	**2**
	KUS24012	**investigation and criminal investigation**	**2**	
	KUS24020	**Arabic language**	**2**	
	FOR24021	**English language**	**2**	
	FOR24022	**Application of computer science**	**2**	**2**
			2	
Level 3				
	FOR35125	**Molecular application**	**2**	**2**
	FOR35126	**Analytical chemistry**	**2**	**2**
	FOR35127	**Forensic chemistry**	**2**	**2**
	FOR35128	**Chemical and microscopic detection methods**	**2**	
	FOR35129	**Introduction to explosive materials and**	**2**	
	FOR35130	**Forensic Psychology**	**2**	
	FOR36131	**Introduction to toxins and drugs**	**2**	**2**
	FOR36132	**Trace of forensic**	**2**	
	FOR36133	**Criminal insects**	**2**	**2**
	FOR36134	**Genetic statistical analysis and**	**2**	
	FOR36135	**Inks and dyes and their warning**	**2**	
	FOR36136	**Tissue, hair and fiber science**	**2**	

Program Description / level 4 courses system program				
Year/Level 1	Course Code	Course Name	Credit Hours	
			Theoretical	practical
Semester 1	KUFC 001	Principle of computer science	2	2
	FORN 404	Identification tools	2	
	KUET007	Scientific research ethics	2	
	FORN E413	Instrumentals analysis(blood &serum)	2	2
	FORN 406	Bioinformatics	2	2
	CANT 301	Anatomy	2	2
	FORN 403	Graduation research project	2	
	FORN E406	Forensic chemistry applications	2	
	FORN E414	Forensic report writing	2	
Semester 2	FORN E409	Crime Scene preparation	2	
	FORN 402	Weapons and machines evidence	2	
	FORN 407	Automated fingerprint system	2	2
	FORN E405	Instrumentals analysis (DNA)	2	2
	FORN 405	Principles of forensic medicine	2	
	FORN 213	Criminal psychology	2	
	FORN 408	Fonts and signature comparison	2	
	FORN E410	Environmental toxins and industrial pollution	2	

1. **Expected learning outcomes of the program**	
Knowledge	
1-	Explanation of the fundamental principles of forensic science
2-	Acquisition of basic knowledge of scientific subjects
3-	Understanding laws, regulations, and professional ethics
4-	Integration of scientific and technical knowledge for the diagnosis and analysis of evidence
Skills	
1-	Skills in collecting, preserving, and documenting evidence.
2-	Proficient use of advanced technologies and laboratory equipment.
3-	Skills in analyzing biological and physical evidence and writing reports.
4-	Critical thinking, application of techniques, and communication skills to solve criminal cases.
Ethics	
1-	Adherence to professional ethics, confidentiality, and impartiality, commensurate with the precision and sensitivity of work in the field of forensic evidence.
2-	Adherence to quality and safety standards in laboratory work, impartiality, integrity, and the preservation of biological samples from contamination and mixing.
3-	Continuous professional development and accountability through scientific research.
4-	Upholding justice, serving the community, and respecting human rights.

2. **Teaching and Learning Strategies**
1-theory lectures
2-lab lectures
3-side visits

4-online lectors
5-virtual crime
6-al-turath medical center training & workshops
7-students graduation project

3. Evaluation methods
1-med course and final examination
2-quizes online and attendance
3-home work
4- reports

4. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
ا.د عبدعلي جنزيل جبارة	Biology	Parasitology			✓	
أ.د حميد حسين محمد	Plant /entomology protection	Pest control			✓	
م.د نوفل محمد شهوان	Medicine and surgery	Internal Medicine			✓	
م.د بنان عامر ناصر	Medicine and surgery	Histopathology			✓	
م.د زينب حسن هادي	Microbiology	Immunology			✓	
م.م زينه علي عبد الأمير	Chemistry science	Organic chemistry			✓	
م.م لؤي عبد المنعم علي	Military science	Forgery and falsification of manuscripts and forensic photography			✓	

م.م سلوى إسماعيل ماشاءالله	**Veterinary medicine and surgery**	**Pathology and forensic medicine**			✓	
م.م رغد رحيم جوامير	**Chemistry science**	**Biochemistry**			✓	
م.م رحاب جلال سعد	**Biotechnology science**	**Biotechnology**			✓	
م.م اية رفعت عبود	**Microbiology**	**Molecular virology**			✓	
م.م دينا عدنان احمد	**Biotechnology science**	**Biotechnology**			✓	
م.م حيدر سعد راجي	**Veterinary medicine and surgery**	**Physiology**			✓	
م.م احمد فرحان حمد	**Biology**	**Microbiology**			✓	
م.م مصطفى حامد محمد	**Criminal law**	Criminal law			✓	
م.م مهدي اياد مهدي	**Public law**	Criminal law			✓	
م.م يوسف حسن غاضي	**Public law**	Criminal law			✓	
أ.م.د احسان جابر حيدر	**Electrical Engineering**	**Electrical power Engineering**				✓
م.د هاشم جعفر	**Chemistry science**	**Analytical chemistry**				✓
م.د زيد غانم	**Medicine and surgery**	**General surgery**				✓
م.د هالة عامر	**Biology**	**Immunology**				✓
م.د براء قاسم	**Chemistry science**	**Chemistry science**				✓
م.م عدنان ملوح جابر	**Biotechnology science**	**Biotechnology**				✓
م.م. ابراهيم فالح	**Computer science**	**Digital image processing**				✓
م.م معتصم عامر	**Physics science**	**Physics science**				✓
م.م مصطفى اياد	**Biology**	**Genetic**				✓

Professional Development
Mentoring new faculty members
1. Welcoming faculty members and introducing them to the vision, mission, and goals of the department, college, and university. 1. Informing faculty members about the student admissions process, student enrollment, and the teaching system (Bologna or modular). 2. University regulations.
Professional development of faculty members
1. SIS-related courses 2. Online courses for the Hepiq system 3. IQ Learn-related courses 4. Guiding faculty members to fulfill quality assurance requirements for courses and research.

5. **Acceptance Criterion**
According to the regulations of higher education and the student eligibility committee (in forensic evidence department)

6. **The most important sources of information about the program**
Ministerial instructions, academic program description guide, study plan, accreditation standards, evaluation results and quality assurance, and equivalent programs.

7. Program Development Plan
The development plan includes reviewing and updating the curriculum and learning outcomes, enhancing practical and laboratory aspects, raising the efficiency of instructors, and keeping pace with developments in teaching and assessment methods in line with the department's mission and objectives.

Program Skills Outline																
				Required program Learning outcomes												
First level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics				
				A1 Principles of forensic science	**A2** Scientific Foundations of the Course Materials	**A3** Laws, Legislation, and Professional Ethics	**A4 Integrating Scientific Knowledge**	**B1 Collecting and Preserving Evidence**	**B2** Using Equipment	**B3** Analyzing Evidence and Writing Reports	**B4** Critical Analysis, Statistics, Teamwork, and Solving Criminal Cases	**C1** Adherence to Professional Ethics and Confidentiality	**C2** Applying Safety and Quality Procedures	**C3** Professional Responsibility and Continuous Scientific Research	**C4** Promoting Justice, Serving the Community, and Respecting Human Rights
Semester 1	KUS1101	Mathematics	support	*			*	*		*		*		*	
	KUS1102	Fundamental of computer science	support	*			*	*	*	*	*			*	
	KUS1103	Democracy and human right	support			*					*	*		*	*
	SCI1104	General biology 1	core	*	*		*	*	*	*			*		
	SCI1105	General chemistry	core	*	*		*	*	*	*			*		

	FOR1100	Principles of forensic sciences	core	*	*	*	*	*	*	*	*	*	*	*	*
Semester 2	FOR12012	General Biology 2	core	*	*		*	*	*	*			*		
	FOR12023	Organic chemistry	core	*	*		*	*	*	*			*		
	FOR12002	Legal regulation of the criminal expert	core	*		*				*	*	*		*	*
	KUS12010	Arabic language	support		*					*	*			*	*
	KUS12011	English language	support	*						*	*			*	
	SCI12012	General Physics	core	*	*		*	*	*	*			*		

Program Skills Outline																
Level 2				Required program Learning outcomes												
Level 2	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics				
				A1 Principles of forensic science	**A2** Scientific Foundations of the Course Materials	**A3** Laws, Legislation, and Professional Ethics	**A4 Integrating Scientific Knowledge**	**B1 Collecting and Preserving Evidence**	**B2** Using Equipment	**B3** Analyzing Evidence and Writing Reports	**B4** Critical Analysis, Statistics, Teamwork, and Solving Criminal Cases	**C1** Adherence to Professional Ethics and Confidentiality	**C2** Applying Safety and Quality Procedures	**C3** Professional Responsibility and Continuous Scientific Research	**C4** Promoting Justice, Serving the Community, and Respecting Human Rights
Semester 1	KUS23016	Ba'ath Party Crimes in Iraq	support			*				*	*	*		*	*
	FOR23003	Biochemistry	core	*	*		*	*	*	*			*		
	FOR23004	Genetics	core	*	*		*	*	*	*			*		
	FOR23005	Physiology and Anatomy	core	*	*		*	*	*	*			*		

	FOR23006	Biofluids and Secretions	core	*	*		*	*	*	*		*	*		
	FOR23007	Statistics and Forensic Applications	core	*	*		*		*	*	*			*	
	FOR23008	Crime Scene	core	*	*	*	*	*	*	*	*	*	*	*	*
Semester 2	FOR12012	Molecular Biology	core	*	*		*	*	*	*	*		*		
	FOR12023	Analytical Chemistry	core	*	*		*	*	*	*			*	*	
	KUS24020	Arabic Language 2	support			*				*	*	*		*	*
	KUS24021	English Language 2	support	*						*	*			*	
	KUS24022	Computer Science Applications	support	*			*	*	*	*	*			*	
	FOR24011	Laboratory Equipment and Techniques	core		*		*	*	*	*			*	*	
	FOR24012	Criminal Investigation and Research	core	*	*	*	*	*	*	*	*	*	*	*	*

Program Skills Outline																
Level 3				Required program Learning outcomes												
Level 3	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics				
				A1 Principles of forensic science	**A2** Scientific Foundations of the Course Materials	**A3** Laws, Legislation, and Professional Ethics	**A4 Integrating Scientific Knowledge**	**B1 Collecting and Preserving Evidence**	**B2** Using Equipment	**B3** Analyzing Evidence and Writing Reports	**B4** Critical Analysis, Statistics, Teamwork, and Solving Criminal Cases	**C1** Adherence to Professional Ethics and Confidentiality	**C2** Applying Safety and Quality Procedures	**C3** Professional Responsibility and Continuous Scientific Research	**C4** Promoting Justice, Serving the Community, and Respecting Human Rights
Semester 1	FOR35125	Molecular Applications	core	*	*		*	*	*	*	*		*	*	
	FOR35126	Instrumental Analysis	core	*	*		*	*	*	*			*		
	FOR35127	Forensic Chemistry	core	*	*		*	*	*	*	*	*	*		
	FOR35128	Chemical and Microscopic	core	*	*		*	*	*	*			*		

		Detection Methods													
	FOR35129	Introduction to Explosives and Deceptive Procedures	core	*	*	*	*	*	*	*	*	*	*	*	*
	FOR35130	Criminal Psychology	core	*		*				*	*	*		*	*
Semester 2	FOR36131	Introduction to Toxicology and Drugs	core	*	*	*	*	*	*	*		*	*		
	FOR36132	Forensic Evidence	core	*	*	*	*	*	*	*	*	*	*	*	*
	FOR36133	Forensic Entomology	core	*	*		*	*	*	*			*		
	FOR36134	Genetic Statistical Analysis and Databases	core	*	*		*		*	*	*		*	*	
	FOR36135	Inks and Dyes and Their Precautions	core	*	*		*	*	*	*			*		
	FOR36136	Tissues, Hair, and Fibers	core	*	*		*	*	*	*			*		

Program Skills Outline																	
Level 4				Required program Learning outcomes													
Level 4	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics					
				A1 Principles of forensic science	**A2** Scientific Foundations of the Course Materials	**A3** Laws, Legislation, and Professional Ethics	**A4 Integrating Scientific Knowledge**	**B1 Collecting and Preserving Evidence**	**B2** Using Equipment	**B3** Analyzing Evidence and Writing Reports	**B4** Critical Analysis, Statistics, Teamwork, and Solving Criminal Cases	**C1** Adherence to Professional Ethics and Confidentiality	**C2** Applying Safety and Quality Procedures	**C3** Professional Responsibility and Continuous Scientific Research	**C4** Promoting Justice, Serving the Community, and Respecting Human Rights
Semester 1	FOR47024	Environmental Toxins and Industrial Pollution	core	*	*	*	*	*	*	*	*	*	*	*	*		
	FOR47025	Identification Tools	core	*	*	*	*	*	*	*	*	*	*		
	FOR47026	Biometric Information	core	*	*	*	*	*	*	*	*		*	*	

	FOR47027	Fundamentals of Fingerprint and Handwriting Analysis	core	*	*	*	*	*	*	*	*	*	*		
	FOR47028	Automated Fingerprint System	core	*	*	*	*	*	*	*	*		*	*	
Semester 2	FOR48029	Principles of Forensic Medicine	core	*	*	*	*	*	*	*	*	*	*	*	*
	FOR48030	Handwriting and Signature Comparison	core	*	*	*	*	*	*	*	*	*	*		
	FOR48031	Research Ethics	support			*				*	*	*	*	*	*
	FOR48032	Cybercrime	core	*	*	*	*	*	*	*	*	*	*	*	*
	FOR48033	Graduation Research Project	support	*	*	*	*	*	*	*	*	*	*	*	*

Course Description Form

(Appendix 10) covering the skills outline & course description form

General biology1 -1

Module Information معلومات المادة الدراسية					
Module Title	**General Biology 1**			**Module Delivery**	
Module Type	**Core**			**Theory**	
Module Code	SCI 1104			**Lecture**	
ECTS Credits	**7**			**Lab**	
SWL (hr/sem)	**175**			**Tutorial**	
				Practical	
				Seminar	
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	SCI	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	1. This module gives students an understanding of the science and techniques that underpin forensic biology. 2. Topics covered will include identification of biological fluids, the analysis the human genome in forensic biology, blood stain pattern analysis and forensic anthropology. 3. Material covered in lectures will be illustrated through lab work. 4. Highlight in most theories that was deal with biology system for live. 5. Our aim is to provide students with opportunities to develop academically, professionally and personally: to broaden their ambitions, extend their attitudes, challenge their assumptions, and assist towards unlocking their potential to succeed in their studies and future lives.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explain the analytical, laboratory and legal requirements of producing DNA profiles. 2. Summarize what is meant by a basic biology science. 3. Perform interpretation of DNA profiling results, including calculation of likelihood ratios. 4. Critically evaluate DNA profiling results citing significant research in the field. 5. Show an understanding of the scientific basis and utilisation of techniques of bone anthropometry and pathology in the study of human tissue. 6. Demonstrate the ability to critically evaluate body fluid evidence and blood stain patterns.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. On completion of this module, students are expected to be able to: 1 Demonstrate knowledge of the basic structures, functions and growth characteristics of cells.[13h] 2 Demonstrate knowledge of the structure and function of the four principal tissue types.[13h] 3 Demonstrate an understanding of Mendelian genetic inheritance. [15hrs] Demonstrate understanding of the role of variation in speciation and evolution. [15 hrs] Evolution of the eukaryotic cell, membrane structure and membrane transport mechanisms, structure and function of the nucleus, ribosomes, endoplasmic reticulum, Golgi Body, lysosomes, mitochondria and chloroplasts. [15 h]

	Mitosis and meiosis. Structure and function of epithelial, connective, nervous and muscle tissue. Mendel's Laws, inheritance, genotype, phenotype, dominance, sex determination, sex-linkage, variation, speciation and evolution.. [15 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	To describe the learning activities of the students and the teaching methods of the staff. Effective module design should result in a varied range of active learning experiences for students, including learning activities which are 'research-like'. Activities should, of course, motivate and encourage deep learning (reflection on wider meanings, rather than superficial memorisation of information). They should also be varied and flexible enough to accommodate different learning styles and orientations, and allow for inclusivity of students from different backgrounds and with different kinds of learning abilities. Learning activities therefore need to include reference to independent, interdependent (peer-supported) and online activities, as well as participation in different kinds of taught class.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Course introduction; What is biology?
Week 2	The nature of life
Week 3	Atomic structure and chemistry of water
Week 4	Carbohydrates, proteins, and lipids
Week 5	Nucleic acids
Week 6	Exam Mid-term Exam
Week 7	Cells, Part I
Week 8	Cells, Part 2
Week 9	Energy & metabolism, Part I
Week 10	Energy & metabolism, Part 2
Week 11	Cellular respiration, Part I
Week 12	Cellular respiration, Part 2
Week 13	Photosynthesis
Week 14	DNA & its role in heredit
Week 15	EXAM
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Measurement
Week 2	Lab 2: Course intro; Life and the scientific theory
Week 3	Lab 3: Enzyme function I
Week 4	Lab 4: Enzyme function 2
Week 5	Lab 5: Microscope & cell structure
Week 6	Lab 6: Cell behavior
Week 7	Lab 7: Respiration
Week 8	Lab 8 : Photosynthesis
Week 9	Lab 9 : Restriction digest of plasmids

Week 10	Lab 10: Gene transformation
Week 11	Lab 11: Mitosis, meiosis, and gametogenesis
Week 12	Lab 12: Mendelian crosses
Week 13	Lab 13: Outcomes of evolution
Week 14	Lab 14: Blood Typing
Week 15	Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	FReece J, Urry L, Cain M, Wasserman S, Minorsky P, Jackson, R. (Eds) 9th Global Edition, 2011, Campbell Biology, Pearson Benjamin Cummings.	Yes
Recommended Texts	Butler, J. (2005) Forensic DNA Typing 2nd Ed. Elsevier (MA) ISBN: 9780121479527 Forensic Science – Jackson A.R. & Jackson J., Prentice Hall, ISBN: 130432512	No
Websites	https://www.aqa.org.uk/subjects/science/as-and-a-level/biology-7401-7402/subject-content	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

2- احياء عام2

Module Information معلومات المادة الدراسية			
Module Title	**General Biology 2**	**Module Delivery**	
Module Type	**Core**	**Theory**	
Module Code	**FOR 12012**	**Lecture**	
ECTS Credits	**8**	**Lab**	
SWL (hr/sem)	**175**	**Tutorial**	
		Practical	
		Seminar	

Module Level	1	**Semester of Delivery**	2
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules 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	6. This module gives students an understanding of the science and techniques that underpin basic biology. 7. Topics covered will include identification of 8. Material covered in lectures will be illustrated through lab work. 9. Highlight in most theories that was deal with biology system for live. 10. Our aim is to provide students with opportunities to develop academically, professionally and personally: to broaden their ambitions, extend their attitudes, challenge their assumptions, and assist towards unlocking their potential to succeed in their studies and future lives.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	7. Explain the life and Human , laboratory and legal requirements of producing DNA profiles. 8. Summarize what is meant by a basic biology science. 9. Perform interpretation of DNA profiling results, including calculation of likelihood ratios. 10. Critically evaluate DNA profiling results citing significant research in the field. 11. Show an understanding of the scientific basis and utilisation of techniques of bone anthropometry and pathology in the study of human tissue. 12. Identify the tissues and organs in the human body
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - primary information of biology science</u> On completion of this module, students are expected to be able to: 1 Demonstrate knowledge of the basic Cell Reproduction , Genetics , Biotechnology, Tissue & Organs in the Human Body , Immunity and Disease 2 Demonstrate knowledge of the structure and function of the four principal tissue types. 3 Demonstrate an understanding of Mendelian genetic inheritance. [15 hrs] 4 Demonstrate understanding of the role of variation in Ecology. [15 hrs] 5 Evolution of the Genetics , Biotechnology. [16 h] 6 Demonstrate an understanding type of Tissue & Organs in the Human Body 7 Demonstrate an understanding Immunity and Disease. [15 hrs]

	Part B - essential and details Fundamentals To publicise the key learning resources that are important or essential for those studying the module or to demonstrate the academic foundation of the module. To provide a short list, indicating the type and level of information that students are expected to consult. Further, in depth, guidance and a comprehensive list of reading and resources should be made available . [15 hrs] Normally a short list of books or articles in reference format (author, date, title, and publisher). If a core text or textbook exists, this should be indicated. Lists should be indicative, rather than a full bibliography.. [7 hrs] To identify where the whole module may be taken by students at a distance, either by arrangement with the Programme Director or because it forms part of a programme that is wholly or partly delivered virtually. If distance learning is possible, a second module descriptor will need to be created, to identify learning, teaching, assessment and contact methods/support for students in the distance learning version of the module.. [15 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	To describe the learning activities of the students and the teaching methods of the staff. Effective module design should result in a varied range of active learning experiences for students, including learning activities which are 'research-like'. Activities should, of course, motivate and encourage deep learning (reflection on wider meanings, rather than superficial memorisation of information). They should also be varied and flexible enough to accommodate different learning styles and orientations, and allow for inclusivity of students from different backgrounds and with different kinds of learning abilities. Learning activities therefore need to include reference to independent, interdependent (peer- supported) and online activities, as well as participation in different kinds of taught class.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7

الحمل الدراسي المنتظم للطالب خلال الفصل			
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Cell Reproduction
Week 2	Introduction to Genetics
Week 3	Chromosomes and Human Genetics
Week 4	DNA , Genes and Biotechnology
Week 5	Principles of Ecology
Week 6	Exam Mid-term Exam
Week 7	Tissue , Part 1
Week 8	Tissue , Part 2
Week 9	Organs and Organs System
Week 10	Circulation – Heart and Blood Vessels and Blood
Week 11	Respiration , Digestion System , Urinary System
Week 12	Muscular , Skeleton System
Week 13	Nervous System , Sensory System
Week 14	Immunity and Disease

Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Identify the Cell Reproduction
Week 2	Lab 2: Identify the Genetics
Week 3	Lab 3: Identify the Chromosomes and Human Genetics
Week 4	Lab 4: Identify the DNA , Genes and Biotechnology
Week 5	Lab 5: Identify the Principles of Ecology
Week 6	Lab 6: EXAM
Week 7	Lab 7: Microscopic observation of Tissues part 1
Week 8	Lab 8 : Microscopic observation of Tissues part 2
Week 9	Lab 9 : Identify the Organs and Organs System and understand their functions
Week 10	Lab 10: Identify the Circulation – Heart and Blood Vessels and Blood and type of Blood and understand their functions
Week 11	Lab 11: Identify the Respiration , Digestion System , Urinary System and understand their functions
Week 12	Lab 12: Identify the Muscular , Skeleton System and understand their functions
Week 13	Lab 13: Identify the Nervous System , Sensory System and understand their functions
Week 14	Lab 14: Identify type of Disease relationship with immunity
Week 15	Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	FReece J, Urry L, Cain M, Wasserman S, Minorsky P, Jackson, R. (Eds) 9th Global Edition, 2011, Campbell Biology, Pearson Benjamin Cummings.	Yes
Recommended Texts	Human Biology, 12th edition by Sylvia Mader. McGraw Hill Publishing Co., 2008. (10th can be used if necessary) Human Biology, Laboratory Manual by Sylvia Mader, 12th edition, McGraw Hill, 2008. Optional Texts: Anatomy & Physiology Coloring Workbook & Study Guide, 9th edition by Elaine Marieb	No

Websites	https://www.aqa.org.uk/subjects/science/as-and-a-level/biology-7401-7402/subject-content

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

3- كيمياء عام

Module Information معلومات المادة الدراسية			
Module Title	**General Chemistry**	**Module Delivery**	
Module Type	**Core**	**Theory**	
Module Code	**SC1 1105**	**Lecture**	
ECTS Credits	**7**	**Lab**	
SWL (hr/sem)	**175**	**Tutorial**	
		Practical	
		Seminar	
Module Level	1	**Semester of Delivery**	1

Administering Department	Type Dept. Code	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	1-To develop skills and understanding of different types of elements through the application of techniques. 2. To understand metals, physical and chemical properties. 3. This course deals with the basic concept of general chemistry. 4. To understand periodic table and distribution elements on it
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize the classification of elements. 2. List the various terms associated with periodic table. 3. Summarize what is meant by a basic chemical property. 4. Discuss the reaction and involvement of atoms in chemical reaction. 5. Describe bonds, oxidation number, and Lewis term. 6. Identify the elements according to conductivity and their applications. 7. Discuss the electrons distribution in the atomic levels. 8. Identify the primary terms that used to characterized physical and chemical properties.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A-Circuit Theory Starting from atomic theory and electron distribution in the outer and inner shells the details required make enough information for the principle of chemistry. [15hrs] Enhance the principle of general chemistry when highlight in more information about losing and acceptance electrons with the abilities for forming any bonds and forming new molecules with new properties. [16hrs]

	Periodic table with highlight in the orientations of molecules to show different and variance in properties. [12hrs] . Revision problem classes [6hrs] Part B-Analogue chemistry 3-Fundamentals Electron configuration, oxidation number, The ratios of forming molecules. [15hrs] Components and active site. [9hrs] Identification of general properties.[9hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	To describe the learning activities of the students and the teaching methods of the staff. Effective module design should result in a varied range of active learning experiences for students, including learning activities which are 'research-like'. Activities should, of course, motivate and encourage deep learning (reflection on wider meanings, rather than superficial memorisation of information). They should also be varied and flexible enough to accommodate different learning styles and orientations, and allow for inclusivity of students from different backgrounds and with different kinds of learning abilities. Learning activities therefore need to include reference to independent, interdependent (peer-supported) and online activities, as well as participation in different kinds of taught class.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.3

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to chemistry
Week 2	Periodic table
Week 3-4	Atomic structure types of bonding
Week 5	Physical and chemical properties/ Drawing Lewis Structures
Week 6	Chemical Reactions
Week 7	Preparation solution (types of concentration)
Week 8	Exam
Week 9-10	Acids and Bases and titration
Week 11-12	Titrimetric Methods
Week 13-14	Separation method of elements
Week 15	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: General safety rules for Laboratory and equibments

Week 2	Lab 2: Standard Solution
Week 3	Lab 3: Preparation of standard solution from liquid solutions
Week 4	Lab 4: Preparation of standard solution from solid materials
Week 5	Lab 5: Titration Strong Acid with Strong Base
Week 6	Lab 6: Titrating Sodium Carbonate With Hydrochloric Acid
Week 7	Lab 7: pH - Metric Titration
Week 8	Lab 8 : exam
Week 9	Lab 9 : Conductometric Titrating of Strong Acid With Strong Base
Week 10	Lab 10: Titration of Acetic Acid in Vinegar
Week 11	Lab 11: Titration of a Mixture of Carbonate (CO32-) and Bicarbonate (NaHCO3-)
Week 12-13	Lab 12: Separation of I Group Cations (Ag+, Pb2+, Hg22+)
Week 14	Lab 14: exam
Week 15	Review All Previous Experiences

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	A Textbook of Physical Chemistry Vol-6 Kapoor,K.L Mc Graw-Hill 2019	Yes
Recommended Texts	Introductory Chemistry Essentials, Global Edition Tro, N. J. Pearson 2015	yes
Websites	https://openstax.org/details/books/chemistry-2e https://open.umn.edu/opentextbooks/textbooks/219	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

4- كيمياء عضوية

Module Information معلومات المادة الدراسية			
Module Title	Organic chemstery	**Module Delivery**	
Module Type	**Core**	**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	FOR1228		
ECTS Credits	**7**		
SWL (hr/sem)	**175**		
Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title	Asst. Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	General chemstery	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	On completion of this module students should be able to:

أهداف المادة الدراسية	1.Understand the structures of organic molecules and recognize and name examples of them. 2.Predict the properties and reactions of a molecule from its structure. 3.Discuss the reactions of common organic compounds. 4.Design the synthesis of a simple molecule from available starting materials. 5.Understand the molecular basis of life. 6.Safely perform a simple chemical synthesis in the laboratory. 7.Understand the structures of organic molecules and recognize and name examples of them. 8.Predict the properties and reactions of a molecule from its structure. 9.Discuss the reactions of common organic compounds. 10.Safely perform a simple chemical synthesis in the laboratory.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successfully completing the module you will be able to... 1. Evaluate and choose appropriate reducing or oxidising agents for selective functional group transformations 2. Design protecting group strategies to enable chemoselective transformations to be carried out 3. Perform retrosynthetic analysis on complex organic molecules 4. Devise multi-step syntheses of complex organic molecules 5. Discuss the mechanisms of important organic transformations 6. Explain how synthetic procedures can be modified to allow the simultaneous generation of a wide range of structurally related compounds and address environmental issues
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Module content: First part;[43h] • identify and draw organic compounds • provide the IUPAC name for some organic compounds • classify alcohols • explain the properties of alcohols and ethers Secound part:[43] • Some organic chemistry fundamentals, basic concepts and terminology • Naming and classification of organic compounds • Basic reactions of alcohols, ethers and carbohydrates • Natural polysaccharides: modification and utilization in various applications • Group work (including presentation and evaluation of the other group works)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	This module builds upon the entry-level knowledge of students covered in A-Level Chemistry. It introduces basic chemical concepts within the context of Organic Chemistry, and starts to develop the more specialist knowledge of organic reactions required for later modules. The latter will be further developed in the Organic Chemistry 2 module. The module will include: 1. General concepts in organic chemistry for predicting atom and electronic structure of molecules, stability, reactivity and molecular properties (bond strength, pH etc.) 2. General concepts and mechanisms underlying organic reactions and ability to draw the mechanism for a given reaction or to give reagents required for an organic reaction.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.3
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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	An Introduction to Organic Chemistry
Week 2	Nomenclature of hydrocarbon
Week 3	Nomenclature of hydrocarbon and stereo chemistry
Week 4	Hydrocarbons
Week 5	Unsaturated Hydrocarbons
Week 6	Exam
Week 7	Aromatic Hydrocarbons
Week 8	Organic Halogen Compound
Week 9	Alcohols and Phenols
Week 10	Ethers, Aldehydes and ketones
Week 11	Cyclic compound
Week 12	Carboxyl acid, Esters and Sulfonic acid
Week 13	Nitro compounds, Amines and Amides
Week 14	Review Week
Week 15	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Material Safety Data Sheet (MSDS)
Week 2	Lab 2: Determination of melting points
Week 3	Lab 3: Determination of boiling points
Week 4	Lab 4: Recrystallization
Week 5	Lab 5: Density of Some Organic Compounds
Week 6	Lab 6: exam
Week 7	Lab 7: Identification tests of Alkanes, Alkenes, Alkynes and Aromatic
Week 8	Lab 8: Identification tests of primary, secondary and ternary alcohol
Week 9	Lab 9: Identification tests of Ketones and Aldehydes
Week 10	Lab 10: Identification tests of flash point
Week 11	Lab 11: exam theoretical
Week 12	Lab 12: exam practical
Week 13	Application by identification organic compound
Week 14	Application by identification organic compound
Week 15	Review before final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	J. Clayden, N. Greeves and S. Warren, Organic Chemistry (Second Edition), Oxford University Press, 2012, ISBN 0-19-927029-5 (essential core text)	Yes
Recommended Texts	C. Willis and M. Wills, Organic Synthesis, (Oxford Chemistry Primer 31), Oxford University Press, 1995, ISBN 0-19-855791-4	No
Websites	ELE page: https://vle.exeter.ac.uk/course/view.php?id=9255	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

5- التنظيم القانوني للخبير الجنائي

Module Information Course Material Information					
Module Title	**Legal regulation of the criminal expert**			**Module Delivery**	
Module Type	**B**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR 12002**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules Relation with other study materials

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Module Aims, Learning Outcomes and Indicative Contents	
Module Aims Module Aims	Providing the student with legal information related to their technical work Clarifying the legal texts that regulate the work of forensic experts Informing the student about the criminal, civil, and disciplinary responsibilities that arise from violating the law
Module Learning Outcomes Learning Outcomes for the Course	Preparing a forensic expert capable of understanding and applying the law correctly Preparing complete teams from both legal and technical perspectives
Indicative Contents Guidance Contents	

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	Following comparative legal methods with Iraqi legislation through practical applications and discussions, as well as brainstorming

Student Workload (SWL) Student Workload			
Structured SWL (h/sem) Regular Student Workload during the semester	102	**Structured SWL (h/w)** Regular Student Workload weekly	7

Unstructured SWL (h/sem) The irregular study load of the student during the semester	98	**Unstructured SWL (h/w)** Irregular weekly study load of the student	6.5
Total SWL (h/sem) Total study load of the student during the semester	200		

Module Evaluation

Course evaluation

		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	2 hr	5 0% (5 0)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Expert Introduction
Week 2	Characteristics of forensic expertise
Week 3	Conditions for the forensic expert
Week 4	The relationship between the expert and the testimony
Week 5	The legal nature of the forensic expert's work
Week 6	The legal responsibility of the forensic expert
Week 7	The civil responsibility of the expert
Week 8	Disciplinary responsibility
Week 9	The relationship between expertise and research and investigation
Week 10	How to appoint expertise

Week 11	The legal protection of the expert
Week 12	The legal value of expertise
Week 13	Midterm exam
Week 14	Practical applications for the expert in the field of cognitive skills for the forensic expert
Week 15	Practical applications for the expert in the field of cognitive skills for the forensic expert
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme

Grading Scheme

Group	Grade	Grade	Marks (%)	Definition
Success Group (50 - 100)	**A** – Excellent	Excellence	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C – Good	Good	70 - 79	Sound work with notable errors
	D – Satisfactory	Average	60 - 69	Fair but with major shortcomings
	E – Sufficient	Accepted	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX – Fail**	Failing (Under (Review	(45-49)	More work required but credit awarded
	F – Fail	Fail	(0-44)	Considerable amount of work required

Note: Marks 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.

6- ديمقراطية وحقوق الانسان

Module Information Course Material Information					
Module Title	**Human rights**			**Module Delivery**	
Module Type	**Support**			**Theory**	
Module Code	KUS1103			**Lecture**	
ECTS Credits	2			**Lab**	
SWL (hr/sem)	50			**Tutorial**	
				Practical	
				Seminar	
Module Level	1		**Semester of Delivery**	2	
Administering Department	MPHY		**College**	SCI	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**		
Module Tutor			**e-mail**	E-mail	
Peer Reviewer Name	none		**e-mail**	none	
Scientific Committee Approval Date	11/06/2023		**Version Number**	1.0	

Relation with other Modules Relation with other study materials			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Module Aims, Learning Outcomes and Indicative Contents	
Module Aims Module Aims	,The course aims to highlight the importance of fundamental rights inherent to humans which align with their nature, are accepted by abstract reasoning, and do not change with .time and place. These are human rights
Module Learning Outcomes Learning Outcomes for the Course	The academic content (of human rights) contributes to educating the student legally; to be aware of the nature of human rights, their historical origins, and to understand their rights and ,obligations, through knowing their rights and the limits of those rights, the rights of others and what states and international and regional organizations strive for in promoting the concepts of those rights, and obliging states to enshrine them in domestic legislation, along .with the guarantees that ensure the application of those universal rights
Indicative Contents Guidance Contents	The guiding content of the human rights course is summarized in refining the student's behavior, [20hr] and defining that their interaction with others is based on the principle: "People are of two types; either a brother in faith, or an equal in humanity." [20 hr]

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	:In this regard, we focus on the following 1- The student is initially introduced to a brief overview of the topics that will be covered during the lecture, and then we pose some questions to stimulate their .thinking and capture their attention; to ensure attentive listening 2- The explanation of scientific vocabulary is deepened within the limits suitable for average academic levels to ensure that individual differences among students are not .exceeded 3- Space is left for free discussion within the framework of the topic designated for the .lecture

	4- Attention is given to the feedback aspect of the information before the end of the lecture. 5- Electronic communication with students to publish recorded and written lectures through the official university website.

Student Workload (SWL)

Student Workload

Structured SWL (h/sem) Regular Student Workload during the semester	33	**Structured SWL (h/w)** Regular Student Workload weekly	2
Unstructured SWL (h/sem) The irregular study load of the student during the semester	42	**Unstructured SWL (h/w)** Irregular weekly study load of the student	2.8
Total SWL (h/sem) Total study load of the student during the semester	75		

Module Evaluation

Course evaluation

		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 / tutorial.	1	10 % (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	1 hr	10 % (10)	7	LO # 1-7
	Final Exam	2 hr	5 0% (5 0)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	.Definition and nature of democracy and human rights

Week 2	.The historical development of democracy and human rights
Week 3	.Features of democracy and human rights compared to other rights
Week 4	.Human rights and democracy in heavenly religions
Week 5	.Human rights and democracy in international charters
Week 6	.Human rights in domestic legislation
Week 7	Human Rights: Personal Rights
Week 8	Human Rights: Social Rights
Week 9	Human Rights: Cultural Rights
Week 10	Human Rights: Economic Rights
Week 11	Democracy Guarantees: International Human Rights
Week 12	Regional Human Rights Guarantees
Week 13	Democracy Guarantees: Domestic (National) Human Rights
Week 14	Sanctions for Violating Democracy and Human Rights
Week 15	Exam

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Book: Human Rights (Their Development, Content, Protection) .Dr. Riyad Aziz Hadi	Yes
Recommended Texts	Book / Human Rights .Dr. Hamid Hanoon	No
Websites	https://www.noor-book.com/ https://www.un.org/ar/about-us/universal-declaration-of-human-rights https://ar.wikipedia.org/wiki/	

Grading Scheme

Grading Scheme

Group	Grade	Grade	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	Excellence	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Average	60 - 69	Fair but with major shortcomings

	E - Sufficient	Accepted	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX – Fail**	Failing (Under (Review	(45-49)	More work required but credit awarded
	F – Fail	Fail	(0-44)	Considerable amount of work required

Note: Marks 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.

7- مبادئ علوم الأدلة الجنائية

Module Information معلومات المادة الدراسية			
Module Title	Fundamental of Forensic Science	**Module Delivery**	
Module Type	**Basic**	**Theory**	
Module Code	FOR11001	**Lecture**	
ECTS Credits	6	**Lab**	
SWL (hr/sem)	102	**Tutorial**	
		Practical	
		Seminar	

Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules 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	1-Forensic Science is basically the application of science to law. 2-Forensic science is used to investigate criminal cases involving a victim, such as assault, robbery, kidnapping; rape, murder and civil cases such as forgeries, fraud, or negligence.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successfully completing the module students will be able to: 1. Show understanding of the role of physical forensic methods in forensic practice. 2. Demonstrate knowledge of the primary evidence types, their transfer and persistence. 3. Demonstrate understanding of emerging developments in forensic science. 4. Consider a broad range of forensic techniques to determine the examination strategy, sequencing, and probative value. 5. Demonstrate understanding of quality standards in respect of scene examination.
Indicative Contents المحتويات الإرشادية	A synopsis of the curriculum [15h] This module will develop students' appreciation of a range of physical techniques applied to the collection of bulk and trace evidence materials in forensic science. Students will look more deeply into aspects of physical evidence and will deal with the practical issues of item examination, legal process and general procedure associated with the collection and submission of a range of forensically-relevant materials. Inclusive module design [15h] The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive

	Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services. The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas: a) Accessible resources and curriculum b) Learning, teaching and assessment methods Internationalisation [14h] Forensic science is an inherently international subject with physical laws discovered and techniques developed and refined by scientists across the globe. It is facilitated by well-defined conventions in terminology and mathematical modelling which allow complex concepts to be communicated across language barriers. This module introduces students to the work of these pioneers, as well as the fundamentals behind it and so enables them to interact with this community. Where possible, the reading list has been chosen, in part, to demonstrate the diversity of backgrounds of forensic scientists working in the field.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	56	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	44	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	The concept and importance of forensic science
Week 2	Historical development of forensic evidence
Week 3	Types of criminal evidence
Week 4	Forensic evidence and material traces
Week 5	The importance of the genetic fingerprint in achieving personality
Week 6	Fingerprints and the use of nanotechnology in detection
Week 7	Forensic forensic medicine
Week 8	Forensic chemistry
Week 9	Criminal toxicology
Week 10	Forgery of passports and counterfeit banknotes
Week 11	Examination of traces of weapons and tools
Week 12	Crime scene and preservation procedures
Week 13	Electronic forensic tool
Week 14	Forensic engineering
Week 15	exam
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Forensic Science: A very short introduction** by Jim Fraser	no
Recommended Texts	**Blood, Powder, and Residue (A rare behind-the-scenes look at the work of forensic scientists)** by Beth A. Bechky	No
Websites	https://www.nap.edu/read/21772/chapter/7	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

8- رياضيات

Module Information
معلومات المادة الدراسية

Module Title	Mathematics	Module Delivery
Module Type	S	Theory Lecture Lab Tutorial Practical Seminar
Module Code	KUS1101	
ECTS Credits	5	
SWL (hr/sem)	125	

Module Level	1	Semester of Delivery	1
Administering Department	FOR	College	SCI
Module Leader		e-mail	
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	6/11/2023	Version Number	

Relation with other Modules
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	1. Identify the properties of mathematical functions and their opposites. 2. Familiarity with the properties of polynomials, exponential and logarithmic functions, trigonometric functions and their opposites.

	3. Recognize the concept of differential functions and its relationship to speed and the rate of their change with time (acceleration). 4. Identify the integration of the functions and methods of Integration. 5. Knowledge of applications of integral in geometry.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize properties of functions and their inverses; 2. Recall and use properties of polynomials, rational functions, exponential, logarithmic, trigonometric and inverse-trigonometric functions; 3. Apply the differentiation procedures to solve related rates and extreme value problems; 4. To understand the term integration. 5. To distinguish between definite and indefinite integration. 6. To describe the area and volume by means of integration.
Indicative Contents المحتويات الإرشادية	1-To know the methods of differentiation of functions accurately and its applications. 2- To know the relationship between the function term and its differential. 3- To extract the area and volume through integration. 4 - To know the differentiation and integration of functions. 4- To use integration methods to find complex integrals.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Following up the scientific development of mathematics by reviewing modern curricula.

	• Follow-up and development of academic courses and compare them with other universities. • Using the latest teaching aids to motivate the student to learn and understand.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	50		
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	75		
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

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.				
	Report	1	10% (10)	13	LO#5,8, and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO,#1-7
	Final Exam	2hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Functions, Inverse Functions.
Week 2	Trigonometric Functions, Inverse Trigonometric Functions.
Week 3	Exponential and Logarithmic Functions.
Week 4	Limits and Continuity
Week 5	The Derivative, The Chain Rule.

Week 6	Implicit Differentiation, L'Hopitals Rule.
Week 7	The Derivative in graphing and applications, Relative Extrema.
Week 8	Rolle's Theorem; Mean –Value Theorem
Week 9	The indefinite integral, Areas under a curve
Week 10	The fundamental theorem of integral calculus, Area between two curves
Week 11	The integral of trigonometric functions, the integral of inverse trigonometric
Week 12	The integral of the functions logu(x),lnu(x),$e^{u(x)}$ and $a^{u(x)}$
Week 13	Methods of integration , powers of trigonometric functions
Week 14	Integration by parts
Week 15	**Volumes**
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Thomas & Finney "Calculus and Analytic Geometry" (2005), 11th edition, Addison Wesley.**	yes
Recommended Texts	**Howard Anton,IrI Bivens & Stephen Davis "Calculus"(2009),9thedition,John Wiley & Sons,NC.**	yes
Websites	**Various lectures and lecture notes on the internet.**	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

9- فيزياء عام

Module Information معلومات المادة الدراسية			
Module Title	**General Physics**	**Module Delivery**	
Module Type	**Support**	**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**MBO 11003**		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		
Module Level	1	**Semester of Delivery**	1

Administering Department	Forensic	**College**	Science
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	N.A	**e-mail**	N.A
Peer Reviewer Name	N.A	**e-mail**	N.A
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules

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	11. To have knowledge about General Physics basic principles like Mechanics of motion, liquid mechanics and electricity. 12. To get skills in solving mathematical problems that related to physics subjects. 13. To get practical skills in managing physics experiments in the lab. and record measurements and then calculate required quantities. 14. Analysis the physical information in syllabus and be able to make conclusions by joining between physical concepts. 15. To be able to apply his knowledge in physics in market.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	13. Save in memory basic principles and laws of physics. 14. Produce scientific concepts by joining between physical principles. 15. Joining physical concepts to produce more complicated concepts. 16. The ability to make conclusions by analysis the physical information. 17. The ability to apply all his knowledge to solve problems in reality. 18. To be able to run the devices and apparatus in the lab.

	19. Assemble devices and make an experiment to prove physical relation. 20. Discuss the results get from running experiment in the lab. 21. Make reports from theory to conclusion about any physical concept proved in the lab.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Measurement units, Motion in one dimension, path and displacement, velocity and acceleration. [9 hrs] Free fall motion, gravity, projectile path. [8 hrs] Vector Analysis, Unit vector, Vector addition and subtraction, resultant vector and its direction. [10 hrs] Motion in two dimensions, concept of negative acceleration, average and instantaneous velocity and acceleration. [9 hrs] Revision problem classes [5 hrs] Newton laws of motion, principle of continuity, equilibrium, action and reaction, force analysis diagrame. [12 hrs] Circuits and electricity, Current, Voltage, Resistance. [10 hrs] Fluid Mechanics, Pascal principle, Archimedes principle, Pressure, Bernoulli equation in fluid flow. [9 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	72	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.1
Unstructured SWL (h/sem)	78	**Unstructured SWL (h/w)**	5.5

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	2,4,6,10	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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Physical unit systems and unit conversion
Week 2	Motion in one dimension: velocity and acceleration
Week 3	Free fall motion and gravity
Week 4	Vector analysis: vector addition and subtraction
Week 5	Unit vector and vector resultant calculation
Week 6	Motion in two dimension: velocity and acceleration calculations
Week 7	Mid-term Exam
Week 8	Newton first law of motion: object in equilibrium concept
Week 9	Newton second law of motion: acceleration and decleration
Week 10	Newton third law of motion: action and reaction
Week 11	Electricity: current, voltage and resistance, Ohm's law
Week 12	Electric circuits: series and parallel circuits
Week 13	Fluid mechanics: pressure and Pascal Principle
Week 14	Archimedes principle
Week 15	Bernoulli equation in fluid flow

Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to diagrams and report writing
Week 2	Lab 2: Surface tension
Week 3	Lab 3: Force equilibrium
Week 4	Lab 4: Static and dynamic friction
Week 5	Lab 5: Ohm's law
Week 6	Lab 6: Series and Parallel circuits
Week 7	Lab 7: Density of materials

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Applied Physics by Schaum 2013	No
Recommended Texts	Physics for scientists and engineers by Serway 2004.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering	

Grading Scheme

مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

10- اللغة العربية

Module Information Course Material Information					
Module Title	**Arabic Language**			**Module Delivery**	
Module Type	**Core**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	MPH12011				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	MPH		**College**	SCI	
Module Leader			**e-mail**		
Module Leader's Acad. Title	lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	none		**e-mail**	none	
Scientific Committee Approval Date	11/06/2023		**Version Number**	1.0	

Relation with other Modules Relation with other study materials			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Module Aims, Learning Outcomes and Indicative Contents	
Module Aims Module Aims	Learn proper Arabic as it is the official language of the homeland -1 Language is the essence of identity and its symbol -2

	3- Language differs from dialect; the former is universal while the latter is local 4- Employing eloquent vocabulary in the academic formulation of scientific research translated with its eloquent counterpart 5- Mastering the ability to write research and articles with purely scientific content in Modern Standard Arabic 6- Avoiding common writing mistakes and choosing the correct vocabulary 7- Enriching the student's vocabulary to help build charisma in verbal communication 8- Reviewing examples of Arabic literature, both poetry and prose, as they form a foundation for building the diverse cultural aspect in students. 9- Writing numbers with proficiency, please write correctly in the formulation of official requests. 10- Recognizing the audio lesson in the Arabic language and its relation to the science of physics.
Module Learning Outcomes Learning Outcomes for the Course	:Upon completing the vocabulary of the subject matter, the student will be proficient in 1- Correct writing free of errors. 2- Accurate scientific academic expression. 3- Using eloquent vocabulary in both application and pronunciation. 4- Adding a linguistic stock and new concepts to the meanings of words. 5- The ability to engage in administrative communication in official requests.
Indicative Contents Guidance Contents	1- Each specialization has its own language that indicates and signifies it, and the language of each science stems from the nature of its essence. Scientific specializations have a specific lexicon that expresses their core and content, in addition to the specific terms that denote them, as well as the scientific sources referred to. The same applies to literary language; it also has its vocabulary, writing style, and means of expression, along with its specific terms that represent and signify it. [4 hrs] 2- Dictionaries - in general - regardless of their sources, represent a content and a repository for the vocabulary of any language, accompanied by explanations and interpretations of those vocabulary items. Arabic dictionaries are vast and diverse; there are dictionaries that are not language dictionaries. Arabic has the first geographical dictionary in history, "The Dictionary of Countries" by (Yaqut al-Hamawi), in addition to specialized dictionaries in specific areas, such as rhetoric dictionaries, as well as the diversity of schools in compiling dictionaries, categorizing them, and the method of searching for vocabulary within them. [4 hrs] 3- The sign falls within the field of semiotics, and punctuation marks are important topics, especially in academic research, regardless of the discipline, whether it is scientific or humanistic. Hence, the importance of punctuation marks arises; they play a significant semiotic and semantic role in written text and in constructing the text. They facilitate understanding for the reader and clarify the intended meaning through reading and pronouncing the phrase. Punctuation marks are the best means to express clarity and demonstrate transparency in written speech; they indicate to the observer those conventional signs and the relationships that connect parts of speech to each other in general, and the parts of each sentence in particular. As specialists say about punctuation marks: pauses are not independent; rather, they are a consequence of thought. That is, the prescribed pauses in specific places are not merely respiratory stops in the biological sense of breathing, but primarily represent meaningful pauses. The essence from a linguistic perspective is not for the reader to regain their breath, but rather for the reader to engage with the pauses in known quantities and in specific places within the spoken sequence to eliminate ambiguity and preserve the speaker's intent

Indicative Contents Guidance Contents	from alteration. These marks embody the writer's feelings and intentions within them. [6 hrs] The writing style represents the fingerprint of the writer from whom it originates - 4 and is manifested in the reader. Each writer has their own unique style, which is reflected in their output. There are different types of styles, including scientific .style, literary style, and rhetorical style, each with its own characteristics and form [hrs 4] Events associated with time represent actions, and actions in Arabic - 5 .correspond to tenses in other languages from a certain aspect or specific detail Arabic contains a large number of roots, specifically verb roots. In Arabic, there are three-letter, four-letter, five-letter, and six-letter verbs. The verb is an important part of the basic components of speech, in addition to the phonetic aspect of these roots. The study of (physical sounds) is one of the important sciences in the Arabic language, as (acoustic sounds) is a science closer to physics than to the humanities. It represents the intermediate stage between phonetic science and auditory science, and its relationship with the Arabic language starts from the very first seed in studying the articulation of letters both physically and semantically. [4 [hrs The discussion about poetry is endless; poetry embodies the feelings of the - 6 individual represented by the poet and the collective feelings of all humanity. It exists among all human beings, and ancient Arabic poetry served as a national anthem for them, representing their solid cultural identity and serving as a record ,of their history and glories, regardless of its various themes such as love, praise and lamentation. The meters of Arabic poetry are built on a unique phonetic structure through the feet established by Al-Khalil ibn Ahmad Al-Farahidi, who laid down its philosophy, essence, and rules. Poetry is a cultural asset, a rhetorical argument, and an adornment that adds beauty and elegance to the personality of the individual and society in general. [4 hrs] The hamza is one of the procedural topics for the writer, regardless of the - 7 discipline; it is needed by every speaker who writes in it. It has its own rules that must be followed, and it should be written correctly. The topic of writing the hamza is of great importance; its form changes the meaning, so it must be placed and drawn correctly to ensure accurate expression of the intended meaning. [4 hrs] The mafa'il (objects) in the Arabic language are important topics in the study of - 8 Arabic. Every student must know them in general. There are different opinions among rhetoricians and grammarians about the mafa'il: whether these objects are superfluous or a main component of the sentence. Grammarians see them as superfluous in the sentence, with the two main components being the verb and the subject. On the other hand, rhetoricians believe that they are not superfluous but rather a fundamental component of the sentence; because every word that indicates a meaning in the sentence is not considered superfluous, but rather a main component in the sentence and its structure. The rhetoricians' opinion is closer to the truth than that of the grammarians, as studying them in Arabic for non-specialists adds a diverse expressive wealth. [4 hrs] It is well known that there is a phenomenon of linguistic errors, whether - 9 ,grammatical, spelling, or stylistic, among speakers of the Arabic language especially among non-specialists, particularly those working in the media. This phenomenon has expanded and increased in prevalence in modern times, as these errors have begun to invade all fields of study. For instance, the topic of (numbers) in the Arabic language shows that many students and also the general public use numerals instead of writing them in words; this is to avoid making mistakes, which indicates a weakness that is not befitting any student, regardless of their specialization. Therefore, the topic of numbers and the rules for writing them in the Arabic language is an indispensable topic in the age of numerical language. [4 hrs]

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	Creating a comprehensive personality for the university student in terms of precise scientific .specialization and supporting specialization
	There is a set of widely used terms that are employed inappropriately and not - 10 in their correct context. These terms are used in official administrative communications with meanings that are not accurate or precise. Moreover, it is important to ensure accuracy in these terms when used in official requests submitted on various topics. The request must be concise and focused, providing a brief idea and the intended goal towards the administration to which the requests are submitted, which has positive implications for reducing effort and time in executing administrative tasks assigned to individuals of varying ranks. [4 hrs]

Student Workload (SWL) Student Workload			
Structured SWL (h/sem) Regular Student Workload during the semester	33	**Structured SWL (h/w)** Regular Student Workload weekly	2
Unstructured SWL (h/sem) The irregular study load of the student during the semester	42	**Unstructured SWL (h/w)** Irregular weekly study load of the student	2.8
Total SWL (h/sem) Total study load of the student during the semester	75		

Module Evaluation Course evaluation					
		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**	1 hr	10 % (10)	7	LO # 1-7
	Final Exam	2 hr	5 0% (5 0)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	The difference between scientific language and literary language
Week 2	Arabic dictionaries and their types
Week 3	Punctuation marks
Week 4	Style
Week 5	Verbs – Their types and classifications
Week 6	Selected models of ancient Arabic poetry - Islamic poetry - Umayyad poetry
Week 7	Mid-term Exam
Week 8	'Writing the hamzah / Hamzat al-wasl and Hamzat al-qat
Week 9	Writing the hamzah at the beginning and end of sentences
Week 10	Subject and Predicate – Skills in Writing Numbers
Week 11	Effects / Object – Purpose Object
Week 12	Accompaniment Object – Location Object – Absolute Object
Week 13	Arabic Prose
Week 14	Common Mistakes – How to Write Official Requests
Week 15	Selected Models from Abbasid Poetry and Modern Poetry
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

Learning and Teaching Resources

	Texts	**Available in the Library?**
Required Texts	**Book: University Arabic for Non-Specialists / Dr. Abdu Al-Rajhi** Book: Applied Grammar / Dr. Abdu Al-Rajhi	No
Recommended Texts	Applied Grammar / Dr. Abdul Rajhi Comprehensive Grammar / Abbas Hassan History of Arabic Literature / Showqi Deif	No
Websites	Al-Fusih Network for Arabic Language Sciences	

Grading Scheme

Grading Scheme				
Group	**Grade**	Grade	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** – Excellent	Excellence	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C – Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Average	60 - 69	Fair but with major shortcomings
	E – Sufficient	Accepted	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX – Fail**	Fail (Under (Review	(45-49)	More work required but credit awarded
	F – Fail	Fail	(0-44)	Considerable amount of work required
Note: Marks 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.				

11- اللغة الإنكليزية

Module Information معلومات المادة الدراسية			
Module Title	English language	**Module Delivery**	
Module Type	**Core**	**Theory**	
Module Code	**KUS 12011**	**Lecture**	
ECTS Credits	2	**Lab**	
SWL (hr/sem)	75	**Tutorial**	
		Practical	
		Seminar	

Module Level	1	**Semester of Delivery**	2
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Name	**e-mail**	E-mail
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules 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	a. to enable the learner to communicate effectively and appropriately in real life situation: b. to use English effectively for study purpose across the curriculum; c. to develop interest in and appreciation of Literature; d. to develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing; e.to revise and reinforce structure already learnt.s
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	22. Enhance the efficiency of student to use many reference or books which reported in English language. 23. To develop the competence that students need to read a wide range of general and academic texts in English. 24. To develop students competence in reference skills [locating and evaluating information needed for assignments in a library. 25. demonstrate adequate general and detailed comprehension of a range of advanced general and academic texts 26. undertake research in an academic library
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Attention will be given to both grammatical form and communicative function. Controlled practice will be given to consolidate form and meaning. Classroom activities will be designed to maximize active participation and use of the target language. The Language Labs will be used for students to work on their own individual needs and problems. Students' language skills will improve through completion of a range of tasks, both individual and group-based. In this programme module the Teacher / Tutor will ensure that the Learner uses correct pronunciation and grammatical constructions , to include: sentence connectors, for example, and, or, with, but, then question words, for example, why, where, who, when when communicating in the English language. An ability to read a minimum of 10 introductory level reading texts, on both social information and work-related information. In reading the texts, the Learner will complete tasks to demonstrate an understanding of the context and content of the text An ability to read the message being communicated in a minimum of 6 common notices and signs The capacity to complete a simple form requiring personal details such as name, address, phone number, age, date of birth The collection of work may include work sheets, cloze tests, multiple choice statements or other appropriate evidence in the form of written, oral, graphic, audio, visual or any combination of these. Any audio or video evidence must be provided on tape. Make different activity for the student to be able to use huge amount of sources such report, books, journals to enhance the abilities and skills.

	Revision problem classes [6 hrs] Part B - Develop the toking and spooking skills

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Use will be made of individual, pair and groupwork to develop students abilities to read increasingly complex academic and general texts. Other skills will be practised and developed within this modules and students will be expected to work extensively out of class to develop their reading fluency. Students will study the specialist vocabulary in the context of published listening and reading materials produced particularly for these ESP situations and also explore lexis within authentic sources. Groups will be managed according to specialist areas and students will be expected to work extensively outside class contact time. Emphasis will be placed on integrating this module to work done within the International Foundation option module programme

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Reading Comprehension
Week 2	Writing I
Week 3	Writing I
Week 4	Learning English through Literature
Week 5	Advanced Reading
Week 6	Linguistics
Week 7	Advanced Writing
Week 8	Grammar I
Week 9	Grammar II
Week 10	Introduction to Literature
Week 11	Debate and Dialogue
Week 12	General Translation
Week 13	Listening & Speaking
Week 14	Listening & Speaking
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Agilent VEE and PSPICE
Week 2	Lab 2: Thévenin's / Norton's Theorem and Kirchhoff's Laws
Week 3	Lab 3: First-Order Transient Responses
Week 4	Lab 4: Second-Order Transient Responses
Week 5	Lab 5: Frequency Response of RC Circuits
Week 6	Listening & Speaking
Week 7	Listening & Speaking

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Haarman et al. *Reading Skills for the Social Sciences*. OUP Cotton, D. et al. *Business Class.* Nelson	NO
Recommended Texts	An appropriate selection of Collins Specialist English Dictionaries, ArangeofA-leveltypeStudyGuides	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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	F – Fail	راسب	(0-44)	Considerable amount of work required

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وصف النموذج الدراسي للمرحلة الثانية

1- أجهزة وتقنيات مختبرية

Module Information معلومات المادة الدراسية					
Module Title	**Laboratory Instrument &Techniques**			**Module Delivery**	
Module Type	**Suport or related learning activity**			**Theory**	
Module Code	**FOR24021**			**Lecture**	
ECTS Credits	**6**			**Lab**	
SWL (hr/sem)	**150**			**Tutorial**	
				Practical	
				Seminar	
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	This module aims to introduce students to Microscope and types , the spectroscopic and chromatographic techniques , Electrophoresis , Balance , Temperature control instrument , PCR & RT-PCR and provide them with hands-on experience of laboratory instrumental analysis, further developing the practical skills gained in the Laboratory Chemical & Biological module. This module also aims to provide training to the students on the research methodology and skills, *e.g.* literature survey, experimental design, data acquisition, result analysis and report writing-up, which will pave the way for their final year research project.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Knowledge and Understanding: 1 Formulate experimental methods for all instrument and design appropriate experimental set-ups. 2 Demonstrate the sample preparation and operational skills using the advanced all this instrument. 3 Acquire and critically assess experimental results with comparison to standards or databases. Transferable/Key Skills and other attributes: • Safe-working laboratory practices • Observation, recording and presenting complex scientific data • Numeracy, literacy, IT and Information management • Time management • Problem solving skills • Literature search, data processing and academic writing skills • Team working
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - primary information of laboratory instrument & techniques</u> On completion of this module, students are expected to be able to: 1 Demonstrate knowledge of introduction of instrument & types

	2 Demonstrate knowledge of the principle & application & types of instrument. 3 Demonstrate an understanding of Microscope. [15 hrs] 4 Demonstrate understanding of the Electron Microscope. [15 hrs] Balance , Temperature control instrument (Incubator , Water bath , Autoclave , Hot air oven , Hotplate Magenetic Stirrer) and types. [16 h] PCR & RT- PCR , Electrophoresis , chromatography , pHmeter ,Ultrasonic , Centrifuge . [15 hrs] <u>Part B - essential and details</u> Fundamentals To publicise the key learning resources that are important or essential for those studying the module or to demonstrate the academic foundation of the module. To provide a short list, indicating the type and level of information that students are expected to consult. Further, in depth, guidance and a comprehensive list of reading and resources should be made available . [15 hrs] Normally a short list of books or articles in reference format (author, date, title, and publisher). If a core text or textbook exists, this should be indicated. Lists should be indicative, rather than a full bibliography.. [7 hrs] To identify where the whole module may be taken by students at a distance, either by arrangement with the Programme Director or because it forms part of a programme that is wholly or partly delivered virtually. If distance learning is possible, a second module descriptor will need to be created, to identify learning, teaching, assessment and contact methods/support for students in the distance learning version of the module.. [15 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	To describe the learning activities of the students and the teaching methods of the staff. Effective module design should result in a varied range of active learning experiences for students, including learning activities which are 'research-like'. Activities should, of course, motivate and encourage deep learning (reflection on wider meanings, rather than superficial memorisation of information). They should also be varied and flexible enough to accommodate different learning styles and orientations, and allow for inclusivity of students from different backgrounds and with different kinds of learning abilities. Learning activities therefore need to include reference to independent, interdependent (peer-supported) and online activities, as well as participation in different kinds of taught class.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction of instrument
Week 2	Microscope , light microscope and Electron Microscope
Week 3	Balance , Temperature control instrument (Incubator , Water bath) and types.
Week 4	Temperature control instrument (Autoclave , Hot air oven , Hotplate Magenetic Stirrer) and types.
Week 5	Polymerase chain reaction (PCR)
Week 6	Exam Mid-term Exam
Week 7	Real-Time polymerase chain reaction
Week 8	Electrophoresis
Week 9	Spectrophotometey
Week 10	Laboratory Centrifuge (principle , types& Application).
Week 11	Chromatography (principle , types& Application).

Week 12	Ultrasonic (principle , types& Application).
Week 13	PHmeter (principle , types& Application).
Week 14	HPLC
Week 15	EXAM
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1 : Introduction of instrument
Week 2	Lab 2 : Microscope , light microscope and Electron Microscope (particle application on use instrument).
Week 3	Lab 3 : Balance , Temperature control instrument (Incubator , Water bath) and types. (particle application on use instrument).
Week 4	Lab 4: Temperature control instrument (Autoclave , Hot air oven , Hotplate Magenetic Stirrer) and types. (particle application on use instrument).
Week 5	Lab 5: Polymerase chain reaction (PCR) (particle application on use instrument).
Week 6	Exam Mid-term Exam (particle application on use instrument).
Week 7	Lab 6: Real-Time polymerase chain reaction(particle application on use instrument).
Week 8	Lab 7 : Electrophoresis(particle application on use instrument).
Week 9	Lab 8 : Spectrophotometey(particle application on use instrument).
Week 10	Lab 9 : Laboratory Centrifuge (principle , types& Application). (particle application on use instrument).
Week 11	Lab 10 : Chromatography (principle , types& Application). (particle application on use instrument).
Week 12	Lab 11 : Ultrasonic (principle , types& Application). (particle application on use instrument).
Week 13	Lab 12 : PHmeter (principle , types& Application). (particle application on use instrument).
Week 14	Lab 113 : HPLC (principle , types& Application). (particle application on use instrument).
Week 15	Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	FReece J, Urry L, Cain M, Wasserman S, Minorsky P, Jackson, R. (Eds) 9th Global Edition, 2011, Campbell Biology, Pearson Benjamin Cummings.	Yes

Recommended Texts	Lobban C.S. (1992) *Successful Lab Reports: A Manual for Science Students,* Cambridge University Press. Higson, S.P.J. (2003) *Analytical Chemistry*, Oxford University Press. Skoog, D.A., Holler, F.J. and Nieman, T.A. (1998) *Principles of instrumental analysis*, Orlando: Harcourt Brace College Publishers. Mathew Folaranmi Olaniyan (2017) **LECTURE NOTES ON LABORATORY INSTRUMENTATION AND TECHNIQUES.** Edition: 1ST Editor: ACHIEVERS UNIVERSITY, OWO-NIGERIA/DR A.A. OLADELE(READER) ISBN: ACHIEVERS UNIVERSITY, OWO-NIGERIA	No
Websites	Mathew OLANIYAN | Professor | PhD; Cert. in Immunology: PGDE; FMLSCN; FWAPCMLS in Immunology | Medical Laboratory Science/ School of Postgraduate Studies | Research profile (researchgate.net)	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

2- مبادئ السوائل والافرازات الحيوية

Module Information			
Module Title	**Fundamentals of Fluids Detection and Secretions**	**Module Delivery**	
Module Type	**Base**	**Theory**	
Module Code	**FOR23006**	**Lecture**	
ECTS Credits	**6**	**Lab**	
SWL (hr/sem)	**150**	**Tutorial**	
		Practical	
		Seminar	
Module Level	1	**Semester of Delivery**	1
Administering Department	Forensic \FOR	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	

Scientific Committee Approval Date	01/09/2023	Version Number	1.0

Relation with other Modules 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	The aim of this Module is : 1-to provide the student with an understanding of examination strategies for the range of body fluids encountered in forensic biology casework together with the science underpinning the interpretation of bloodstain patterns. 2-An awareness of the contribution of selected areas of the biological sciences to specialised forensic science studies is also given. 3-to provide a basic grounding in Forensic Criminology. 4- to promote analytical and evaluative skills, as well as encourage the application of material to appropriate case studies. 5- students will, through seminar work, applied approach and problem solving, develop a knowledge and understanding of the subject area, as well as an appreciation of the ethical and complex issues that surround forensic criminology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module the student should be able to: 1. Understand the rationale for undertaking different body fluid examinations as an aid to crime investigation. 2. Relate the biological characteristics of different body fluids to the methods used for location and identification in the forensic laboratory. 3. Identify and interpret bloodstain patterns and relate these to a theoretical treatment of blood dynamics. 4. Have a basic understanding of how the results of biological examinations are used in the context of case interpretation.

	5. Analyse and critically evaluate the contribution of selected areas of biology to specialised aspects of forensic science. 6. Explain the analytical, laboratory and legal requirements of producing DNA STR profiles. 7. Perform interpretation of DNA STR profiling results, including calculation of likelihood ratios. 8. Critically evaluate DNA STR profiling results citing significant research in the field. 9. Show an understanding of the scientific basis and utilisation of techniques of bone anthropometry and pathology in the study of human tissue. 10. Demonstrate the ability to critically evaluate body fluid evidence and blood stain patterns.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1 Body Fluids Methods for detection and confirmation of the presence of blood, saliva, semen, faeces and urine. Interpretation of the presence and distribution of such staining and an understanding of body fluid persistence.[18h] 2 Blood Dynamics and Blood Stain Patterns Rheology of blood and blood behaviour. Impact, cast- off, arterial and transfer patterns, interpretation and evidential value.[18h] 3 Selected Areas of Biology Relevant to Forensic Science For example: aspects of entomology, trichology and other specialist areas of forensic biology may be considered.[15h] 4:Forensic Psychology: the social context of crime; what is forensic and criminal psychology; serial killing; profile analysis: investigative psychology and statistical profiling; false confessions; false allegations; eye witness testimony; lies, detection and credibility; psychology in prison; assessing risk and dangerousness.[15h] 5:Criminal Investigation: Introduction to forensic science; the crime scene; trace and contact evidence: recoverable materials; trace and contact evidence: fingerprints; analysing body fluids; DNA profiling; fires; examination of human remains; questioned documents; forensic science in court and presenting evidence to a jury.[20h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This module covers a wide variety of theoretical, conceptual and practical areas, which require a range of knowledge and skills at a more advanced level to be displayed and exercised. Delivery of its syllabus content therefore involves a diversity of teaching and assessment methods suitable to the learning outcomes of the module; these include formal lectures, structured tutorials (work closely integrated with the lecture material), practical exercises, and completion and submission of written coursework making use of appropriate forms of IT and VLE, and independent study.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.2

الحمل الدراسي المنتظم للطالب خلال الفصل			
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction in blood and body fluid
Week 2	Bile composed and liver enzymes
Week 3	Brest milk composition
Week 4	Cerebral spinal fluid
Week 5	Digestive system secretion, Saliva, mucus
Week 6	Amniotic fluid characteristic
Week 7	Mucus secretion and nasal drainage
Week 8	Peritoneal fluid
Week 9	Skin, sweating gland
Week 10	Eyes, tears secretion
Week 11	Seminal fluid
Week 12	Urine analysis
Week 13	Vomiting

Week 14	Vaginal secretion
Week 15	Exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Lab Safety
Week 2	Lab 2: Blood investigation and body fluid analysis
Week 3	Lab 3: Bile composed and liver enzymes investigation
Week 4	Lab 4: Breast secretion
Week 5	Lab 5: Determination the CSF component
Week 6	Lab 6: Investigate the secretion of digestive system, Saliva, mucus
Week 7	Lab 7: Exam
Week 8	Lab 8: Amniotic fluid
Week 9	Lab 9 : Mucus secretion and nasal drainage
Week 10	Lab10:Peritoneal fluid
Week 11	Lab11:Skin, sweating gland
Week 12	Lab12:Eyes, tears secretion
Week 13	Lab13:Seminal fluid
Week 14	Exam
Week 15	**Review week**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Essential Haemotology. Hoffbrand A.V., Pettit J.E. & Moss P.A.H., Blackwell, ISBN: 0632051541	NO
Recommended Texts	Flesh and Bone: An Introduction to Forensic Anthropology. Nafte M., Carolina Academic Press, ISBN:0890896380	yes
Websites	https://modules.abertay.ac.uk/module.cfm?modcode=FOR301&term=S1	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	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
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Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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3- الاحياء الجزيئي

Module Information

معلومات المادة الدراسية					
Module Title	**Molecular Biology**			**Module Delivery**	
Module Type	**Core**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR24119**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	FORN		**College**	SC	
Module Leader			**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules

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	27. This module aims to provide a strong foundation in molecular biology and biochemistry that will be built upon in subsequent modules. 28. Core biological molecules will be examined with a focus on their structure and

	function. 29. Teaching will be delivered using a combination of lectures, workshops and practicals. 30. Problem solving and quantitative skills will be developed through complementary workshops using case studies, applications and examples based on lecture content. 31. Experience of biochemical techniques such as chromatography and enzyme kinetics will be gained through practicals. 32. The module will be aseessed by an open exam at the end of the module.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students who successfully complete this module will be able to: 1. Describe the main chemical components of cells, their structural properties, how these relate to their functions, and how they are altered during cellular processes 2. Explain theoretical frameworks (such a Michaelis Menten kinetics, the laws of thermodynamics and the chemiosmotic theory) that allow us to understand function of biological molecules and cells 3. Integrate knowledge about heterotrophic metabolism of carbohydrates & lipids and phototrophic metabolism and how they relate to energy metabolism via ATP 4. Relate knowledge of biological molecules to health and disease and to their application in biotechnology 5. Analyse and evaluate enzyme kinetics data
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. The information on this page is indicative of the module that is currently on offer. The University is constantly exploring ways to enhance and improve its degree programmes and therefore reserves the right to make variations to the content and method of delivery of modules, and to discontinue modules,[20h] if such action is reasonably considered to be necessary by the University. Where appropriate, the University will notify and consult with affected students in advance about any changes that are required in line with the University's policy on the Approval of Modifications to Existing Taught Programmes of Study[40h]. Developed and demonstrated time management and organisational skills Developed skills at interpreting and retrieving information[20h] (knowledge management) and be able to demonstrate this in examinations Developed, and be able to apply, problem-solving skills Developed, and be able to demonstrate in examinations, written communication skills[15].

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Molecular biology skills can help you work in many scientific fields, such as food science, biotechnology, forensics and more. In this article, we discuss the definition of molecular biology skills, the types of skills to include on your resume and strategies for developing molecular biology skills.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.3
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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Introduction and brief historical review**
Week 2	**Experiments to prove DNA is the genetic material**
Week 3	**The second evidence using virus (phage) model**
Week 4	**DNA and RNA as macromolecules: base structure and rules**
Week 5	**Eukaryotic and prokaryotic DNA**
Week 6	**Chemical and physical properties of DNA: the hyperchromic effect**
Week 7	**Haploid chromosome**

Week 8	**Chromatin organization and chromosome structure**
Week 9	**DNA replication**
Week 10	**DNA repair pathways**
Week 11	**RNA structure and function**
Week 12	**RNA transcription and post transcription events**
Week 13	**Translation: protein synthesis**
Week 14	**Epigenetics**
Week 15	**Exam**
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Preparation of buffers
Week 2	Lab 2: Laboratory safety rules
Week 3	Lab 3: DNA extraction
Week 4	Lab 4: Instruments and equipment in molecular lab
Week 5	Lab 5: Polymerase chain reaction
Week 6	Lab 6: Gel electrophoresis
Week 7	Lab 7: Exam
Week 8	Lab8:Chromosomal DNA extraction from bacteria
Week 9	Lab9:Chromosomal DNA extraction from plant
Week 10	Lab10:Plasmids isolation and extraction
Week 11	Lab11:Protein
Week 12	Lab12:Mutations
Week 13	Lab13:Real time PCR
Week 14	Lab14:Seminars
Week15	Review before final exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Alberts B, et al. Essential Cell Biology, 5th Edition, Garland Science Pub., 2019 ISBN: 978-0393680393	Yes
Recommended Texts	Human Physiology: From Cells to Systems Lauralee Sherwood 7th ed. Brookes/Cole ISBN 9780495826293	No
Websites	https://www.modules.napier.ac.uk/Module.aspx?ID=BMS09112	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

4- التشريح والفسلجة

Module Information					
Module Title	**Anatome and Physiology**			**Module Delivery**	
Module Type	**Base**			**Theory**	
Module Code	FOR23005			**Lecture**	
ECTS Credits	6			**Lab**	
SWL (hr/sem)	150			**Tutorial**	
				Practical	
				Seminar	
Module Level	1		**Semester of Delivery**	1	
Administering Department	FOR		**College**	SCI	
Module Leader			**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	1. The aim of the module is to introduce and explore the fundamental concepts of human physiology and anatome from cellular functions through to systems that are responsible for homeostasis. 2. The module aims to begin with the broader principles of how cells communicate and how cells function. 3. To explore key anatome with physiological systems: ➢ investigating the central and peripheral nervous systems, ➢ how differing muscles are stimulated to contract, ➢ the digestive system and key associated nutritional principles, the cardiorespiratory system, ➢ the renal system and its regulatory role and the immune system and how it aims to protect the body against infection and disease. 4. This module also aims to introduce the principles of group learning, critical thinking, problem solving and communication of scientific information.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successfully completing the module you will be able to... • 1. Demonstrate an integrated basic knowledge of the biomedical principles underpinning human health with forensic science . • 2. Demonstrate a basic awareness of the scientific principles underpinning the prevention, diagnosis and management of some important diseases • 3. With guidance, apply skills of critical thinking, problem-formulation and problem-solving.

Indicative Contents المحتويات الإرشادية	1-Cardiovascular physiology [10h] Structure and function of the heart and blood vessels from single cell to whole system. Cardiac electrical activity and its measurement. Perfusion and its control. Blood pressure regulation. Embeds a variety of anatomical and pathophysiological examples with reference to both biomedical and forensic applications throughout e.g. coronary heart disease. 2-Respiratory anatome and physiology [10h] Structure and function of the respiratory tract from single cell to whole system. Lung mechanics and ventilation. Oxygen and carbon dioxide transport. Central and peripheral control of respiration. Embeds a variety of pathophysiological examples with reference to both biomedical and forensic applications throughout e,g, asthma 3 -Reproductive anatome and physiology[15h] Structure and functions of the reproductive systems from single cell to whole system. Normal body control of the female reproductive system and hormonal cycles. Embeds a variety of anatomical and psychophysiology examples with reference to both biomedical and forensic applications throughout e.g. infertility. 4- Neuro and sensory anatomical and physiology [15h] Basic structures and divisions of the peripheral and central nervous system from single cell to whole system. Structure and function of nerves and the cells in the nervous system. How nerves communicate. Higher CNS functions and the ANS. Structure and function of key sensory organs. Embeds a variety of anatomical and pathophysiological examples with reference to both biomedical and forensic applications throughout e.g. dementia 5 -Skeletomuscular system [14] Skeletal muscle structure and ultrastructure. Muscle and fibre types. Functions of tendons, joints, bones, muscle ligaments and fascia. The neuromuscular junction. Excitation - contraction coupling. The sliding filament theory. Muscle spindles. Golgi tendon organs. Reflex arcs. Embeds

	a variety of anatomical and pathophysiological examples with reference to both biomedical and forensic applications throughout e.g. muscular dystrophy.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The module will consist of lectures with theoretical analysis and real-world examples and applications to improve students' learning and analytical skills. In-class group discussions of research papers will facilitate deeper understanding and encourage critical thinking. The assessment includes two summative elements that are a group recorded quiz and an individual written essay. The pass mark for the written assignment and module is 50%. A qualifying mark of 40% on each assessed component of the module must be achieved to pass the module. Each of the component marks is then combined, using the appropriate weighting, to give an overall mark for the module. If the overall mark is less than 50% when the weighting has been applied to the components, this constitutes a failure of the module.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Intruduction for Anatomy and Physiology Organizing Principles such as Homeostasis & Feedback Loops
Week 2	Cell, tissue , and Membrane
Week 3	Skelton,and muscular
Week 4	Nervous and endocrine system
Week 5	Cell Physiology & Membrane Transport
Week 6	Tissue Physiology,Neurophysiology and Sensory Physiology
Week 7	Endocrinology,Muscle Physiology
Week 8	Cardiovascular and Respiratory Physiology
Week 9	Immunology
Week 10	Lymphatic and Respiratory System
Week 11	Osmoregulatory Physiology
Week 12	Gastrointestinal Physiology
Week 13	Reproductive Physiology
Week 14	Digestive and Urinary System
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Erythrocyte Physiology
Week 2	Lab 2: Pulse and Pressure
Week 3	Lab 3: EEG and States of Consciousness
Week 4	Lab 4: Brain Imaging
Week 5	Lab 5: Electromyography & Dynamometry
Week 6	Lab 6: Electrocardiography

Week 7	Lab 7: exam
Week 8	Lab 8: Ventilation & Spirometry
Week 9	Lab 9 : Urinalysis
Week10	Lab10: View film “Fed Up”, food diary assigned
Week11	Lab11: Physiology of Adiposity; SOS of lab instructor
Week12	Lab12: Lower extremely bones
Week13	Lab13: Musules tissue and skin
Week14	Lab14: The brine
Week15	review before final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Human from Cells to Systems. Sherwood, L. (2016, 9th edition) Cengage Learning.	no
Recommended Texts	https://training.seer.cancer.gov/linksre/	yes
Websites	https://www.ucc.ie/en/physiology/courses/physiologyasamodule/	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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5- الكيمياء التحليلية

Module Information

Module Title	Analytical Chemistry	Module Delivery
Module Type	Core	Theory Lecture Lab Tutorial Practical Seminar
Module Code	FOR24120	
ECTS Credits	7	
SWL (hr/sem)	175	

Module Level	1	Semester of Delivery	1
Administering Department	Forensic \FOR	College	Scince
Module Leader		e-mail	
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/09/2023	Version Number	1.0

Relation with other Modules

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	The module provides an introductory overview of the: 1- main techniques used in analytical chemistry. 2- provides understanding of the fundamental principles of chemical analysis as well as the main aspects of their application.

	3- combination of lectures and practical sessions allows the students to get familiarised with the common practices in an analytical chemistry laboratory. 4- Make able to calibration of instrumentation, validation, analysis of quality control samples, etc.) 5- introduce them to health & safety regulations and risk assessment.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	33. Understand and describe the fundamental principles and operation of analytical techniques, including spectroscopy, chromatography and electrochemistry. 34. Undertake calculations associated to the calibration of instruments and analytical quantification, and evaluate experimental error. 35. Operate basic analytical techniques, develop problem solving skills and be familiar with good laboratory practice. 36. Appreciate the implications of the provisions for COSHH (Control of Substances Hazardous to Health) and Health and Safety regulations in the laboratory environment.
Indicative Contents المحتويات الإرشادية	-Fundamentals of analytical chemistry– Good laboratory practice, health and safety, COSHH; Fundamentals of analytical measurement – accuracy, precision (repeatability and reproducibility), traceability, robustness, control charts.[15h] - Sample preparation – Sampling, decomposition & dissolution.[10h] - Classical methods – Gravimetry & titrimetry analysis[10h] - Spectroscopy – Fundamentals, Beer's Law, instrumentation, and calculations; Atomic emission spectroscopy; Quantitative molecular spectroscopy – UV-vis absorption and fluorescence.[12h] - Introduction to separation science – Classification, terminology, fundamentals of solute interaction, equations/calculations in chromatography; Efficiency and resolution - Van Deemter equation; Basic chromatographic methods - planar (Thin Layes Chromatography, paper) and column chromatography.[15h] - Electrochemistry – Basic concepts, galvanic cells, standard potentials, Nernst equation, applications, problem solving, calculations and data presentation; Potentiometry - basic ion selective electrodes, pH electrode, applications. [14h] - Practical work on basic analytical techniques and laboratory good practice – Experiments on titration, electrochemistry, atomic emission spectroscopy and chromatography. [10h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The assessment strategy is designed to provide students with the opportunity to demonstrate: - Understanding of fundamental principles of basic analytical techniques. - Know-how of the chemical analysis practice. - Competence to perform fundamental calculations. - Capacity for independent/critical thinking and problem-solving. - summative assessment for this module -Introduce the students to the fundamentals of the analytical techniques during the lectures. These would include the physical-chemical principles as well as design and operation of instrumental analytical techniques. - Provide hands-on experience in an analytical laboratory; including practice in sample preparation, operation and calibration of the instruments, validation, and analysis of unknown samples. - Encourage the development of their self-evaluation skills by describing the main sources of error during the practical experiments, nurturing problem-solving skills and critical thinking.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.2
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
	Midterm Exam	2 hr	10% (10)	7	LO # 1-7

Summative assessment	**Final Exam**	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Analytical Chemistry
Week 2	Units, Concentration and Stoichiometry
Week 3	Concentration types
Week 4	Statistical treatment of analytical data
Week 5	standard solution 1
Week 6	standard solution 2
Week 7	Titration 1
Week 8	Titration 2
Week 9	Exam
Week 10	Acids and bases
Week 11	Spectrochemical analysis 1
Week 12	Spectrochemical analysis 2
Week 13	Separation methods 1
Week 14	Separation methods 2
Week 15	Exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:General safety rules for laboratory
Week 2	Lab 2: General chemistry equipment
Week 3	Lab 3: Standard solution
Week 4	Lab 4: Preparation of standard solution from liquid solutions
Week 5	Lab 5: Buffer solution
Week 6	Lab 6: Titration strong acid with strong base
Week 7	Lab 7: Determination of acetic content in a vinegar sample
Week 8	Lab 8: Volumetric analysis (Mohr method)
Week 9	Lab 9 : pH-metric titration
Week 10	Conductmetric titration strong acid with strong base

Week 11	Separation of I group cations (Ag+, Pb+2, and Hg+2)
Week 12	Separation of II group cations
Week 13	Techniques of paper chromatography
Week 14	Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	https://guides.loc.gov/chemistry-resources/print-materials/analyticals	NO
Recommended Texts	https://guides.library.utoronto.ca/chm217/reference-resources	yes
Websites	https://www.coursera.inorg/browse/chem-science	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

6- الوراثة

Module Information معلومات المادة الدراسية			
Module Title	**Genetics**	**Module Delivery**	
Module Type	**Core**	**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR23004**		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		
Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor		**e-mail**	
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**FORN 104 (Molecular biology)**	**Semester**	2/1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1-genetics begins with scientific research, which translates through clinical practice to touch the lives of patients and families with genetic disease on a daily basis. 2- This module aims to provide a lens through which to view the core aspects of this multidisciplinary subject, describing how and why genetics is important in the development, diagnosis and treatment of disease. 3-focus firstly on the basics of how genetic material is replicated, curated, and inherited, to enable an understanding of how genetic sequence variants lead to genetic disease, or to susceptibility to complex diseases. 4-Genetic research and disease often raises challenging ethical questions and considerations, which will also be explored in the module You will also explore the molecular mechanisms by which genes are regulated alongside the contribution and role of environment influences. 5- Overall the module link clinical genetics practice with internationally-leading research strengths at CMH, to provide a holistic view of medical genetics from the scientific, clinical and patient perspectives.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successfully completing the module you will be able to... 1. Describe in some detail and discuss the cellular and molecular basis of inheritance 2. Explain the differences between acquired, monogenic, polygenic and epigenetic disease 3. Explain the different mechanisms by which genes are regulated in humans 4. Discuss the contribution of genetics and environment to disease processes in humans 5. Show awareness of, and discuss the ethical issues in modern genetics 6. Discuss with examples the importance of interaction between patients, scientists and clinician
Indicative Contents المحتويات الإرشادية	Indicative content includes the following.

	Our genetics influence every aspect of our growth, reproduction and health. Due to this, a deep understanding of how our genes are inherited and regulated, and how genetic sequence variants or epigenetic factors affect gene function is crucial for understanding normal human development, and the basis of genetic diseases.[16h] Knowing how molecular pathways function and are altered by gene variants is important to identify molecular biomarkers to monitor disease onset and progression, and define new therapies to treat disease. For example, research studies have detailed how breast cancer risk is greatly increased by the inheritance of specific *BRCA1* gene variants, and discovered that some patients with maturity-onset diabetes of the young (MODY) may transfer from insulin injections onto sulphonylurea tablets taken orally. [16h] Thus medical genetics as practiced today involves close scientific, clinical and patient interaction. This module describes how genomic research and clinical genetic services work in close synergy to deliver modern diagnostic and clinical genetic services, and discusses some of the ethical challenges and considerations, as well as patient perspectives, associated with this ever increasingly important discipline.[16h] Genetics provides an introduction to both classical and modern molecular genetics. We start by looking at Mendelian genetics, including consideration of how genetic maps are created and an introduction to human pedigrees. We then examine the basic mechanisms of transcription and translation and how gene expression can be regulated. The module concludes by considering the molecular tools that geneticists use and how these have been used to uncover the content of diverse genomes.[16h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Aligning genome data to reference sequence using up to date alignment programmes (e.g. BWA).

	• Assessment of data quality through application of quality control measures. • How to determine the analytical sensitivity and specificity of genomic tests. • Use of tools to call sequence variants e.g. GATK, annotation of variant-call files using established databases. • Filtering strategies of variants, in context of clinical data, and using publicly available control data sets • Use of multiple database sources, in silico tools and literature for pathogenicity evaluation, and familiarisation with the statistical programmes to support this. • Principles of integration of laboratory and clinical information, and place of best practice guidelines for indicating the clinical significance of results.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Introduction to genetic
Week 2	Classical Mendelian genetics
Week 3	The population genetic
Week 4	Human genome
Week 5	Functions of gene and chromosome
Week 6	Mitosis and meiosis genetic code
Week 7	Genetic variation
Week 8	Gene flow and new species
Week 9	Mutation and chromosomal abnormalities
Week 10	Medical genetic diseases
Week 11	Karyotype, Banding techniques
Week 12	Mutagens and carcinogens
Week 13	Autosomal dominant inheritance
Week 14	Autosomal recessive inheritance
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Organisms supported as a model system for genetics
Week 2	Lab 2: The first law of Mendel and the deviations from Mendel's first law
Week 3	Lab 3: The second law of Mendel and the deviation from Mendel's second law
Week 4	Lab 4: The quantitative inheritance
Week 5	Lab 5: Genetics and sex
Week 6	Lab 6: Link and crossing over
Week 7	Lab 7: Cases of crossing over suppression
Week 8	Lab 8: Genetic mapping
Week 9	Lab 9: Mutation and chromosomal abnormalities
Week 10	Lab 10: Medical genetic diseases
Week 11	Lab 11: Karyotype, Banding techniques
Week 12	Lab 12: Mutagens and carcinogens
Week 13	Lab 13: Autosomal dominant inheritance
Week 14	Lab 14: Autosomal recessive inheritance

Week 15	Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	FReece J, Urry L, Cain M, Wasserman S, Minorsky P, Jackson, R. (Eds) 9th Global Edition, 2011, Campbell Biology, Pearson Benjamin Cummings.	Yes
Recommended Texts	Butler, J. (2005) Forensic DNA Typing 2nd Ed. Elsevier (MA) ISBN: 9780121479527 Forensic Science – Jackson A.R. & Jackson J., Prentice Hall, ISBN: 130432512	No
Websites	Cochrane reviews: http://www.cochrane.org/cochrane-reviews Pubmed/MedLine: http://www.ncbi.nlm.nih.gov/pubmed	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

7- الكيمياء الحياتية

Module Information معلومات المادة الدراسية		
Module Title	**Biochemistry**	**Module Delivery**
Module Type	**Core**	**Theory** **Lecture**
Module Code	FOR23013	
ECTS Credits	6	

SWL (hr/sem)	150	**Lab** **Tutorial** **Practical** **Seminar**

Module Level	2	**Semester of Delivery**	3
Administering Department	FOR	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	1-This module aims to teach you core concepts in biochemistry including topics on structure of proteins, enzyme kinetics and metabolic pathways. 2-The module will also provide a background to fundamental aspects of chemistry. 3-This module provides you with the core knowledge and skills to enhance performance in the area of biological chemistry towards best benefit for forensic science in:

	❖ Metabolism, Analytical Techniques in Biochemistry, ❖ Bioinorganic Chemistry ❖ Energy Metabolism
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Module-specific skills 1. Understand the biological, chemical and physical principles associated with forensic investigation. 2. Discuss the analytical techniques used in forensic science and their correct choice. 3. Demonstrate knowledge of the principal scientific techniques and skills required for the recognition, processing, recording, preservation, recovery, analysis and interpretation of evidence at and from a range of crime scenes. 4. Evaluate the limitations and principles of uncertainty in analysis and interpretation of forensic evidence. 5. Construct logical arguments and effectively communicate theories in different formats, including crime scene maps and a sequence of events. 6. Interpret written instruction to create time and spatial reconstructions of complex events with attention to detail. Personal and key skills 7. Apply scientific principles to real life situations 8. Analyse and evaluate independently a range of research-informed literature and synthesise research-informed examples from the literature into written work 9. Illustrate and discuss the contested and provisional nature of knowledge and understanding 10. Analyse in detail essential facts and theory in a sub-discipline of the biosciences 11. Apply factual information to develop, with some guidance, a logical and reasoned argument with valid conclusions. 12. Effectively communicate justifications, evidence and conclusions using both graphical and written means in a manner appropriate to the intended audience.

	13. Work in a small team and deal proficiently with the issues that teamwork requires (i.e. communication, motivation, decision-making, awareness, responsibility, and management skills, including setting and working to deadlines)
Indicative Contents المحتويات الإرشادية	• **Examination [10h]** **Written assessment typically includes exams and multiple choice tests.** • **Practical[10h]** **Practical is an assessment of your skills and competencies. This could include presentations, school experience, work experience or laboratory work. [10h]** • **Coursework [12h]** **Coursework typically includes essays, written assignments, dissertations, research projects or producing a portfolio of your work.[10h]** • **Final year research projects allow students to gain considerable research experience in one of the research laboratories. Working alongside world-leading researchers enriches the students experience and assists them in pursuing a career in biochemical research.[12h]**

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in discussion , for verities of information which could be applied to make real and ideal behaviour with forensic as science and as skills should be developed.while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem)	64	**Unstructured SWL (h/w)**	4.5

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Biochemistry
Week 2	Enzymes 1
Week 3	Enzymes 2
Week 4	Carbohydrates 1
Week 5	Carbohydrates 2
Week 6	Carbohydrates 3
Week 7	Carbohydrates Metabolism
Week 8	Exam
Week 9	Lipids
Week 10	Lipids Metabolism
Week 11	Cholesterol
Week 12	Amino Acids
Week 13	Proteins 1
Week 14	Proteins 2
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Chemistry Laboratory Safety Rules
Week 2	Lab 2: Spectrophotometry
Week 3	Lab 3: Determination of Ca Concentration in Serum
Week 4	Lab 4: Determination of P Concentration in Serum
Week 5	Lab 5: Determination of Total Iron Concentration in Serum
Week 6	Lab 6: Determination of Mg Concentration in Serum
Week 7	Lab 7: Exam
Week 8	Lab 8:Determination of Glucose Concentration in Serum
Week 9	Lab 9:Determination of Urea Concentration in Serum
Week 10	Lab 10:Determination of Creatinine Concentration in Serum
Week 11	Lab11:Determination of Uric Acid Concentration in Serum
Week 12	Lab 12:SGOT and SGPT
Week 13	Lab 13:Glucose Tolerance Test
Week 14	Exam
Week 15	Review All Previous Experiences

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	R. H. Garrett, C. M. Grisham, Biochemistry, Brooks / Cole Cengage Leatning, 2011	Yes
Recommended Texts	R. Brückner, Reaktionsmechanismen, Spektrum Verlag, 3rd Edition, 2004	No
Websites	https://biosciences.exeter.ac.uk/staff/module/?mod_code=BIO2068	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

8- التحقيق والبحث الجنائي

Module Information Course Material Information			
Module Title	Investigation and criminal investigation	**Module Delivery**	
Module Type	**Core**	**Theory**	
Module Code	**FOR24023**	**Lecture**	
ECTS Credits	**4**	**Lab**	
SWL (hr/sem)	**100**	**Tutorial** **Practical** **Seminar**	

Module Level	2	**Semester of Delivery**	4
Administering Department	FORN	**College**	SC
Module Leader		**e-mail**	E-mail
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules Relation with other study materials			
Prerequisite module	none	**Semester**	2/1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims, Learning Outcomes and Indicative Contents

Module Aims Module Aims	If the ultimate goal of criminal investigation is to search for and ,uncover the truth, then the investigator alone cannot accomplish this especially if the crime committed is surrounded by ambiguity and a lack of understanding of all its aspects, particularly if the investigation pertains to facts that have a scientific or technical nature that are difficult for the investigator to comprehend and analyze. This is not due to a lack of intelligence, experience, or perception, but rather because the investigator's training and legal experience do not allow them to grasp matters that require the expertise of technicians and .specialists Therefore, we will address the definition of expertise in this section .and highlight its importance in criminal evidence
Module Learning Outcomes Learning Outcomes for the Course	The task of the expert is characterized by several features: it is a technical, specific task with a judicial nature and is an optional procedure for the court. Based on this, the expert must possess the :following skills Technical skill -1 The most important characteristic of expertise is that it has a technical nature, and the judge or investigator resorts to the assistance of the expert because the issue presented in the criminal case .has a technical nature that neither can assess based on their qualifications and experiences Therefore, the expert's task assumes that the expert relies on their technical knowledge, and accordingly, a person is not considered an expert if the judge assigns them to conduct an examination based solely on their senses. Rather, an expert is someone whom the court has tasked with conducting an examination and providing results from this observation if it requires the .application of scientific or technical methods The skill of determining the extent of behavior -2 When appointing an expert, the judge specifies the task to be performed and the issues that the expert is obliged to answer, reveal, or analyze in accordance with their technical or professional expertise. The judge clearly and specifically defines the subject of the expert's task, and in some cases, poses specific questions that the expert must answer. The expert's task should not be general, encompassing an opinion on the case, as this would constitute a relinquishment of the .judge's role Judicial Skill -3 This means that the matter of resorting to expertise is determined solely by the court, either based on ,a request from the parties in the criminal case or by a decision made by the court on its own accord .depending on its assessment of the matter presented before it and its need for a technical opinion .The selection of the expert is the court's responsibility, which considers their technical knowledge The court may consult the parties in this regard but is not obliged to follow their requests. The expert can only perform their task through judicial appointment and carries out their duties under the supervision of the judge. The expert's findings, as included in their report, are ultimately subject to the .judge's discretion Optional Skill -4 The principle of expertise is that it is an optional procedure for the court, meaning that the court is not obliged to respond to the parties' requests for appointing an expert in the case as long as it believes that the evidence presented before it is sufficient to resolve the case without the need for an expert .opinion In this regard, the Egyptian Court of Cassation ruled that "there is no violation of the right to defense if the court does not respond to the request for appointing an expert to examine the contract for forgery, as long as what it stated in its ruling regarding the forgery and its confirmation against the accused indicates that the court was convinced by what it observed and understood from the facts of the case and the testimonies of witnesses regarding the occurrence of forgery and that it did not need to seek a technical opinion in this matter." The Iraqi Court of Cassation ruled that "the court is

	not obliged to summon another expert if the matter under investigation is sufficiently clear, and in this ".case, the court must justify its refusal
Indicative Contents Guidance Contents	If the investigator must dedicate themselves to research and investigation activities such as interrogation, discussing witnesses, revealing, searching, and gathering other information, then the care of evidence and its examination should be left to a specialized expert in this type of work. Thus, the expert is someone who has gained practical and technical experience as a result of scientific studies, such as a forensic doctor or a chemical analyst, or due to practicing a specific profession for a period, like craftsmen and industrial workers such as carpenters and .blacksmiths The expert may express their opinion verbally before the investigator, who should record it in the investigation report and both should sign it. Therefore, the work of the forensic doctor or forensic laboratory expert with the investigator is essential to uncover the mysteries and circumstances surrounding the crime. The more this cooperation between the two increases, the easier it becomes to discover the crime and identify the perpetrator. It is important to note that the investigator or judge is not obliged to accept the expert's opinion according to the principle of the judge's personal conviction and their formation of an opinion and belief regarding guilt or innocence in criminal matters, as they are the experts of experts and have the final word in .criminal matters Granting the judge the authority to allow the expert to provide advice regarding the incident or the responsibility of the accused is a form of delegation. This opinion has faced numerous criticisms, including that the expert's opinion is not binding on anyone, and the expert is not held responsible for minor errors, unlike the relationship between the agent and the principal, where the former represents the latter in a way that binds them to others and is obligated according to the agency contract. The purpose of the agency is to perform legal actions on behalf of the principal. Additionally, the agent should not have more authority than the principal, while expertise is entirely different in this regard; it does not obligate the judge to accept it, nor can the .judge perform the expert's work, nor should the expert have the powers of the judge

Learning and Teaching Strategies

Learning and Teaching Strategies

Strategies	,The expertise represents technical information obtained by the investigator from experts in arts crafts, and knowledge. This information assists them in resolving issues that cannot be solved with their own knowledge and reaching decisive conclusions regarding matters that may hinder the acquisition of evidence, which serves as proof of the crime and its attribution to the perpetrator. For example, a forensic researcher or judge cannot determine the efficacy of the toxic substance used by the perpetrator to cause death unless they consult a specialist chemist to ascertain that. There are many cases where expertise plays a crucial and active role in resolving the subject and uncovering the circumstances of the crime. Sometimes, expertise is the only evidence through which the desired proof can be established. Thus, expertise is a method of investigation. Ironically, expertise may contradict numerous pieces of evidence, yet researchers rely on it because it is based on certainty from specialists, and it is rare for doubt and possibility .to seep into it The expert gains their expertise through practicing a specific profession, work, or scientific specialization. However, we cannot say that anyone assigned a special task by an investigator or judge is considered an expert unless they possess the qualities of perception and deduction, in .addition to integrity and dedication

Student Workload (SWL)

Student Workload

Structured SWL (h/sem)	72	**Structured SWL (h/w)**	5.1

Regular Student Workload during the semester		Regular Student Workload weekly	
Unstructured SWL (h/sem) The irregular study load of the student during the semester	28	**Unstructured SWL (h/w)** Irregular weekly study load of the student	2
Total SWL (h/sem) Total study load of the student during the semester	100		

Module Evaluation

Course evaluation

		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	2 hr	5 0% (5 0)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Concept of the forensic expert-1
Week 2	Relationship between the forensic expert and the civil expert-2
Week 3	Legal organization of the forensic expert-3
Week 4	The Legal Responsibility of the Forensic Expert -4
Week 5	The Working Mechanisms of the Forensic Expert -5
Week 6	The Legal Protection of the Forensic Expert -6
Week 7	The Relationship Between the Investigator and the Expert -7
Week 8	Characteristics of the Forensic Expert -8

Week 9	Examination -9
Week 10	The Civil Responsibility of the Expert -10
Week 11	The Criminal Responsibility of the Expert -11
Week 12	Procedures for Appointing the Forensic Expert -12
Week 13	Fees for Forensic Expertise -13
Week 14	The legal value of criminal experience
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly tot. Syllabus)

Weekly Lab Curriculum

	Material Covered
Week 1	Relationship between the forensic expert and the civil expert-2
Week 2	The Legal Responsibility of the Forensic Expert -4
Week 3	The Working Mechanisms of the Forensic Expert -5
Week 4	The Relationship Between the Investigator and the Expert -7
Week 5	The Criminal Responsibility of the Expert -11
Week 6	The legal value of criminal experience
Week 7	The legal value of criminal experience

Learning and Teaching Resources

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts		Yes
Recommended Texts		No
Websites		

Grading Scheme

Grading Scheme

Group	**Grade**	Grade	**Marks (%)**	**Definition**

Success Group (50 - 100)	A - Excellent	Excellence	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Average	60 - 69	Fair but with major shortcomings
	E - Sufficient	Accepted	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX – Fail**	Failing (Under (Review	(45-49)	More work required but credit awarded
	F – Fail	Fail	(0-44)	Considerable amount of work required

Note: Marks 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.

9- علم الإحصاء والتطبيقات والجنائية

Module Information معلومات المادة الدراسية			
Module Title	**Statistics and forensic applications**	**Module Delivery**	
Module Type	**Base**	**Theory**	
Module Code	FOR23017	**Lecture**	
ECTS Credits	**2**	**Lab**	
SWL (hr/sem)	50	**Tutorial**	
		Practical	
		Seminar	
Module Level	2	**Semester of Delivery**	3

Administering Department	FORN	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	**None**	**Semester**	2/1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	On completion of this module the learner will/should be able to; 1.Describe basic statistical terms which are of relevance to the area of forensic science. 2.Graphically display and numerically summarise data using appropriate tables, graphs and measures of centre, spread and position. 3.Explain and apply concepts of basic probability including, conditional probability, Bayes' theorem, independent events and counting formulae; 4.Make interferences about population parameters using sample statistics using confidence interval estimates and tests of statistical hypotheses 5.Describe the application of statistics to sampling, quality control, analytical method validation and experimental design. 6.Use an appropriate method for analysing relationships between variables in a dataset
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students who successfully complete this unit will be able to: 1. Explain basic concepts in probability as they apply to random events and uncertain evidence, and update probabilities when additional information is obtained

	2. Apply probability theory to games of chance, forensic science, and DNA profiling 3. Identify appropriate applications of binary and multinomial regression and apply these models to forensic problems 4. Compare different models for a survival analysis and apply these to forensic science problems 5. Conduct cluster analyses, particularly in typical forensic science settings, and explain the differences between various clustering methods 6. Compare different classification techniques, and apply these to problems in forensic science settings
Indicative Contents المحتويات الإرشادية	1. Describe basic statistical terms which are of relevance to the area of analytical science Introduction to Statistical Terms Populations and Samples Data Types Introduction to Sampling Methods [12h] 2. Graphically display and numerically summaries data using appropriate tables, graphs and measures of center, spread and position. Graphical Representation of data including frequency tables and charts Measures of Central Tendency, Position and Dispersion. [12h] 3. Explain and apply concepts of basic probability including, conditional probability, Bayes' theorem, independent events and counting formulae; Probability Experiments Probability Trees Classical Probability Experimental Probability Addition and Multiplication Rules of Probability Counting Rules Bayes Theorem Discrete Probability Distributions Binomial Distribution Poisson Distribution The Normal Distribution Applications of the standard Normal Distribution Assessing Normality The Central Limit Theorem [10h] 4. Make interferences about population parameters using sample statistics using confidence interval estimates and tests of statistical hypotheses Introduction to Hypothesis Testing Writing hypotheses for statistical tests One Sample, Independent Samples and Paired Samples t-tests One-Way ANOVA and related Post Hoc Tests Repeated Measures ANOVA and related Post Hoc Tests z-tests for proportion size 5. Describe the application of statistics to sampling, quality control, analytical method validation and experimental design Sample Size Calculations Quality of Analytical Measurements Uncertainty Method Validation. Calibration Methods Experimental Design and Optimisation [12h] 6. Use an appropriate method for analysing relationships between variables in a dataset Relationship Modelling Pearson's Correlation Co-efficient Significance of the correlation co-efficient Simple Linear Regression Chi Square test for association

	Chi Square test of goodness of fit During the Practical element of the course, students will use the Data Analysis ToolPak in Microsoft Excel to carry out the various types of analysis listed in the syllabus above. [12h]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The teaching methods used will be a combination of lectures, self-study, labs, tutorials, and any combination of discussion, case study, problem-solving exercises and computer-based learning. The practical element of the course will be delivered separately to students in their various class groups Forensic Science so that the examples used in the practical application of statistics can be tailored to their field of study.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	58	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered

Week 1	Introduction to the concept of statistics
Week 2	The importance of statistics and its relationship to other sciences and its fields of application
Week 3-4	The main stages of the statistical process: the interpretation of the number of words, all the data and information, and the link between the data And tabulating it, displaying the data, calculating indicators or parameters for the data, interpretation and prediction
Week 5	The meaning of statistics and criminal statistics 1
Week 6	The meaning of statistics and criminal statistics 2
Week 7	Exam
Week 8	The importance of criminal statistics in the security operation
Week 9	Sources of criminal statistics: prison statistics, judicial statistics, police statistics
Week 10	The importance of forensic statistics and its benefits
Week 11	Obstacles to criminal statistics
Week 12	Fundamentals of developing criminal statistics
Week 13	Methods for predicting crime rates
Week 13-14	A brief overview of the use of the SPSS system in forensic statistical analysis
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly tut. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	The importance of statistics and its relationship to other sciences and its fields of application
Week 2-3	The main stages of the statistical process: the interpretation of the number of words, all the data and information, and the link between the data And tabulating it, displaying the data, calculating indicators or parameters for the data, interpretation and prediction
Week 4	Sources of criminal statistics: prison statistics, judicial statistics, police statistics
Week 5	Obstacles to criminal statistics
Week 6	Methods for predicting crime rates
Week 7-8	A brief overview of the use of the SPSS system in forensic statistical analysis

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Lovrich, N.P., Pratt, T.C., Gaffney, M.J., Johnson, C.L., Asplen, C.H., Hurst, L.H., and Schellberg, T.M. (2004). National Forensic	Yes

	DNA Study Report, Final Report. Pullman: Washington State University.	
Recommended Texts	National Academies of Sciences, Engineering, and Medicine. 2015. Support for Forensic Science Research: Improving the Scientific Role of the National Institute of Justice. Washington, DC: The National Academies Press. https://doi.org/10.17226/21772.	No
Websites	https://www.sussex.ac.uk/webteam/gateway/file.php?name=sewp161.pdf&site=25	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

10- مسرح الجريمة

Module Information معلومات المادة الدراسية			
Module Title	**crime scene**	**Module Delivery**	
Module Type	**Core**	**Theory**	
Module Code	**FOR23008**	**Lecture**	
ECTS Credits	**2**	**Lab**	
SWL (hr/sem)	**50**	**Tutorial**	
		Practical	
		Seminar	
Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SCI

Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	none	**Semester**	2/1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Upon completion of this module, the student can: 1-explain the key theories and approaches of Crime Science. differentiate the (classical) sociological-criminological approach from modern Crime Science. 2-apply the Crime Science mind-set to real-life crime and security problems. 3-critically reflect upon crime prevention and security policymaking. 4-Formulate a response strategy to security and crime problems. 5-analyse long-standing as well as pressing future issues in crime prevention and detection. 6-Upon completion of this module, the student can: 7-explain the key theories and approaches of Crime Science. 8-differentiate the (classical) sociological-criminological approach from modern Crime Science. 9-apply the Crime Science mind-set to real-life crime and security problems. 10-critically reflect upon crime prevention and security policymaking. 11-formulate a response strategy to security and crime problems.

	12-analyse long-standing as well as pressing future issues in crime prevention and detection.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successfully completing the module you will be able to... 1. Describe in some detail and discuss the cellular and molecular basis of inheritance 2. Explain the differences between acquired, monogenic, polygenic and epigenetic disease 3. Explain the different mechanisms by which genes are regulated in humans 4. Discuss the contribution of genetics and environment to disease processes in humans 5. Show awareness of, and discuss the ethical issues in modern genetics 6. Discuss with examples the importance of interaction between patients, scientists and clinician
Indicative Contents المحتويات الإرشادية	Lectures: [6 h] Introduction to Forensic Science, Crime Scene to Court Process. Scenes of Crime: The role of crime scene investigators in the preservation, recovery and recording of evidence at the scene of crime and evaluation of crime scene evidence. Overview of Forensic Science in the UK: Police Forces Scientific Support in relation to other Forensic Agencies. Overview of physical evidence including DNA, Toxicology, footwear and tool marks, finger-marks. Introduction to forensic evidence associated with arson, explosions and firearms. Courts and their structure. Giving expert testimony; evidence-in-chief and cross-examination. Admissibility of forensic evidence in Court: differences between UK and USA. Writing of laboratory reports and expert witness statements. Health and safety issues at scenes and in forensic examination. Thus: the main inductive contents include: [4h for each part] 1-The importance of a crime scene and of material evidence in criminal proceedings 2-The role of the court-appointed expert in criminal proceedings 3- Forms of evidence, kinds of traces and methods of analysis 4-Searching for and securing evidence and Case study 5-Searching for and recovering evidence that is accepted in court 6- Independent analysis and documentation of this evidence 7- Defence and discussion of the results. 8-Computer systems and IT/computing science Internet, WWW, HTML Calculations based on spreadsheet programs Basics of programming . 9-The students provide evidence of active participation in the tutorial relating to the lecture by solving exercises in class and/or by taking a written test at the end of the semester.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	Students will attend formal timetabled lectures throughout the module. There will be class discussions and the opportunity to share information, and develop good communication skills. Students will visit a series of simulated crime scenes, where they will gain practical experience of crime scene examination. This will include the search, identification and recording of evidence located at these scenes. Students will complete reports on crime scene examination including, risk assessment, results and evaluation.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	42	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	33	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - crime science

Week 2	collect and package evidence, prepare laboratory submission forms and identify errors in them,
Week 3	recover contact trace material in practical forensic examination, and write a simple expert report
Week 4-5	The role of crime scene investigators in the preservation, recovery and recording of evidence at the scene of crime and evaluation of crime scene evidence.
Week 6	the scope, methods and limitations of crime scene examination and forensic enquiry in the crime to court process.
Week 7	main evidence types in volume, major and serious crimes
Week 8	Evidence found at crime scenes.
Week 9	□ Investigation of crime scenes. □□ □
Week 10	Search techniques.
Week 11	Recovering evidence and other information. □
Week 12	Team working at crime scenes.
Week 12-13	Reporting crime
Week 14	scene investigations.
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Cook, T. Hill, M. and Hibbitt, S. (2016) Blackstone's Crime Investigator's Handbook. Oxford: Oxford University Press.	Yes
Recommended Texts	Beaufort- Moore, D. (2015) Crime Scene Management and Evidence Recovery, 2nd Edition. Oxford: Oxford University Press	No
Websites	Self html (the English version is still (early 2005) in its infancy at: http://www.selfhtml.org/	

Grading Scheme
مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

11- جرائم حزب البعث

Module Information معلومات المادة الدراسية					
Module Title	**Baath Party Crimes in Iraq**			**Module Delivery**	
Module Type	**Support**			**Theory**	
Module Code	KUS23016			**Lecture**	
ECTS Credits	**2**			**Lab**	
SWL (hr/sem)	**50**			**Tutorial**	
				Practical	
				Seminar	
Module Level	UGx11 2		**Semester of Delivery**	1	
Administering Department	FORN		**College**	SCI	
Module Leader			**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor	Name (if available)		**e-mail**		
Peer Reviewer Name	none		**e-mail**		
Scientific Committee Approval Date	11/06/2023		**Version Number**	1.0	

Relation with other Modules 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	During its rule in Iraq, the Baath regime committed a large number of different crimes, and their differences necessitate explaining concepts and

أهداف المادة الدراسية	definitions to the student so that he is aware of what he is going through that relates to the curriculum material, such as the concept of crime and its divisions, and the international crimes for which the leaders and henchmen of the Baath regime were convicted according to the law of the Iraqi High Criminal Court. This chapter will be divided into two sections: the first section will explain the concept of crimes and their divisions, and the second section will explain the crimes of the Baath regime according to the law of the Iraqi High Criminal Court of 2005.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	-1Highlighting the crimes committed by oppressive regimes throughout history, such as those perpetrated by the Ba'ath regime, particularly in Iraq, the wider region, and indeed the entire world. -2The defunct Ba'ath regime oppressed Iraq and its people for nearly four decades, drawing its tyrannical policies from the legacy of notorious tyrants throughout history, such as Cain, Nimrod, Pharaoh, Abu Lahab, Al-Hajjaj, Yazid, Hulagu, Mussolini, and Hitler, in a manner befitting the tyrannical nature of its leader, the buried enemy of humanity, Saddam Hussein. Everyone who followed the path of truth and love of country tasted the bitter fruits of this regime's oppression; they rejected the rotten Ba'athist ideology and suffered its various forms of tragedy and hardship. -3This educational duty (both religious and official) resulted in the formation of a specialized ministerial committee tasked with developing a curriculum that documents some of the crimes of the Ba'athist regime. To be an insight into the truth that the current university youth will be honored by over the past decades of Iraq's rule at the hands of a tyrant, a demon in the guise of a human, and they will recall from their knowledge of its chapters and contents what It keeps them on the right path to ward off every media cover-up that attempts to mislead them. They will prevent all blindness through it.
Indicative Contents المحتويات الإرشادية	The committee—whose chairman and members lived through the entire period of the Ba'athist regime's criminal rule and experienced its horrors firsthand—decided, after a documentary journey, to establish this curriculum for the university's academic system, both in person and electronically. This curriculum begins with an introduction, which the university student and reader will use to understand the entire content, including the reasons for its composition, the justifications for its approval, and the motivations for teaching it. It then comprises four chapters, the first of which is dedicated to documenting the crimes of the Ba'athist regime according to the law of The Iraqi High Criminal Court in 2005 AD), and the second was made to reveal (psychological and social crimes, their effects, and the most prominent violations of the Baathist regime in Iraq), and the third was dedicated to explaining (the environmental crimes of the Baathist regime in Iraq), while the fourth and final chapter was dedicated to (the crimes of mass graves), and then the curriculum was concluded with a comprehensive and sufficient summary that puts the facts in their places

	from what was presented and the evidence for it. This curriculum included what came as knowledge keys in the hands of the university student, enabling him to overcome every fabrication whose false narrative was concocted by the hands of the Baath and its false media, and whose conscience was sold by souls who see that they should remain until now humiliated, captive, and subservient.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	This educational - educational (legal - official) duty is to assign a specialized ministerial committee concerned with developing a curriculum that documents some of the (crimes of the Baathist regime); To be an insight into the truth that the current university youth can honor over the past decades of Iraq's rule at the hands of a demon tyrant in the guise of a human being. They bring from their knowledge of its chapters and contents what will lead them to guidance by which they can ward off every media cover-up that attempts to mislead them. They will prevent all blindness through it

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	1.5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	0.7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

As		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 / tutorial.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
	Midterm Exam	1 hr	10% (10)	7	LO # 1-7

Summative assessment	**Final Exam**	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction / Crimes of the Ba'ath regime according to the Iraqi High Criminal Court Law of 2005
Week 2	Chapter One: .1.1The Concept of Crimes and Their Categories .1.1.1Definition of Crime Linguistically and Technically
Week 3	.1.2Crimes of the Ba'athist Regime as Documented by the Iraqi High Criminal Court Law of 2005 .1.2.1Types of International Crimes
Week 4	Decisions issued by the Supreme Criminal Court
Week 5	Chapter Two: Psychological and Social Crimes and Their Effects, and the Most Prominent Violations of the Ba'athist Regime in Iraq
Week 6	Psychological Crimes 2.1.1Mechanisms of Psychological Crimes 2.1.2Effects of Psychological Crimes 2.2Social Crimes 2.2.1
Week 7	The Ba'athist regime's stance on religion and violations of Iraqi laws .2.3.1Images of human rights violations and crimes committed by the authorities
Week 8	Some decisions regarding political and military violations by the Ba'ath regime .2.3.3Places of prisons and detention centers of the Ba'ath regime
Week 9	Chapter Three Environmental Crimes of the Ba'ath Regime in Iraq
Week 10	.3.1**War and radioactive pollution and landmine explosions**
Week 11	.2Destruction of cities and villages (scorched earth policy)
Week 12	Destruction of palm groves, trees, and crops3.4. .3.4 Drainage of marshes

Week 13	Mass grave crimes
Week 14	Mass grave crimes Genocide in mass graves committed by the Ba'athist regime in Iraq
Week 15	**EXAM**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Ba'ath Party Crimes in Iraq** **Version 1 – First Edition 2023**	yes
Recommended Texts	**Archives of the Political Prisoners Foundation**. **Archives of the Martyrs Foundation**. **Archives of the Iraqi Center for Documenting Crimes of Extremism at the Holy Abbasid Shrine**. **The official website of the United Nations**. **Ayman Abdel Aziz Salama, International Responsibility for the Crime of Genocide, 1st ed., Dar Al-Ulum for Publishing and Distribution, Cairo, 2006**. **Jundi Abdel Malik, The Criminal Encyclopedia, Part Three, Dar Ihya Al-Turath Al-Arabi, Beirut, 1990**.	No
Websites	https://iraqicenter-fdec.org/archives/4224	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

وصف النموذج الدراسي للمرحلة الثالثة (الكورس الأول)

1- التطبيقات الجزيئية

Module Information معلومات المادة الدراسية		
Module Title	**Molecular application**	**Module Delivery**
Module Type	**Base**	**Theory**
Module Code	**FOR35125**	

ECTS Credits	**7**		**Lecture** **Lab** **Tutorial** **Practical** **Seminar**
SWL (hr/sem)	**175**		

Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	This module involves the review of various techniques and research used in a forensic DNA laboratory from sample receipt, extraction and replication to analysis and interpretation. 1-The students will work their way through a DNA practical, making use of the learned techniques. 2-New research and techniques will also be looked at within forensic DNA analysis.

	3-This module involves the review of various techniques and research used in a forensic DNA laboratory from sample receipt, extraction and replication to analysis and interpretation. 4-The students will work their way through a DNA practical, making use of the learned techniques. 5- New research and techniques will also be looked at within forensic DNA analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module the student should be able to: 1. Compare and contrast past, present and future techniques used in DNA profiling. 2. Have a critical understanding of STR and sexing PCR systems, which are used by many countries including the UK to generate sizeable DNA profiles using coloured dye and laser technology. 3. Assess the benefits and pitfalls of using DNA profiling data relating to crime scenes, criminal investigations and identification of human remains. 4. Distinguish between the specialist techniques such as mitochondrial DNA sequence analysis, Y-STR analysis and the scientific basis of familial database searching. 5. Appraise new developments & ongoing research areas e.g. linking physical characteristics to DNA, detection of forensically important SNPs or identify body fluids using nucleic acid analysis.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1- DNA structure, genetics, molecular biology Occurrence and distribution of unique, middle and highly repetitive DNA fractions. Hypervariable fraction and its exploitation in forensic science 2 -Background to DNA profiling Alec Jeffreys - minisatellite DNA - first use of DNA profiling - progress through the 1980's, 90s, 00s - Multilocus DNA profiling (MLP) - Single

	locus probes (SLP), PCR based techniques such as HLADQa, Quad, SGM SGMplus, DNA-17, New multiplexes 3- Generation of STR DNA profiles Introduction to how reproducible and sizeable DNA profiles using multiplexed short tandem repeat (STR) are generated. 4 -Crime Scene profiling Sources of DNA encountered in forensic casework and anti-contamination procedures. 5- Statistical evaluation of DNA matches and court presentation Match probability calculations, population genetics and Bayesian approach to evidence interpretation. Presentation of DNA evidence in court; challenges and appeals 6- Population Genetics Principles of inheritance - Mendel's laws, population genetics 7 -Identification of human remains Human remains identification, including mass disaster- victim ID by the use of surrogate reference samples and relatives' samples. 8- Intelligence-led screens Role of such initiatives with casework examples 9- Specialist techniques New developments/ Ongoing research areas

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	**The aim of this Module is to provide students with the ability to critically evaluate current thinking and research in forensic DNA analysis and extraction from different samples as well as to fully understand the procedures and analysis performed within a modern forensic DNA laboratory.**

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction

Week 2	Basic tools and techniques of DNA analysis.
Week 3	DNA extraction techniques.
Week 4	DNA extraction techniques (continued).
Week 5	Quantification of nucleic acids
Week 6	Polymerase chain reaction (PCR)
Week 7	Forensic DNA phenotype
Week 8	Y- CHROMOSOMAL analysis
Week 9	Mitochondrial DNA analysis
Week 10	In-situ hybridization
Week 11	Single cell fingerprinting
Week 12	Low copy number (LCN) DNA typing
Week 13	Nucleic acid electrophoresis
Week 14	DNA sequencing types
Week 15	DNA evidence in criminal trials

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: buffers preparation
Week 2	Lab 2: collecting DNA from different biological samples.
Week 3	Lab 3: collecting DNA from different biological samples (continued)
Week 4	Lab 4: phenol-chloroform extraction method
Week 5	Lab 5: mitochondrial DNA extraction method
Week 6	Lab 6: Quantification of DNA concentration
Week 7	Lab 7: conventional polymerase chain reaction
	Lab 8: reverse transcription PCR
	Lab9: quantitative real time PCR
	Lab 10 nested PCR
	Lab 11 COLD PCR
	Lab 12 ligation mediated PCR
	Lab 13: digital PCR
	Lab 14: DNA electrophoresis
	Lab 15: guide to NCBI databases

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**

Required Texts	GLICK, B.R., PASTERNAK, J.J. and PATTEN, C.L. Molecular Biotechnology. Current Edition. American Society for Microbiology.	Yes
Recommended Texts	DALE, J.W. adn VON SCHANTZ, M. From Genes to Genomes. Concepts and applications of DNA Technology. Current Edition. Wiley-Blackwell.s	No
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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2- التحليل الالي

Module Information		
Module Title	**Instrumental Analysis**	**Module Delivery**

Module Type	**Base**		**Theory**
Module Code	FOR35126		**Lecture**
ECTS Credits	**7**		**Lab**
SWL (hr/sem)	**175**		**Tutorial**
			Practical
			Seminar

Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title	Prof.	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	The overall goal of this course is to provide students with a sufficient understanding of the principles, laws, and theories of analytical chemistry to enable them to successfully analyze samples provided using selected instrumental methods. The student should gain the competence to follow a standard procedure, operate the-instrument in a safe manner, collect suitable

	data, evaluate the reliability of the data collected, and report the results in an appropriate form as would be required of any competent laboratory technician.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	at the successful completion of this course participants: 1. should be able to successfully solve a variety of multi-step problems using mathematical and descriptive algorithms and, specifically in the laboratory portion of the course. 2. participants will be able to utilize analytical chemical instrumentation properly including. 3. preparation of high accuracy standards. 4. set the operating parameters of different instruments. 5. perform calibration and analysis. 6. recognize and appreciate the value of analytical instruments used, as well as their limitations, in the solution of selected problems faced by the technician. realize the existence of a variety of instrumental methods, each with its own particular use based on its capabilities and limitations. 7. understand that the selection of one instrumental method, as being superior to another in the solution of a particular analytical problem, is based on such factors as sensitivity, time required, selectivity, purchase cost of instruments involved, etc. 8. understand that the success of any of the instrumental methods used depends upon a working knowledge and control of the operating parameters associated with each instrument studied. 9. have a basic operational knowledge of the internal design of the instruments studied.
Indicative Contents المحتويات الإرشادية	The theoretical background of each instrument will be given in lecture. Emphasis on the operating parameters associated with each of the instruments studied will be provided in the laboratory. Operational details are covered sufficiently to provide an adequate understanding of the techniques used without being overwhelmed by details. Upon successful completion of this course every course participant should be able to: 1-understand the principles underlying the operation of each of the studied instruments and extrapolate that knowledge to other instrumental methods.[10h] 2-describe the operational parameters for each of the analytical instruments studied. [10h] 3- carry out calibration of instruments, preparation of a sample for analysis, safe handling of the sample during the analysis, and proper disposal of the sample after completion of the analysis. [10h] 4- use techniques for recording and evaluating analytical data derived from instruments. [10h] 5- solve a variety of numerical problems dealing with the analysis of samples using the various instrumental methods studied. [10h] 6- write in scientific format reports of the theory, experimental method, and results of an analysis. [10h] This course is designed to provide the framework on which hangs a significant portion of the body of basic chemistry knowledge, allowing the perceptive participant to glance into the richness of the microscopic world from a macroscopic point of view, and to provide the foundation for further

	studies in the sciences. Over the course of the semester, the successful participant will develop new and expand upon existing skills in critical thinking, mathematics, chemical analysis, and the scientific method. Since chemistry is by its very nature an experimental science, honesty and integrity in the acquisition and analysis of data is at the very core of the scientific process. It is part of our role as practicing scientists to defend the nature of scientific discourse and to expose pseudoscience and scientific dishonesty. [15h]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The module will consist of lectures with theoretical analysis and real-world examples and applications to improve students' learning and analytical skills. In-class group discussions of research papers will facilitate deeper understanding and encourage critical thinking. The assessment includes two summative elements that are a group recorded quiz and an individual written essay. The pass mark for the written assignment and module is 50%. A qualifying mark of 40% on each assessed component of the module must be achieved to pass the module. Each of the component marks is then combined, using the appropriate weighting, to give an overall mark for the module. If the overall mark is less than 50% when the weighting has been applied to the components, this constitutes a failure of the module.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	100	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	75	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.2
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
	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11

Formative assessment	**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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Introduction** Classification of analytical methods Instrumental methods
Week 2	Basics of selecting a method
Week 3	The “schematic instrument”
Week 4	Introduction to Spectroscopy Electromagnetic radiation Quantum mechanical considerations
Week 5	Absorption and emission Diffraction, dispersion, refraction, reflection
Week 6	Instrumentation for Spectroscopy Sources Monochromators
Week 7	Sampling Detectors Signal processing
Week 8	UV-Visible Molecular (Electronic) Spectroscopy Terms Theory
Week 9	Quantitative and qualitative aspects Applications
Week 10	Atomic Spectroscopy Terms Theory Instrumentation
Week 11	Sampling Atomic absorption/emission spectroscopy Inductively coupled plasma spectroscopy
Week 12	Infrared Spectroscopy Theory Instrumentation (FT vs. scanning) Sampling Spectral interpretation
Week 13	Chromatographic Methods (Chem340 Redux) Classification Rate theory and solute migration Column efficiency
Week 14	van Deempter relationship

	Gas chromatography Instrumentation Applications HPLC
Week 15	Instrumentation Applications
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: safty and security in chemical lab
Week 2	Lab 2: Introduction to Emission and Absorption Spectroscopy: Line spectra, continuous spectra, spectroscopes, spectrophotometers
Week 3	Lab 3: Determination of the Formula of a Complex by the Method of Continuous Variations
Week 4	Lab 4: Spectrophotometric Analysis of a Complex Mixture
Week 5	Lab 5: Spectrophotometric Analysis of a Commercial Aspirin Tablet
Week 6	Lab 6: Spectrophotometric Analysis of a Commercial Aspirin Tablet
Week 7	Lab 7: Spectrophotometric Determination of Iron in Vitamin Tablets
Week 8	Lab 8: Spectrophotometric Determination of Paracetamol in Pharmaceutical formulations
Week 9	Lab 9 : Potentiometric titration of Iron tablet
Week10	Lab10: Titration of Phosphoric Acid and Acetic Acid with NaOH
Week11	Lab11: Quantitative Analysis of Ascorbic Acid Using Voltammetry
Week12	Lab12:review before final exam
Week13	Lab13:Thermal gravimetric analysis Determination of Calcium in vitamin tablet
Week14	Lab14:chroatograph TLC\PLC
Week15	Lab15;exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Principles of Instrumental Analysis, Douglas A. Skoog, F. James Holler, Stanley R. Crouch, 2007	no
Recommended Texts	Principles and Applications of Thermal Analysis, Paul Gabbott John Wiley & Sons, 2008	yes

	Studyguide for Principles of Instrumental Analysis by Skoog, Holler and Nieman, 2012	
Websites	https://studylib.net/doc/8252056/course-syllabus-for-instrumental-analysis--chem-5640-	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

3- طرق الكشف الكيميائي والمجهري

Module Information		
Module Title	**Method of Chemical and Microscopic Detection**	**Module Delivery**
Module Type	**Base**	**Theory**

Module Code	**FOR35028**		**Lecture** **Lab** **Tutorial** **Practical** **Seminar**
ECTS Credits	**5**		
SWL (hr/sem)	**125**		

Module Level	1	**Semester of Delivery**	1
Administering Department	Forensic \FOR	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	The course builds on previous studies in spectroscopy. The aim is to enable students to : acquire specialised understanding of how light interacts with molecules and materials. Different methods of optical spectroscopy and their use to examine chemical and physical properties are addressed at an advanced level. the students shall be able to explain the electronic processes that can be excited by light describe how scattered and emitted light from a sample can be determined and measured. 5.explain the basic principles and properties of a laser and how it can be used in an optical experiment. 6. provide an advanced account of how experimental spectroscopic data are interpreted in terms of the properties of molecules and molecular systems. 7.describe the physical principles of an elementary photochemical reaction.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1-discuss different spectroscopic methods and compare their advantages and disadvantages 2-perform simple calculations based on spectroscopic data in order to obtain molecular properties 3- use optical spectroscopy to plan and perform experiments and calculations 4- propose appropriate spectroscopic methods to determine specific molecular properties 5- write laboratory reports in the field of optical spectroscopy

	assess the uncertainties and error limits of spectroscopic data and evaluate them 6- critically discuss and evaluate results from measurements performed with optical spectroscopy.
Indicative Contents المحتويات الإرشادية	1. Demonstrate knowledge and understanding of core and foundation scientific physical, chemical concepts, terminology, theory, units, conventions, and laboratory methods in relation to the chemical and forensic sciences. [10h] 2. Demonstrate knowledge and understanding of areas of chemistry including characterization chemistry, including as applied to forensic analysis.[8h] 3. Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to identification chemistry and to apply such knowledge and understanding to the solution of qualitative and quantitative problems.[10h] 4. Recognise and analyse problems involving analytical chemistry and plan strategies for their solution by the evaluation, interpretation and synthesis of scientific information and data by a variety of computational methods.[10h] 5. Collate, interpret and explain the significance and underlying theory of experimental data, including an assessment of limits of accuracy.[7h] 6. Interpret data derived from laboratory observations and measurements in terms of their underlying significance and the theory underpinning them. [8h]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Instructional strategies currently applied at all educational levels are still mass. Treatment and educational services provided to all students are the same, even though students differ in many respects, both auditory and kinesthetic learning styles, level of skill, intelligence, interests, talents, and creativity. The strategy of educational services like this is appropriate in terms of equal opportunity, but less support efforts to optimize the development potential of learners appropriately.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	basic principles of interaction between light and molecules, and the formation of excited states
Week 2	the time evolution of excited states in intra- and intermolecular energy and electron transitions and their role in photochemical reactions
Week 3	Energy of absorbance and spectrum ,maximum absorbance and the parameter which influence on it
Week 4	description of different sources of light (e.g. lasers) and light detectors of relevance to spectroscopy
Week 5	detailed descriptions of different optical methods such as absorption and fluorescence spectroscopy and time-resolved laser spectroscopy
Week 6-7	introduction to fluorescence microscopy and detection of individual molecules
Week 8-9	introduction to X-ray spectroscopy for measurement of molecular structure and chemical bonding
Week 10-11	Raman and IR SPECTOSCOPY
Week 12-15	Macro and micro with optic or electronic scoop analysis
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: safty and security
Week 2	Lab 2: preparing sample for analysis
Week 3	Lab 3: uv-spectrum for different materials

Week 4	Lab 4: determination of maximum wave length of absorbance
Week 5	Lab 5: application of uv-spectrum to determinate concentration
Week 6	Lab 6: Ir spectroscopy
Week 7	Lab 7: macroscopic images for different materials
Week 8	Lab 8: macroscopic images for different materials
Week 9	Lab 9 : macroscopic images for different materials

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Physical Chemistry, 11th Edition, by Atkins/dePaula/Keeler (Oxford University Press, 2018).	NO
Recommended Texts	Molecular Driving Forces, 2nd Edition, by Dill/Bromberg (Garland Science, 2010).	yes
Websites	https://pubs.acs.org/doi/10.1021/jacs.3c00221	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

4- الكيمياء الجنائية

Module Information

Module Title	Forensic chemistry	**Module Delivery**
Module Type	**Base**	**Theory**

Module Code	**FOR35027**	**Lecture** **Lab** **Tutorial** **Practical** **Seminar**
ECTS Credits	**5**	
SWL (hr/sem)	**125**	

Module Level	1	**Semester of Delivery**	1
Administering Department	Forensic \FOR	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title	Prof.	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	• To develop an appreciation of the analytical approach. • To introduce the student to forensic chemistry. • To provide the student with knowledge of the forensic chemistry practical & reporting techniques. • To provide the student with skills in researching the scientific literature and presenting a scientific topic.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Appreciate the correct analytical science approach to measurement and observation. • Understand the some everyday analytical instrumental techniques and their application. • Obtain an appreciation for forensic chemistry techniques and their application to cases. • Record and report observations in a correct scientific fashion. • Carry out appropriate scientific methods for scene analysis.

Indicative Contents المحتويات الإرشادية	***Indicative Syllabus*** Making & Recording Measurements]18h] Observations, diagrams & taking photographs SI Units Scientific method Collecting evidence Fundamental Laboratory Techniques **Analytical Techniques as applied to forensic science: [20h]** Sample Preparation Chromatography Gas & Liquid Chromatography Basic Spectroscopy Atomic Spectroscopy X-Ray Fluorescence- Infrared spectroscopy NMR Mass spectrometry **Which include: [15h]** Alcohol analysis Bulk drug analysis Analysis of glass Analysis of paint Analysis of fire and explosions Analysis of firearms Document analysis

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	All learning materials, including lecture notes, additional multimedia and electronic copies of subject manuals can be found in the relevant modules on Canvas. **Interactive online lectures:** The lectures arm students with the knowledge required to analyse and interpret chemical traces commonly recovered at crime scenes, including emerging technologies and methods that are at the forefront of the discipline. While the focus of the lectures is on trace evidence, the skills acquired in this subject build on the knowledge and professional skills developed in the pre-requisite subjects. The topics discussed in these sessions provide the foundation for the workshops and practicals, where students apply their new knowledge. The lectures are broken into structured blocks of information and application/activity - facilitated by interactive online tools - with opportunities for class discussion and participation. **Practicals:**The practical sessions for Chemical Criminalistics allow students to gain experience with the analysis of different types of chemical and microtraces in a collaborative, professional setting. Students are given four mock cases (based on realistic case scenarios) to investigate as a team

	during the semester. Prior to commencing each case, student teams will identify hypotheses (propositions of interest), the aims of their investigation, and design and implement an examination strategy to be used in the laboratory. The hands-on session time is dedicated to the analysis of evidence and formulating the initial interpretation of their findings in the context of the case. This initial interpretation is then refined by each student and used to synthesise and report their expert opinion in different styles of expert witness testimony. These classes are student-led with one-on-one and group support provided by teaching and professional staff. As cases are assigned on rotation, students familiarlise themselves with the techniques required for their case scenarios by designing an examination strategy as a pre-lab activity for each new case.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered

Week 1	**Introduction, Physical evidence**
Week 2	**Chemicals in the criminal.**
Week 3	**Blood drop studies**
Week 4	**DNA**
Week 5	**Toxicology**
Week 6	**Drugs**
Week 7	**Fingerprints**
Week 8	**Forensic medicine**
Week 9	**Hair and fibers**
Week 10	**Handwriting and ink analysis**
Week 11	**Polymer identification**
Week 12	**Instrument used in forensic chemistry.**
Week 13	**UV detection**
Week 14	**Criminal cases**
Week 15	**exam**
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: safety-and security
Week 2-4	Lab 2-4: sampling sciences
Week 5	Lab 5: Detection, collection, analysis and interpretation of forensic traces
Week 6	Lab 6: identification for different materials by chemical method
Week 7	Lab 7: Select appropriate techniques for evidence recording, packaging and labelling
Week 8	Lab 8: identification of blood
Week 9	Lab 9: identification of drags
Week 10	Lab 10: identification of poisons
Week 11	Lab 11 : identification of toxic material
Week12-14	Lab14: identification of unknown
Week12	Lab15:review before final exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**

Required Texts	Curran, J., Hicks, T., Buckleton, J., Forensic Interpretation of Glass Evidence, CRC Press LLC, 2000 (online & print)	no
Recommended Texts	Nanotoxicity: From In Vivo and In Vitro Models to Health Risks, Editor(s): Saura C. Sahu Daniel A. Casciano	yes
Websites	https://www.intechopen.com/chapters/66164	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

5- مقدمة في المواد المتفجرة والكمائن الخداعية

Module Information		
Module Title	Introduction to explosive materials and booby traps	**Module Delivery**
Module Type	**Core**	**Theory**
Module Code	**FOR35029**	**Lecture**
ECTS Credits	3	**Lab**
SWL (hr/sem)	75	**Tutorial** **Practical** **Seminar**

Module Level		**Semester of Delivery**	1
Administering Department	Forensic \FOR	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	People who work in areas that have experienced armed conflict may be confronted with the threat posed by landmines and explosive hazards, which include unexploded or abandoned ordnance, abandoned military vehicles and equipment, as well as IEDs. (Note that the term ERW includes unexploded ordnance (UXO) and abandoned ordnance but excludes landmines, see definition in the glossary, Annex 6). Any kind of explosive device may block access to project sites or pose a direct threat to safety, even years after a conflict has ended. When working in such areas, organizations and individuals must be aware of the physical threats posed by a huge variety of armaments left during and after armed conflict.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Our country, especially in the last thirty years, witnessed a lot of regional problems that led to our country entering many wars that lasted for long periods. Our land is very large, so the basic outputs of this course include the following: 1-Provide the student with information, even in general terms, about the various types of weapons and materials called explosives, as well as materials that can be used as a means of detonation and destruction. 2-The other can be harnessed in terms of terrorist acts or killings. 3-make the student able to deal correctly, positively, and safely when exposed to the various dangers that exist at the site of the event, such as weapons, mines, or chemicals that may be misused. 4- make the student able to distinguish between usable materials. Civil and dual-use materials . 5-Providing the student with the basic and necessary information and skills that make him able to pay quick and early attention in distinguishing any danger that may exist at the scene of the event or the site of the crime in a manner that preserves his safety and the safety of those present at the scene of the event

Indicative Contents المحتويات الإرشادية	An introduction course in explosives and booby-traps is one of the most important courses given in the Department of Forensic Science, which requires teaching the following aspects. Wars as a means to prepare explosives On the other hand, the emphasis and focus on the method used to place explosives and the method used to implement them, especially since Iraq witnessed during the last ten years many of these experiences, which can be benefited from to become the studied environment on the security side, or at least increase the percentage of safety at the site of the event before Or after its occurrence, the other side is to know the psychological side, albeit superficially, of the genitals, which can help predict the method of preparing the criminal approach.[16h] Therefore, teaching this subject requires the use of electronic means and films,Assigning students to prepare reports and studies on the scientific and skillful aspects by investigating many of the operations that took place in previous periods, with a focus on the need to prepare professional reports so that the student is able to highlight the scientific and skillful side.[15h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy of teaching this subject includes : 1-relying on books available on the international network. 2- Relying on the last ten years that our country has gone through, especially from terrorist threats and the experiences that resulted from it. 3-Benefiting from the wars that took place in Iraq to try to obtain experience in how to deal with various materials and components that threaten the public security of society, 4- use of an international information network and referring to those with expertise and specialists in this field, with an emphasis on the practical side that increases the skillful competence of students

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	44	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	31	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to explosive materials and booby traps
Week 2	Explosive materials
Week 3	Double ussage materials
Week 4	Landmines and anti-Landmines
Week 5	**Characterization Methods explosive materials**
Week 6	**Characterization Methods double ussage materials**
Week 7	**modification of explosive materials with double ussage materials**
Week 8	**Remoing explosive materials**
Week 9	Boopytraps classification
Week 10	Boopytraps equipment
Week 11	Boopytraps instlation
Week 12	Boopytraps identification
Week 13	Boopytraps modifing
Week 14	Boopytraps remoing
Week 15	exam
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	LANDMINES, EXPLOSIVE REMNANTS OF WAR AND IED SAFETY HANDBOOK chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.unmas.org/sites/default/files/handbook_english.pdf	no

Recommended Texts	Boopytraps chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.bits.de/NRANEU/others/amd-us-archive/FM5-31%2865%29.pdf	yes
Websites	http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/forensic_science/05._forensic_chemistry_and_explosives/31._explosives___introduction/et/4742_et_4742_et_31et.pdf	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

6- علم النفس الجنائي

Module Information

Course Material Information

Module Title	**Forensic Psychology**	**Module Delivery**	
Module Type	**Base**	**Theory**	
Module Code	**FOR35130**	**Lecture**	
ECTS Credits	**3**	**Lab**	
SWL (hr/sem)	**75**	**Tutorial**	
		Practical	
		Seminar	

Module Level	3	**Semester of Delivery**	1
Administering Department	FORN	**College**	SCI
Module Leader		**e-mail**	
Module Leader's Acad. Title	Asst.prof.	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

Relation with other study materials

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims, Learning Outcomes and Indicative Contents

Module Aims Module Aims	Forensic psychology is the science of studying the thoughts, intentions, reactions, and movements of criminals that play a role in committing crimes. The interest in the psychological aspects of the criminal led to the emergence of this science, as well as the failure of social institutions to find appropriate solutions to reduce criminal behavior and deter it, along with the complaints of communities about the proliferation and evolution of crime in both small and large societies. Additionally, the failure of educational institutions, both small and large, in some

	,countries to contain adolescents and modify their behavior and the view of some psychologists and educators to research and investigate such issues that have burdened the peoples and security in many countries around the .world The objectives of teaching the subject to students of forensic :science 1- To discover crime and identify the criminal based on scientific human principles, relying on evidence of the characteristics of suspects and linking them to the crime .scene 2- To study criminal behavior in terms of its causes and conscious and unconscious motivations, which helps in understanding the personality of the criminal and formulating hypotheses that confirm or eliminate doubt .regarding the accused based on personality traits 3- Study the conditions and objective factors that prepare for and facilitate crime. 4- ,Classify criminals according to their ages, crimes and psychological and mental states in order to determine the specific characteristics of each group .responsible for the crime 5- Integrating psychology into legal cases involves using psychological theories, principles, and research methodologies to better understand legal issues. This can range from the micro level, such as understanding the motives behind a specific crime, to the macro level, such as evaluating the effectiveness of rehabilitation programs .within the prison system
Module Learning Outcomes Learning Outcomes for the Course	:Outcomes of Teaching Criminal Psychology 1- Develop essential practical skills as a criminal investigator, such as: analysis and problem-solving: to analyze evidence and connect information. Attention to detail: to handle crime scenes and interpret evidence. Effective

	communication: to conduct interviews with witnesses and suspects. 2- Enable the practitioner in the field to be attentive to the individual characteristics of the persons present at the crime scene, whether they are witnesses or suspects, so that they can formulate preliminary hypotheses that align with what is available at the scene and what may be revealed during the investigation. 3- The criminal researcher should possess knowledge of general psychology in general and criminal psychology in particular at a high level, so that this information can be utilized during the investigation process at the crime scene. 4- Enable the practitioner in the field to exhibit intelligence, insight, and the ability to analyze and deduce. Patience and endurance, as well as the ability to work under pressure, along with good communication and interrogation skills.
Indicative Contents Guidance Contents	Forensic psychology, as a field, involves the application of various psychological disciplines, including clinical psychology, developmental psychology, cognitive psychology, and social psychology, to legal cases. This application can take multiple forms, such as assessing an individual's mental state during legal proceedings, providing advice on jury selection, and much more. Therefore, when teaching the subject, there should first be a space to provide a clear and comprehensive idea of psychology in general (5 hours) and then begin studying the details of this science from its specializations (2 hours), understanding the focus of each of these specializations and then concentrating on forensic psychology as a general title (4 hours), gradually delving into its detailed aspects to give full space to each part of this science in particular (20 hours). This requires exploring the general and specific details of these contents, along with drawing

	on real-life examples that would be more beneficial for the .student (10 hours) Through what has been mentioned above, many detailed ,aspects related to forensic psychology will be explored including psychological, social, and environmental dimensions, in addition to addressing health aspects that may be the cause of many, if not all, crimes occurring in .society (15 hours) All of this requires assigning students various scientific and skill-based activities in this area to achieve the teaching objectives, including enhancing the cognitive aspect of those working in the field and improving their observation .skills, insight, and quick thinking (5 hours)

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	:The learning and teaching strategy in teaching the subject includes the following aspects First: Continuously utilizing external scientific resources throughout the semester and .incorporating them into discussion seminars led by the course instructor Secondly: Providing expertise in the field of specialization throughout the semester by having at least two experts who present the experience of these forensic investigators to the students .through the presentation of various cases Thirdly: Assigning students in groups to write reports on cases agreed upon with the course .instructor, which will be discussed during the second half of the semester Fourthly: Conducting scientific visits to institutions related to criminal psychology to explore .the details of many cases, which in turn enhances the students' skills

Student Workload (SWL) Student Workload			
Structured SWL (h/sem) Regular Student Workload during the semester		**Structured SWL (h/w)** Regular Student Workload weekly	
Unstructured SWL (h/sem)		**Unstructured SWL (h/w)** Irregular weekly study load of the student	

The irregular study load of the student during the semester			
Total SWL (h/sem) Total study load of the student during the semester			

Module Evaluation

Course evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10 % (10)	5, 10	
	Assignments	2	10 % (10)	2, 12	
	Projects / Lab.				
	Report	1	10% (10)	13	
Summative assessment	**Midterm Exam**	2 hr	10 % (10)	7	
	Final Exam	2 hr	5 0% (5 0)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to General Psychology and Forensic Psychology, including the sections of General Psychology in detail
Week 2	The branches and sections of criminal psychology, including: the psychology of crime and deviance, police psychology, legal psychology, and correctional psychology, along with many other branches and sections of criminal psychology
Week 3	Mental health and the commission of crime
Week 4	The relationship between forensic psychology and genetics
Week 5	The relationship between human personality traits and crime .commission .The relationship between poverty and crime
Week 6	Understanding the criminal behaviors and motivations of adult .men

Week 7	The impact of aggressive behavior towards children on their future .criminal behavior
Week 8	Midterm exam
Week 9	?Applications of criminal psychology :Here are some main applications: *Criminal behavior analysis Forensic psychology is used to analyze criminal behavior and provide investigators with an assessment of the possible motives .and behavioral patterns of suspects
Week 10	?Applications of criminal psychology :Here are some main applications: *Criminal behavior analysis Forensic psychology is used to analyze criminal behavior and provide investigators with an assessment of the possible motives .and behavioral patterns of suspects
Week 11	?Applications of forensic psychology Examination and analysis of criminal testimonies, which helps in .understanding the truthfulness and reliability of witnesses
Week 12	?Applications of criminal psychology Examination and analysis of criminal testimonies, which helps in .understanding the truthfulness and reliability of witnesses
Week 13	Some research topics in criminology
Week 14	The relationship between the criminal investigator and forensic psychology (developing (the skillset of the criminal investigator through forensic psychology
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources		
Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Clinical Psychology: Contemporary ,Developments in Assessment, Diagnosis and Psychotherapy Professor Asya Al-Jari, 2nd Edition, 2018	NO

Recommended Texts	**The Psychology of Criminal Conduct: Theory, Research and Practice** Ronald Blackburn 2011	No
Websites	https://fivebooks.com/best-books/forensic-psychology-david-canter/	

Grading Scheme

Grading Scheme

Group	Grade	Grade	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	Excellence	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Average	60 - 69	Fair but with major shortcomings
	E - Sufficient	Accepted	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX – Fail**	Failing (Under (Review	(45-49)	More work required but credit awarded
	F – Fail	Fail	(0-44)	Considerable amount of work required

Note: Marks 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.

وصف النموذج الدراسي للمرحلة الثالثة (الكورس الثاني)

1- اثار الادلة الجنائية

Module Information معلومات المادة الدراسية			
Module Title	The effects of criminal evidence	**Module Delivery**	
Module Type	**Core**	**Theory**	
Module Code	FOR36032	**Lecture**	
ECTS Credits	**4**	**Lab**	
SWL (hr/sem)	**100**	**Tutorial**	
		Practical	
		Seminar	

Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules 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	The module is directed towards critical analysis of selected rules of evidence, of particular relevance to criminal trials. It aims to provide you with an understanding of the adversarial trial structure and its impact on the content of the law of evidence, particularly in the context of the criminal trial. It also aims to familiarise you with the content of some of the key exclusionary rules; to encourage you to identify and debate current issues

	within the law of evidence with confidence; and to apply the legal rules and principles within a critical framework.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The aims of the module are: • To provide you with a structure to enable you to critically examine rules of criminal evidence in England and Wales. • To enable you to understand a variety of theoretical approaches to the study of criminal evidence law and to make judgements about the ethical issues and values involved. • To instil an appreciation of the variety of issues raised by the study of criminal evidence law, and the complexity of those issues particularly in respect of the extent to which they may interrelate. • To develop your ability to understand both the variety of principles applicable to criminal evidence law, and to be able to critically assess both existing rules and proposals for change, having regard to existing knowledge and research findings. To provide you with a variety of opportunities to fulfil the above aims, and to demonstrate knowledge of relevant theoretical approaches, principles and laws and the ability to apply them to particular aspects of criminal evidence law.
Indicative Contents المحتويات الإرشادية	Each stepe required [30h] 1-This reading list is indicative - i.e. it provides an idea of texts that may be useful to you on this module, but it is not considered to be a confirmed or compulsory reading list for this module. 2- Demonstrate ability to integrate and assess information from primary and secondary legal sources using appropriate interpretative techniques. 3-This requires the use of electronic means and explanatory films, and presenting special presentations to enhance this aspect of forensic science. It also requires assigning students a number of duties, including preparing reports or a seminar in this aspect.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy concern with: 1. Demonstrate a sound knowledge of the selected rules of evidence 2. Critically evaluate the selected rules of evidence effectively and independently, both as they exist and in relation to proposals for reform 2. Demonstrate ability to apply legal knowledge to a problem / case study and to suggest a conclusion supported by relevant arguments

Student Workload (SWL)

الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	58	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction The effects of criminal evidence
Week 2	Prosecution and defence disclosure
Week 3	
Week 4	Summary justice
Week 5	Jury trial
Week 6	Burden of proof
Week 7	Examination in chief and cross-examination
Week 8	Hearsay
Week 9	Character
Week 10	Corroboration
Week 11	Sentencing and appeals from the Crown Court
Week 12	Miscarriages of justice

Week 13	
Week 14	Abuse of process, civil remedies and CCRC
Week 15	exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Applying first and second week
Week 2	Applying 3rd and 4rd week
Week 3	Applying 5 week
Week 4	Applying 6th and 7th week
Week 5	Applying 8th week
Week 6	Applying 9th and 10thweek
Week 7	Applying 11th and 12th week
	exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	P. McKeown and A. Keane, 'The Modern Law of Evidence' (13th edition, OUP, 2020)	Yes
Recommended Texts	Burgess, Ann Wolbert, Regehr, Cheryl, and Roberts, Albert R (2013). Victimology: Theories and Applications. Burlington, Massachusetts: Jones and Bartlett.	No
Websites	https://www.ucl.ac.uk/laws/study/llm-master-laws/modules-2019-20/criminal-process-and-human-rights-laws0137	

Grading Scheme

مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

2- الاحبار والاصباغ ومحاذيرها

Module Information معلومات المادة الدراسية		
Module Title	**Inks and dyes and their warnings**	**Module Delivery**
Module Type	**Core**	**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**
Module Code	**FOR36035**	
ECTS Credits	**4**	
SWL (hr/sem)	**100**	

Module Level		1	**Semester of Delivery**		1
Administering Department		FORN	**College**	SC	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/09/2023	**Version Number**	1.0	

Relation with other Modules

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	This module involves the review of various techniques and research used in a forensic DNA laboratory from sample receipt, extraction and replication to analysis and interpretation. 1-The students will work their way through a DNA practical, making use of the learned techniques. 2-New research and techniques will also be looked at within forensic DNA analysis. 3-This module involves the review of various techniques and research used in a forensic DNA laboratory from sample receipt, extraction and replication to analysis and interpretation. 4-The students will work their way through a DNA practical, making use of the learned techniques. 5- New research and techniques will also be looked at within forensic DNA analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On completion of this module, students are expected to be able to: 1. Explain the methods of construction of characters used in handwriting and signatures and identify natural and deliberate modifications. 2. Describe and analyse the composition of paper and ink. 3. Prepare and present oral and written reports appropriate for a court of law.
Indicative Contents المحتويات الإرشادية	**Indicative Module Content** ink and dyes; construction of characters, natural variation, accidental and

	deliberate modification. Origin and history of documents: inks, paper, impressions, erasures and obliteration. [14h] Analysis of documents using a range of techniques e.g. ESDA, chromatography, microscopy, spectroscopy. Video Spectral Comparator, comparison microscope.[14h]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	**The aim of this Module is to provide students with the ability to critically evaluate current thinking and research in forensic dyes and ink analysis and extraction from different samples as well as to fully understand the procedures and analysis performed within a modern forensic DN laboratory.**

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	72	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	28	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction -Inks and dyes and their warningss
Week 2	History of dyes , ink and pigments
Week 3	General features of dye and dyeing
Week 4	Dyeing techniques
Week 5	Classification of dyes
Week 6	Development of synthetic dyes
Week 7	Food dyes
Week 8	Dye industry research
Week 9	pigments
Week 10	Health and environmental aspects
Week 11	Indelible-ink
Week 12	currency counterfeiting
Week 13	
Week 14	exam
Week 15	review

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	ELLEN, D., 1997. *The Scientific Examination of Documents*. Taylor and Francis.	Yes
Recommended Texts	WHITE, P., 1998. *Crime Scene to Court, The Essentials of Forensic Science*. The Royal Society of Chemistry.	No
Websites		

Grading Scheme

مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

3- التحليل الاحصائى الوراثي

Module Information		
Module Title	Genetic statistical analysis and databases	**Module Delivery**
Module Type	**Core**	**Theory**
Module Code	**FOR36034**	**Lecture**
ECTS Credits	**4**	

SWL (hr/sem)	**100**	**Lab** **Tutorial** **Practical** **Seminar**

Module Level	1	**Semester of Delivery**	1
Administering Department	Forensic \FOR	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title	Prof.	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	This module provides an introduction to multivariate analysis, with a strong emphasis on data visualization by means of multivariate graphics known as biplots. The course covers principal component analysis (PCA), multidimensional scaling (MDS), correspondence analysis (CA), canonical analysis, cluster analysis, discriminant analysis (DA) and some multivariate inference, illustrating these methods with genetic data. Some genetic datasets have a compositional nature, and basic principles of compositional data analysis like log-ratio transformations are considered. The use of multivariate methods for uncovering population substructure and cryptic relatedness is addressed.
Module Learning Outcomes	After attending this module, participants will be able to:

مخرجات التعلم للمادة الدراسية	1. Describe the purpose of basic multivariate statistical methods. 2. Select an appropriate multivariate method for a given data set. 3. Apply adequate transformations for a given data set. 4. Perform multivariate statistical analysis on a computer in the R environment. 5. Visualize multivariate data by means of biplot construction. 6. Interpret biplots correctly and assess goodness-of-fit. 7. Carry out basic multivariate hypothesis tests. 8. State the peculiar nature of compositional data, and account it for in the analysis.
Indicative Contents المحتويات الإرشادية	Describe the assumptions underlying the Binomial, Multinomial, and Normal probability models.[15h] Define sensitivity, specificity and predictive values in the context of a binary screening test for a disease. Explain how the likelihood function can be used for estimation and model selection. Translate scientific questions into appropriate null and alternative hypotheses.[10h] Describe the assumptions underlying z-tests, t-tests and chi-square tests and use these tests to statistically compare two samples. Explain and interpret p-values and confidence intervals.[5h] Recognize and explain the concepts of confounding and effect modification. Explain the role of computer intensive methods (bootstrap, jackknife, permutation tests) in hypothesis testing and confidence intervals.[5h] Explain the false discovery approach to addressing the issue of multiple comparisons in hypothesis testing.[7h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The assignment will contain a number of questions for which solutions and / or written responses will be required. The number of words noted below refers to the amount of time in hours that a well-prepared student who has attended lectures and carried out an appropriate amount of independent study on the material could expect to spend on this assignment.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	58	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.5

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Genetic statistical analysis and databases
Week 2	Genetic Data
Week 3	Allele Frequencies
Week 4	Allelic Association
Week 5-6	Population Structure & Relatedness
Week 7	Notation
Week 8	Allelic Measure Predicted Values
Week 9-10	Genotypic Measure Predicted Values
Week 11-12	Estimates for Individuals
Week 13-14	Estimates for Populations
Week 15	exam
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	The Fundamentals of Modern Statistical Genetics by Nan M. Laird and Christoph Lange, Springer-Verlag, New York.	no
Recommended Texts	https://si.biostat.washington.edu/sites/default/files/modules/PopGenData2018.pdf	no
Websites	https://si.biostat.washington.edu/.pdf	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

4- علم الانسجة والشعر والالياف

Module Information معلومات المادة الدراسية			
Module Title	**tissue , haier and fibers scince**	**Module Delivery**	
Module Type	**Core**	**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR36036**		
ECTS Credits	**4**		
SWL (hr/sem)	**100**		

Module Level	1	**Semester of Delivery**	1
Administering Department	FORN	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules 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	The ability to perform a forensic microscopical hair , fiber and tissue comparison is dependent on a number of factors. These factors include the following: 1. Whether an appropriate known sample is representative. 2. The range of features exhibited by the known material.

	3. The condition of the questioned material. 4. The training and experience of the material examiner. 5. The usage of the appropriate equipment and methodology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After studying this module, you shall be able to know • The Hair • The structure of Hair , tissue and fiber • General information about Hair, fiber and tissue • The gender from the Hair, tissue and fiber • Identification of the site of the Hair, tissue and fiber
Indicative Contents المحتويات الإرشادية	Indicative shows the ability for document provides an outline for training in the collection, preservation, and examination of fiber, haier and tissue, and evidence, including the requisite competency testing. This training outline shall be followed by all trainees in the examination of fiber, haier and tissue, regardless of experience level. Module 1 – Introduction to fiber, haier and tissue [7h] 2- Objectives: Through completion of this module, the trainee shall have developed and demonstrated the theoretical knowledge and/or practical skills in[7h] 3-The history and use of fiber, haier and tissue. [7h] 4- fiber, haier and tissue terminology. [7h] 5-Chemistry and manufacturing processes of fiber, haier and tissue.[7h] 6- Classification schemes of fiber, haier and tissue. [7h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	How is scientific evidence gathered from a crime scene? How is it analysed and used in investigation? How is it interpreted and presented in court? This course prepares you for a career as a forensic scientist. Case studies, evidence interpretation, fieldwork and laboratory training cover all aspects of investigating criminal offences. These include crime scene processing, forensic archaeology, drugs, toxicology, DNA profiling, body fluids, entomology, fibres, fire investigation and ballistics. You'll also have an introduction to criminal law, which includes cross-examination in a Crown Court setting.

	Specialist topics include blood pattern analysis (BPA), gunshot residue detection, counterfeits and forgeries, and the analysis of trace evidence. In addition, this course also provides additional industry recognised certificates in BPA, forensic toxicology and DNA profiling at no extra cost

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	58	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Principle of tissue , Haier and fibers science

Week 2	Cell structure and types
Week 3	Epithetical tissue types
Week 4	Introduction to the tools and techniques involving analysis of Haier and fiber in forensic
Week 5	Fibers charecterstic and types
Week 6	Haier structure
Week 7	Urinary system
Week 8	Circulatory system , types of arteries, veins and hearts
Week 9-10	Lymphoid system
Week 11-12	Male reproduction system
Week 13-14	Female reproductive system
Week 15	**exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Forensic Examination of Fibres (International Forensic Science and Investigation) 3rd Edition**	Yes
Recommended Texts	**World of Forensic Science** **https://books.google.iq/books/about/World_of_Forensic_Science.html?id=Mo5YAAAAYAAJ&redir_esc=y**	No
Websites	https://accesspharmacy.mhmedical.com/content.aspx?bookid=958&sectionid=53483740	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

5- الحشرات الجنائية

Module Information

Module Title	**Criminal insects**	**Module Delivery**	
Module Type	**Core**	**Theory**	
Module Code	**FOR36033**	**Lecture**	
ECTS Credits	**7**	**Lab**	
SWL (hr/sem)	**175**	**Tutorial**	
		Practical	
		Seminar	

Module Level	1	**Semester of Delivery**	1
Administering Department	Forensic \FOR	**College**	SC
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	This module introduces students to forensic entomology, the study of insects for medicolegal issues, which has been dated back to China in the 13th century. Studying these forensically important insects is useful in estimating

	post-mortem intervals. Legal implications will be explored using various case studies. Students will also visit the Entomology Unit and the Forensic Laboratory in KL. Students will observe the progression of decomposition and be exposed to the different families of forensically important flies.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of this course, students will be able to: • Describe the application of entomology to criminal investigations • Identify insect groups (especially carrion groups) and insect rearing cycles • Demonstrate proper handling, collection and preservation of insect evidence at crime scenes • Explain scientific principles behind the use of insects in homicide investigations • Identify where an when forensic entomology is important, and show the limitations of the technique and how they can be overcome • Describe the effects of habitat on insect evidence
Indicative Contents المحتويات الإرشادية	**The student will... [6 h for each steps]** • recognize that in the field of forensic anthropology information about the victim of a crime and the nature of the crime itself is determined from unknown skeletal remains • understand that a forensic anthropologist attempts to determine the following information from unknown skeletal remains: whether the remains are human or non-human, number of individuals found, time of death, sex of individual(s), ancestry of individual(s), stature of individual(s), and cause of death • describe some of the basic skeletal differences between human and animal bones (such as ribs and upper and lower limbs) • state some of the basic skeletal differences between humans from various ancestries or races (such as Negroid, Caucasoid, Mongoloid) • identify some of the basic skeletal differences between female and male remains • perform a research study that compares the size and length of various bones in males and females

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Generally, blood and varied alternative tissues bear a laboratory analysis to see the presence of poisons and their levels within the body. However in few cases wherever the body remains undiscovered for an extended duration, then maggots are collected and brought to the laboratory for entomo-toxicological studies as a result of the advanced stage of decomposition within the body where assortment and preservation of body

	viscera becomes an impossible task. This entomo-toxicological studies of the maggots facilitate the assessment of poison levels within the body. Insects' species are continuously restricted to a limited region or surroundings. The body gets settled shortly once the onset of decomposition. Just in case if the body gets stirred by some external force, then it gets re-colonized once more relying upon the region and therefore the individual environmental issue. But, this secondary colonisation may dissent from the initial colonisation, thereby providing a clue that the body was resettled in a while. This course outline would inculcate within the students an ability to view every miniscule factor present at the spot, where a crime was conducted. In addition, they would also be able to analyse the sequence in which the insects colonize a corpse and its evidentiary value in the courtroom.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.2
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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction for-Forensic Entomology
Week 2-3	What happens after death?Rigor mortis
Week 4-5	Estimating time of death with Forensic Entomology
Week 6-7	Finding the cause of death using forensic entomology
Week 8-9	Has the body been moved after death?
Week 10	Use of arthropods in investigation of contraband trafficking
Week 11-12	Analyzing the crime scene for entomological evidence
Week 13-14	Case histories involving forensic entomology
Week 15	exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1-2	Lab 1-2: collecting-and-obseration-insect
Week 3-4	Lab 3-4: determination the time of death
Week 5-6	Lab 5-6: the insect of death
Week 7-8	Lab 7-8: the effect of temperature in rearing maggots
Week 9-10	Lab 9-10: fly investigation as a function of habitat
Week 11-12	Lab 11-12: beetles infestation of carrion
Week 13-14	Lab 13-14: ether experimental uses of insect in forensic science
Week 15	Lab 5: exam
Week16	Lab16:review before final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**

Required Texts	Catts, E. P. & Haskell, N. H. 1990. Entomology & Death. A procedural guide. Joyce's Print Shop, Inc., Clemson, South Carolina.	no
Recommended Texts	Smith, Kenneth G. V., 1986. A manual of Forensic Entomology. The Trustees of the British Museum (Natural History). 205 pages. ISBN 0-565-00990-7	no
Websites	chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/http://www.bio-nica.info/biblioteca/Anonimo2002forensicEntomology.pdf	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

6- مقدمة فى السموم والمخدرات

Module Information معلومات المادة الدراسية					
Module Title	**Introduction to Toxic and Drugs**			**Module Delivery**	
Module Type	**Core**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FORN 201**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	FORN		**College**	SC	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Asst.prof.		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	1-While all toxicology addresses the adverse effects that agents have on living organisms, clinical and medical toxicology play unique roles not often encountered in traditional toxicology practice or research. 2-The subset of toxicology focus on the immediate needs of patients suspected of being poisoned. 3-The toxicology require extensive knowledge of diseases and etiology as well as a thorough understanding of the effects of potential poisons, both of which are commonly used to make diagnoses. 4- medical toxicologists must consider three points—the substance involved, the toxic response, and the mechanism by which it occurs—in order to determine the best treatment options for each patient. 5- introduce participants to the basics of clinical and medical toxicology along with new and old tools that may be used by the clinical toxicologist.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand and apply pharmacokinetic and pharmacodynamic principles that impact administration, absorption, distribution, metabolism, elimination, efficacy, potency, effectiveness and biological activity of drugs and toxins. 2. Understand and describe how the liver's cytochrome system works, including Biotransformation Phases I and II, and how drug-drug and drug-herb interactions affect this detoxification system. 3. Understand the therapeutic and adverse effects of selected drugs, supplements, and environmental toxins. 4. Understand and identify health conditions linked to selected toxic exposures from food, lifestyle, environment, workplace and home. 5. Understand the role of toxicology in the development and progression of disease and to characterize its impact on patient response to chiropractic care.
Indicative Contents المحتويات الإرشادية	Principles of Toxicology (20 hrs) Classification of toxic agents; characteristics of exposure; evaluation of toxicity: LD50 and TD50; spectrum of undesirable effects; interaction and tolerance; biotransformation and mechanisms of toxicity; use and interpretation of toxicity data. Natural Toxins in Food (15 hrs) Determination of toxicants in foods; classification and toxicity of natural occurring toxins; natural toxins in animal foodstuffs (meat and seafood); natural toxins in plant foodstuffs; fungal toxins occurring in foods (mycotoxins); micro-organisms and food; sites of action and their toxicity mechanisms. Food Allergies and Sensitivities (15 hrs) Natural sources and chemistry of food allergens; true/untrue food allergies; handle of food allergies; food sensitivities (anaphylactoid reactions, metabolic food disorders and idiosyncratic reactions); (9h)issues related to sulfites in foods. Environmental Contaminants and Drug Residues in Food (15 hrs) Common environmental contaminants (e.g. heavy metals) and drugs residues (e.g. pesticides) in foods; their health impacts and risk assessment; abusive use of veterinary drugs (e.g. malachite green in fish) and other contaminants in food. Food Additives and Toxicants formed during Food Processing (15 hrs) Common food additives (e.g. coloring) and their safety issues; process-induced food toxicants (e.g. acrylamine) and their health concerns.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Interactive lectures and guided readings are used to facilitate communication between lecturers and students, and also to enhance students in comprehending the taught topics and key concepts. During each lecture, in-class activities (case studies and group discussion, etc.) are conducted to stimulate students' interest and promote their critical thinking in learning. Tutorials are designed to assist students to re-think the previous learning process, and to challenge students to raise questions on the taught topics. The purpose is not only to consolidate their learned concepts but also to stimulate their further interest in the subject and to develop their problem-solving abilities. The continuous assessment is based on student's performance on quizzes, in-class learning activities and a case study report. Examination is focused on analytical and problem solving skills.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Principle of toxicology, History of toxicology
Week 2	Classification of toxic agents
Week 3	Drug pharmacokinetics and metabolism
Week 4	Molecular toxicology and toxicgenomic
Week 5	mmunotoxicology
Week 6	Chemical toxicology
Week 7	Exam
Week 8	Microbial toxicology
Week 9	Food toxicology
Week 10	Ecotoxicology
Week 11	Nano toxicology
Week 12	Clinical toxicology (neurotoxicology, cardiovascular toxicology)
Week 13	Clinical toxicology (toxicology of the intestine, toxicology of the skin)
Week 14	Factors in flouncing the actions of a poison agents in the body
Week 15	Human analysis of drugs
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1 Classification of toxic agents
Week 2	Lab 2: mmunotoxicology
Week 3	Lab 3: Chemical toxicology
Week 4	Lab 4:Microbial toxicology
Week 5	Lab 5: Ecotoxicology
Week 6	Lab 6: Nano toxicology
Week 7	Lab 7: exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Hodgson, A Textbook of Modern Toxicology, 4th ed. (J Wiley & Sons: 2010).	Yes
Recommended Texts	Frank and Ottoboni, The Dose makes the Poison: A Plain-language Guide to Toxicology, 3rd ed. eBook, (J Wiley & Sons: 2011).	No

Websites	https://accesspharmacy.mhmedical.com/content.aspx?bookid=958&sectionid=53483740

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

وصف النموذج الدراسي للمرحلة الرابعة (الكورس الأول)

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

1. **Ethics of scientific research**

Module Information معلومات المادة الدراسية					
Module Title	**Ethics of scientific research**			**Module Delivery**	
Module Type	**Support**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR48043**				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1		**Semester of Delivery**	1	
Administering Department	FORN		**College**	SC	
Module Leader	أ.د حميد حسين		**e-mail**	Hameed.husseinuoturath.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	1-Students will be expected to demonstrate practice skills and knowledge of social work theory and methods of intervention and apply these appropriately in an ethical and research evidence based way to the context of social work practice. 2-The module aims to help students develop an awareness of the methods and techniques available for further investigation of the problem, including designing investigations, collecting appropriate results, analysing the results and evaluating the results and the process by which they have been achieved. 3-The module aims to provide students with an understanding of the legal, ethical and professional context of Computer Science, in its applied context.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of the course, students will: 1. Recognizing the diverse nature of placement settings demonstrate knowledge and practice skills in interviewing, assessment, methods of intervention and action plans across a range of user groups underpinned by an awareness of legislate. 2. Apply ethical concepts in critically analyzing specific issues relating to professional practice. 3. Critically analyze research methodology and its relevance to social work methods within evidence based practice principles.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1-Communication skills including oral, non-verbal and in writing. The ability to gather, collate and analyses information from various sources.[6h] 2-Assessments and risk assessments, action plans. [5h] 3-Methods of intervention, psycho-social, crisis intervention, opportunity led and life space approaches and behavioral social work. [5h] 4-An awareness at all times of the potential for risk to children. [5h] 5-Sources of research and advanced literature searching. [5h] 6-A review of the major methods relevant to social science and social work research. Interpreting statistics and data analysis. [5h] 7-Application of research in social work practice and evaluation skills and research. Ethical theories, issues and dilemmas. [5h]

	8-Traditional and modern values in social work with Professional codes of ethics and other sources of social work values. [5h] 9-Ethical principles and their application in professional practice. [5h] 10-Anti-oppressive practice, the promotion of social justice and the moral rights of service users. [5h] 11-The content also reflects, where appropriate, the knowledge, skills and professional confidence and competence requirements of the Key Capabilities and Protection. [5h]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The majority of learning will be independent learning, in line with other courses on the programs. The teaching will mainly be in the form of Pre-recorded lectures and Seminar sessions. Each lecture will be based around exercises applying and illustrating the particular theme that week with specific reference to practical HR issues (e.g. diversity analysis for bivariate analysis, predicting turnover from selection scores for regression and prediction, making sense of engagement surveys with factor analysis, analysing the gender pay gap for moderation, etc.).

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	42	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	58	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

As		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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Review Introduction
Week 2	Who Needs Research Ethics?
Week 3	Ethical Decision-Making
Week 4	Conflict of Interest
Week 5	Research Misconduct and Whistleblowing
Week 6	Mentorship
Week 7	Human Subjects Research and the IRB
Week 8	Research with Animals
Week 9	Authorship and Peer Review
Week 10	Authorship and Research Misconduct
Week 11	Entrepreneurship and Commercialization
Week 12	exam
Week 13	Practical Applications in Reporting and Peer Review
Week 14	Scientists' Relationships with Funding Sources
Week 15	Student Presentations

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Adams, R., Dominelli, L. & Payne, M., 2009. Social Work Themes, Issues and Critical Debates. Basingstoke: Palgrave Macmillan	Yes
Recommended Texts	Kara, H., 2017. Research and Evaluation for Busy Students and Practitioners, 2nd ed. Bristol: Policy Press	No
Websites	https://readinglists.surrey.ac.uk	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

2. Identity Definition Tool and Fingerprints

Module Information معلومات المادة الدراسية					
Module Title	**Identity Definition Tool and Fingerprints**			**Module Delivery**	
Module Type	**Base**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FORN47025**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGx11 1		**Semester of Delivery**		
Administering Department	FORN		**College**	SCI	
Module Leader	Bara Qasiem Mohamed		**e-mail**	dr.baraa.kasim@kus.edu.iq	
Module Leader's Acad. Title	Lecture		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	The program aims to:

أهداف المادة الدراسية	1-Provide future criminologist with strong interdisciplinary foundations to be able to respond appropriately and ethically in challenging "real-world" situations as they prepare to further education; and 2.Produce graduates equipped with leadership, skills and high sense of integrity,accountability, and responsibility.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After completing the course, the student must be able to: 1. Relate the principles of fingerprints to personal identification and criminal investigation; 2. Identify the different personal identification techniques applied to investigation and detection of crimes and criminal justice 3. Demonstrate competence in collecting questioned and standard fingerprints as evidence in criminal investigation and solve crimes with the aid of different personal identification techniques, specifically, Fingerprint Identification.
Indicative Contents المحتويات الإرشادية	The indicative continents include : 1-The course covers the fundamentals of personal identification and the development of scientific methods of identifying individuals both living and dead including its relevance to criminal investigation. [20h] 2-The Henry-Galton system is given emphasis in relation with the identification of individuals through fingerprints. [15h] 3-The principles, characteristics, and different patterns of fingerprints are also discussed in the course. [20h] 4-Emphasis is also given on the techniques of fingerprinting and developing latent prints for investigative purposes. [20h] 5-focuses on fingerprint recording, developing of latent prints and identification and classification of fingerprints for purposes of court presentation.[21h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	After students expend 3 years in forensic departments the processed of the fingerprint evidence, hypothetically run the prints in new a fictitious. Give each crime investigator (student) the abilities to exam many types of finger print to make the investigator able to give new experiments with higher level which make the efficiency of workers in this section in high level. All of that required more and more efforts to provide the student many cases with different conditions.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	114	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8

الحمل الدراسي المنتظم للطالب خلال الفصل			
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6 1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Science of Fingerprint
Week 2	Fingerprint classification\examination
Week 3	Identity Definition classification
Week 4	Identification and Fingerprint with forensic science
Week 5-6	Identity Tools\fingerprint biometrics
Week 7-8	Fingerprint Development Techniques
Week 9-10	Identification and Comparison of Fingerprint
Week 11-12	Computer Aided Technique for identification, Analysis and Comparison of Fingerprint
Week 13-14	Aplications in forensic science
Week 15	**Exame**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered

Week 1	Lab : classify fingerprint patterns
Week 2	Lab : investigate collecting inked fingerprints
Week 3-4	Lab : explore dusting powders/techniques and lifting techniques
Week 5-6	Lab : identify ridge characteristics
Week 7-8	Lab : understand fingerprint terminology
Week 9-10	Lab : learn proper dusting/lifting procedures investigate chemical techniques
Week 11-12	Lab : investigate and solve a hypothetical crime scenario
Week 13-14	Lab : Chemical Development of Latent Prints
Week15	Lab : exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Biometric Security Systems: A Guide to the Devices, Fingerprint Scanners and Facial Recognition Access Control. (August 2020). IFSEC Global.	Yes
Recommended Texts	DFBA Overview. (2021). Defense Forensics & Biometrics Agency.	No
Websites	Basic bioinformatics concepts to learn for beginners — Bioinformatics Review	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

3. Bioinformetics

Module Information معلومات المادة الدراسية					
Module Title	**Bioinformatics**			**Module Delivery**	
Module Type	**Base**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FORN47026**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	FORN		**College**	SCI	
Module Leader	م.د زيد غانم		**e-mail**	drzaid.alobaidy@gmail.com	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	م.د زيد غانم		**e-mail**	drzaid.alobaidy@gmail.com	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	This module is designed to provides an introduction to the principles and practical approaches of bioinformatics as a modern tool in forensic science for data understanding, investigation and research applied to genes and proteins. 1- An integrated lecture/lab structure and small-scale projects will declare the modern developments in genomics and proteomics. 2- Major topics include: Genomic and biomolecular bioinformatic resources, Genome informatics, Advances in sequencing technologies, Structural informatics, and Transcriptomics, will be discussed. 3- Computational tools, techniques and best practices that foster reproducible bioinformatics research will also be introduced. 4- Demonstration of how Bioinformatics will affect how forensic statistics will address hypothesis formulation on DNA samples, deciding on minimal population sample sizes when studying populations of similar units of evidence and determining the statistical significance of the outcome of analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of the course, students will: 1. Understand how bioinformatics is related to molecular biology and utilized in forensic evidence analysis. 2. Gain more knowledge about DNA, RNA and protein sequences and structures. 3. Learn the current genome sequencing techniques. 4. Gain knowledge in search sequence databases. 5. Be able to perform sequences alignments. 6. Learn how to interpretate sequencing analysis results. 7. Be able to predict genes. 8. Be able to perform phylogenetic analysis. 9. Design primers. 10. Be able to analyze RNA and predict protein structures proteins docking.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1- Introduction to Bioinformatics and Key Online Bioinformatics Resources: NCBI & EBI Biology is an information science, History of Bioinformatics, Types of data, Application areas: Introduction to upcoming segments, NCBI & EBI resources for the molecular domain of bioinformatics, Focus on GenBank, UniProt, Entrez and Gene Ontology. 2 - Sequence Alignment, DNA and Protein Database

	Searching Homology, Sequence similarity, Local and global alignment, Database searching with BLAST. 3- Genome Informatics and High Throughput Sequencing Searching genes and gene functions, Genome databases, Variation in the Genome, High throughput sequencing technologies, biological applications, bioinformatics analysis methods. 4 -sequence file formats, and data saving Describe how nucleotide and protein sequence and structure data are represented (FASTA, FASTQ, GenBank, UniProt, PDB). 5- Proteomics and the Transcriptome Processing and extracting biological information from proteomic and transcriptomic datasets, Analysis of RNA-Seq data, Differential expression tests, Avoiding P-value misuse, Hands-on analysis of RNA-Seq data. 6- Structure Based Drug Discovery and Biomolecular Simulations Small molecule docking methods, Protein motion and conformational variants, Bioinformatics in drug discovery.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**Bioinformatics can be used in forensic science to analyze DNA samples and identify suspects. It can also be used to analyze other types of evidence such as fingerprints and blood samples. Bioinformatics courses can provide students with the skills needed to work in forensic science labs and analyze evidence using bioinformatics tools.**

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem)	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5

الحمل الدراسي غير المنتظم للطالب خلال الفصل			
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Review of molecular biology
Week 2	Gene structure
Week 3	Introduction to bioinformatics
Week 4	Genome sequencing methods
Week 5	Sequences database
Week 6	Sequence alignment
Week 7	Global alignment & local alignment
Week 8	Genetic distances; phylogenetic tree
Week 9	Character based phylogenetic tree
Week 10	Determination of consensus sequences
Week 11	Gene prediction & open reading frame (ORF)
Week 12	Conversion of DNA to RNA; alignment of mRNA
Week 13	Protein structure and function
Week 14	Protein structure and function (continued)
Week 15	Protein structure databases

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to DNA databases
Week 2	Lab 2: Purification of DNA
Week 3	Lab 3: Genetic analyzer, standard technique & troubleshooting
Week 4	Lab 4: Gene bank; genome browsers
Week 5	Lab 5: Sequences databases; sequence formats
Week 6	Lab 6: Retrieve sequences from different databases
Week 7	Lab 7: Comparison of sequences using BLAST
Week 8	Lab 8: Interpretation of BLAST
Week 9	Lab 9: Sequence conversion from DNA to mRNA and verse to versa
Week10	Lab 10: Distance based phylogenetic tree construction
Week 11	Lab 11: Character based phylogenetic tree construction
Week 12	Lab 12: Protein databases
Week13	Lab 13: Protein structure prediction
Week14	Lab 14: Protein structure prediction (continued)
Week15	Lab : Molecular docking

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	GLICK, B.R., PASTERNAK, J.J. and PATTEN, C.L. Molecular Biotechnology. Current Edition. American Society for Microbiology.	Yes
Recommended Texts	DALE, J.W. adn VON SCHANTZ, M. From Genes to Genomes. Concepts and applications of DNA Technology. Current Edition. Wiley-Blackwell.s	No
Websites	Basic bioinformatics concepts to learn for beginners — Bioinformatics Review	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	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
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

4. Instrumental analysis

Module Information					
Module Title	**Instrumental Analysis**			**Module Delivery**	
Module Type	**Base**			**Theory**	
Module Code	FOR35126			**Lecture**	
ECTS Credits	**7**			**Lab**	
SWL (hr/sem)	**175**			**Tutorial**	
				Practical	
				Seminar	
Module Level	UGx11 1	**Semester of Delivery**	1		
Administering Department	FORN	**College**	SC		
Module Leader		**e-mail**			
Module Leader's Acad. Title	Prof.	**Module Leader's Qualification**	Ph.D.		
Module Tutor		**e-mail**			
Peer Reviewer Name		**e-mail**			
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0		

Relation with other Modules 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	The overall goal of this course is to provide students with a sufficient understanding of the principles, laws, and theories of analytical chemistry to enable them to successfully analyze samples provided using selected instrumental methods. The student should gain the competence to follow a standard procedure, operate the-instrument in a safe manner, collect suitable data, evaluate the reliability of the data collected, and report the results in an appropriate form as would be required of any competent laboratory technician.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	at the successful completion of this course participants: 10. should be able to successfully solve a variety of multi-step problems using mathematical and descriptive algorithms and, specifically in the laboratory portion of the course. 11. participants will be able to utilize analytical chemical instrumentation properly including. 12. preparation of high accuracy standards. 13. set the operating parameters of different instruments. 14. perform calibration and analysis. 15. recognize and appreciate the value of analytical instruments used, as well as their limitations, in the solution of selected problems faced by the technician. realize the existence of a variety of instrumental methods, each with its own particular use based on its capabilities and limitations. 16. understand that the selection of one instrumental method, as being superior to another in the solution of a particular analytical problem, is based on such factors as sensitivity, time required, selectivity, purchase cost of instruments involved, etc. 17. understand that the success of any of the instrumental methods used depends upon a working knowledge and control of the operating parameters associated with each instrument studied. 18. have a basic operational knowledge of the internal design of the instruments studied.
Indicative Contents المحتويات الإرشادية	The theoretical background of each instrument will be given in lecture. Emphasis on the operating parameters associated with each of the instruments studied will be provided in the laboratory. Operational details are covered sufficiently to provide an adequate understanding of the techniques used without being overwhelmed by details. Upon successful completion of this course every course participant should be able to: 1-understand the principles underlying the operation of each of the studied instruments and extrapolate that knowledge to other instrumental methods.[10h] 2-describe the operational parameters for each of the analytical instruments studied. [10h] 3- carry out calibration of instruments, preparation of a sample for analysis, safe handling of the sample during the analysis, and proper disposal of the sample after completion of the analysis. [10h]

	4- use techniques for recording and evaluating analytical data derived from instruments. [10h] 5- solve a variety of numerical problems dealing with the analysis of samples using the various instrumental methods studied. [10h] 6- write in scientific format reports of the theory, experimental method, and results of an analysis. [10h] This course is designed to provide the framework on which hangs a significant portion of the body of basic chemistry knowledge, allowing the perceptive participant to glance into the richness of the microscopic world from a macroscopic point of view, and to provide the foundation for further studies in the sciences. Over the course of the semester, the successful participant will develop new and expand upon existing skills in critical thinking, mathematics, chemical analysis, and the scientific method. Since chemistry is by its very nature an experimental science, honesty and integrity in the acquisition and analysis of data is at the very core of the scientific process. It is part of our role as practicing scientists to defend the nature of scientific discourse and to expose pseudoscience and scientific dishonesty. [15h]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The module will consist of lectures with theoretical analysis and real-world examples and applications to improve students' learning and analytical skills. In-class group discussions of research papers will facilitate deeper understanding and encourage critical thinking. The assessment includes two summative elements that are a group recorded quiz and an individual written essay. The pass mark for the written assignment and module is 50%. A qualifying mark of 40% on each assessed component of the module must be achieved to pass the module. Each of the component marks is then combined, using the appropriate weighting, to give an overall mark for the module. If the overall mark is less than 50% when the weighting has been applied to the components, this constitutes a failure of the module.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	100	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	75	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.2
Total SWL (h/sem)	175		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation

تقييم المادة الدراسية

As		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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	**Introduction** Classification of analytical methods Instrumental methods
Week 2	Basics of selecting a method
Week 3	The “schematic instrument”
Week 4	Introduction to Spectroscopy Electromagnetic radiation Quantum mechanical considerations
Week 5	Absorption and emission Diffraction, dispersion, refraction, reflection
Week 6	Instrumentation for Spectroscopy Sources Monochromators
Week 7	Sampling Detectors Signal processing
Week 8	UV-Visible Molecular (Electronic) Spectroscopy Terms Theory
Week 9	Quantitative and qualitative aspects Applications
Week 10	Atomic Spectroscopy Terms Theory Instrumentation
Week 11	Sampling Atomic absorption/emission spectroscopy

	Inductively coupled plasma spectroscopy
Week 12	Infrared Spectroscopy Theory Instrumentation (FT vs. scanning) Sampling Spectral interpretation
Week 13	Chromatographic Methods (Chem340 Redux) Classification Rate theory and solute migration Column efficiency
Week 14	van Deempter relationship Gas chromatography Instrumentation Applications HPLC
Week 15	Instrumentation Applications
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Lab 1: safty and security in chemical lab
Week 2	Lab 2: Introduction to Emission and Absorption Spectroscopy: Line spectra, continuous spectra, spectroscopes, spectrophotometers
Week 3	Lab 3: Determination of the Formula of a Complex by the Method of Continuous Variations
Week 4	Lab 4: Spectrophotometric Analysis of a Complex Mixture
Week 5	Lab 5: Spectrophotometric Analysis of a Commercial Aspirin Tablet
Week 6	Lab 6: Spectrophotometric Analysis of a Commercial Aspirin Tablet
Week 7	Lab 7: Spectrophotometric Determination of Iron in Vitamin Tablets
Week 8	Lab 8: Spectrophotometric Determination of Paracetamol in Pharmaceutical formulations
Week 9	Lab 9 : Potentiometric titration of Iron tablet
Week10	Lab10: Titration of Phosphoric Acid and Acetic Acid with NaOH
Week11	Lab11: Quantitative Analysis of Ascorbic Acid Using Voltammetry
Week12	Lab12:review before final exam
Week13	Lab13:Thermal gravimetric analysis Determination of Calcium in vitamin tablet
Week14	Lab14:chroatograph TLC\PLC
Week15	Lab15;exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Principles of Instrumental Analysis, Douglas A. Skoog, F. James Holler, Stanley R. Crouch, 2007	no
Recommended Texts	Principles and Applications of Thermal Analysis, Paul Gabbott John Wiley & Sons, 2008 Studyguide for Principles of Instrumental Analysis by Skoog, Holler and Nieman, 2012	yes
Websites	https://studylib.net/doc/8252056/course-syllabus-for-instrumental-analysis--chem-5640-	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	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
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

5. Writing the Illustrated Forensic Report

Course Description

This course specification provides a concise summary of the main characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether they have made the most of the available learning opportunities. It must be linked to the program specification.

1. Educational Institution	Al-Turath University of Science
2. Academic Department / Center	Department of Forensic Science - College of Science
3. Course Title / Code	Writing the Illustrated Forensic Report / 4th Year (Morning Studies)
4. Available Modes of Attendance	In-Person Attendance (Theoretical 2 Hours per week)
5. Semester / Year	Semester-based / 2023 - 2024
6. Total Number of Credit/Study Hours	30Hours
7. Date of Course Specification Preparation	2024/2/20

1. Course Objectives

A- Explaining the fundamental principles of writing the illustrated forensic report.
B- Introducing the student to the parameters and aspects of writing the illustrated forensic report and its correlation with other sciences.
C- Informing the student that writing the illustrated forensic report is the primary means for collecting and documenting facts and data regarding a specific case or issue and conveying it to authorities where critical information is manifested.
D- Familiarizing the student with the distinct nature of the illustrated forensic report due to its vital role in crime detection, as certain crimes are difficult to describe through text or engineering sketches alone.

E- Educating the student on how forensic imaging and documentation stimulate a witness's memory, helping them recall essential details when giving testimony.

F- Instilling in the student a sense of professional responsibility in the field of forensic science, emphasizing the integrity and ethics they must possess to complete their work honestly and serve as an instrument of justice and reform in society.

G- Demonstrating to the student that the illustrated forensic report is an ideal medium due to the precise details it provides, offering a realistic representation of the crime scene without distortion, regardless of how much time has passed.

10.Course Learning Outcomes, Teaching and Learning Methods, and Assessment Methods

Cognitive Objectives

A1- Drawing the guidelines that must be followed to clarify the concept of writing the illustrated forensic report and identifying its methods.

A2- Introducing the student to the types of evidence and tools relied upon at the crime scene.

A3- Informing the student that not all evidence leads to uncovering the truth, and that they must perceive that some evidence may be planted to distort the facts.

A4- Familiarizing the student with the existence of biological, chemical, and physical/material evidence.

Skills-Based Objectives

B1- Preparing an expert capable of documenting and narrating the forensic timeline and events through clear photographs.

B2- Instilling a strong sense of purpose within the student, boosting their confidence to prepare an illustrated forensic report based on the legality of the derived evidence.

B3- Developing a purposeful and productive personality in society to serve as the observant eyes of the judiciary in recognizing forensic evidence.

Teaching and Learning Methods

-1Establishing interactive Q&A sessions to foster intellectual engagement and enthusiasm within the classroom.

-2Developing a descriptive, analytical, and comparative curriculum that covers all dimensions of the course, and printing and distributing it to students free of charge.

-3Conducting practical and applied laboratory sessions alongside theoretical lectures to form a comprehensive understanding of the subject.

Assessment Methods

-1Interactive participation through sequential discussions.

-2Attendance and preparation.

-3Conducting written examinations using the open-book method.
-4Daily quizzes, along with written and oral exams.
-5Final written semester examination .

Affective and Value-Based Objectives

- Informing the student that the accused is presumed innocent until proven guilty.
- Demonstrating to the student that extracting and presenting evidence does not necessarily prove the act against the accused, but may rather serve as proof of their innocence.
- Educating the student on the magnitude of responsibility that lies upon their shoulders in practicing their profession; if they are right, they have fulfilled the trust, and if they err, they must correct the mistake, as remaining silent about an error is considered a contribution to the crime.
- Teaching the student that divine legislations and positive laws were established to preserve human freedom and dignity; therefore, when deducing forensic evidence, they must keep the fear of God before their eyes, for the Judge never dies, and by the same measure you mete, it will be measured to you again.

General and Transferable Skills (Other skills related to employability and personal development)

- Expanding on the judicial and jurisprudential aspects regarding the practice of forensic science.
- Formulating all possible scenarios to provide adequate room for the student to develop critical thinking, enabling higher precision in securing forensic evidence and building field experience that keeps pace with all modern events and crimes.
- Embedding and consolidating the principles of patriotism, integrity, professionalism, and the spirit of the law, emphasizing that religion is for God and the homeland is for all .

11.Course Structure					
Assessment Method	Teaching Method	Module or Topic Name	Required Learning Outcomes	Hours	Week
Attendance and Participation	In-Person Theoretical Lecture		The Essence of Preparing an Illustrated Forensic Report, its Definition, and its Means	2	1
			Characteristics of Writing an Illustrated Forensic Report Features of Crime Scene Photography	2	2
			Crime Scene Evidence, Biological Evidence, Chemical Evidence, Physical Evidence	2	3
			Evidence Tracking and Historical Image Analysis	2	4
			Procedures Followed in Forensic Photography and Responding to the Crime Scene	2	5
			Documentation, Accuracy, and Narration of the Criminal Story Through Clear Photographs Taken from the Crime Scene to Be Closer to the Truth	2	6
			The Role of Preparing an Illustrated Forensic Report in Proof and Legality, and the Formula of Evidence Derived	2	7

			from Writing an Illustrated Forensic Report		

12.Infrastructure

None. Reliance is placed on the specific syllabi determined by the Ministry, based on which a curriculum is prepared from multiple modern scientific sources.	Required Textbooks
Dr. Hisham Mohamed Farid. "Criminal Protection of the Human Right to One's Image." Journal of Legal Studies, Faculty of Law, Assiut University, Issue 8, June 1986. Dr. Moussa Masoud Arhouma. Acceptance of Scientific Evidence Before Criminal Courts: A Comparative Study. Garyounis University Publications, Benghazi. Dr. Abdel Aziz Hamdi. Technical Investigation in the Field of Crime: Criminal Detection by Modern Scientific Methods Series, Vol. 1, 1st ed., Alam Al-Kutub, Cairo, 1973. Dr. Abdel Basit Salman. The Magic of Photography: Art and Media. Al-Dar Al-Thaqafiya for Publishing, Cairo. Faisal Mosaed Al-Anzi. The Impact of Proof via Modern Technological Methods on Human Rights. (Master's thesis), Naif Arab University for Security Sciences, College of Graduate Studies, Department of Criminal Justice, 2007. Mubdar Al-Ways. The Impact of Technological Development on Public Freedoms. Monsha'at Al-Maaref, Alexandria, 1983. Dr. Waddah Al-Hamoud. "The Use of Modern Technologies in the Field of Border Security." Scientific Symposium: Securing Land, Sea, and Air Ports, Naif	Main References (Sources)

Arab University for Security Sciences, Center for Studies and Research, 2009.
Salem Abdel Jabbar. Forensic Photography, 1st ed., Shafiq Press, Baghdad, 1970, p. 9.
Mohamed Nahar Al-Jaffal Al-Nuaimi. The Importance of Photography in Deducing the Truth. (Research paper), College of Forensic Sciences, Naif Arab University for Security Sciences, 2008, p. 6.
Nasser Abdel Aziz Al-Nowaiser. Physical and Biological Evidence at the Crime Scene and Their Significance. College of Forensic Sciences, Naif Arab University for Security Sciences, Riyadh, 2008, p. 12.
Kawthar Ahmed Khalend. Criminal Proof by Scientific Methods. (Master's thesis), College of Law and Politics, Salahaddin University, Iraq, 2007, p. 281.
Taha Kaseb Falah Al-Droubi. Introduction to Fingerprint Science, 1st ed., Dar Al-Thaqafa for Publishing and Distribution, Amman, 2006, p. 38.
Faraj bin Hilal bin Mohamed Al-Otaibi. Fingerprints and Their Complexities in Criminal Proof between Sharia and Law. (Master's thesis), Naif Arab University for Security Sciences, College of Graduate Studies, Department of Criminal Justice, Riyadh, 2009, p. 17.
Mohamed Ahmed Ghanem. Legal and Sharia Aspects of Criminal Proof via Genetic Code. Dar Al-Jame'a Al-Jadida, Alexandria, 2008, p. 62.
Shehata Abdel Mottaleb Hassan. The Admissibility of Physical Evidence in Proof. Dar Al-Jame'a Al-Jadida for Publishing, Alexandria, 2005, p. 85.

Al-Jaffal Al-Nuaimi. The Importance of Photography in Deducing the Truth. (Op. cit.), p. 13. Mohamed Abdel Rahman Abdel Mohsen. The Role of Human Fingerprints in Criminal Proof: A Comparative Study. Onaizah Colleges, Kingdom of Saudi Arabia, 2021, p. 13. Dr. Mohamed Zaki Abu Amer. Proof in Criminal Matters. Dar Al-Jame'a Al-Jadida, Alexandria, 2016, p. 129.	
Dr. Qadri Abdel Fattah Al-Shahawi. The Crime Scene, the Criminal Event, and Uncovering the Unknown. Dar Al-Nahda Al-Arabiya, Cairo, 2006, p. 11. The Crime Scene and Physical Evidence: Awareness Training for Non-Forensic Personnel. United Nations Office on Drugs and Crime (UNODC), 2009, pp. 10, 12. Maryam Abdel Nabi. "The Implications of Crime Scene Tampering on the Achievement of Criminal Justice." Middle East Research Journal, May 13, 2022, p. 1252. Ibn Manzur. Lisan al-Arab, Vol. 2, Dar Sader, Beirut, Lebanon, 1986, pp. 19–20. Dr. Abdel-Razzak Ahmed Al-Sanhuri. Al-Waseet in Explaining the New Civil Law: The Theory of Obligation in General, Evidence, and Effects of Obligation, Vol. 2, 2nd ed., Halabi Legal Publications, Beirut, Lebanon, 2000, pp. 13–14. Mohamed Ali Skaker. Investigation and Proof of Criminal Cases. Dar Al-Fikr Al-Jame'i, Alexandria, 2008, p. 309.	Recommended Books and References (Scientific Journals, Reports, etc(.

Fathi Mohamed Anwar Mohamed Ezzat. The Role of Expert Testimony in Criminal Proof. (Doctoral dissertation), Ain Shams University, 2007, p. 493. Dr. Mahmoud Naguib Hosni. Explanation of the Code of Criminal Procedure. Dar Al-Nahda Al-Arabiya, Cairo, 1982, p. 417. Dr. Tawfik Al-Shawi. Jurisprudence of Criminal Procedures, Vol. 1, 2nd ed., Dar Al-Kitab Al-Arabi, Egypt, 1954, pp. 261-267. Dr. Ahmed Mohamed Hassan. Towards a General Theory for Protecting the Right to Private Life in the Relationship Between the State and Individuals: A Comparative Study. Dar Al-Nahda Al-Arabiya, Cairo, 2001, p. 40. Egyptian Court of Cassation Ruling, January 2/1/1978, Collection of Cassation Rulings, 29th Year, No. 3. Egyptian Court of Cassation Ruling, October 24/10/1944, Collection of Legal Rules, 14th Year, No. 2. Egyptian Court of Cassation Ruling, November 14/11/1932, Collection of Legal Rules, 19th Year, No. 1.	
https://www.bbc.com/arabic/vert-fut-47459695[1] Security Culture Column: "Crime Scene Traces and Their Importance in Uncovering and Arriving at the Truth" - An article published on the following website:https://alwatannews.net/Bahrain/article/971442/ »	B - Electronic References, Websites, etc.

13.Course Development Plan

- Working on preparing a comprehensive curriculum that serves as a standard reference in accordance with the annual plan of accredited academic programs.
- Monitoring the ongoing advancements in comparative curricula and working on keeping pace with them scientifically.
- Organizing scientific workshops and conferences.
- Keeping up with the developments and updates offered by educational institutions and aligning with them .

6. Forensic Chemistry

Module Information			
Module Title	Forensic chemistry		**Module Delive y**
Module Type	**Base**		**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**
Module Code	**FOR35027**		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		
Module Level	U	**Semester of Delivery**	1
Administering Department	Forensic \FOR	**College**	S CI
Module Leader		**e-mail**	
Module Leader's Acad. Title	Prof.	**Module Leader's Qualification**	Ph. D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules 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	• To develop an appreciation of the analytical approach. • To introduce the student to forensic chemistry.

	• To provide the student with knowledge of the forensic chemistry practical & reporting techniques. • To provide the student with skills in researching the scientific literature and presenting a scientific topic.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Appreciate the correct analytical science approach to measurement and observation. • Understand the some everyday analytical instrumental techniques and their application. • Obtain an appreciation for forensic chemistry techniques and their application to cases. • Record and report observations in a correct scientific fashion. • Carry out appropriate scientific methods for scene analysis.
Indicative Contents المحتويات الإرشادية	***Indicative Sy*** Making & Recordin Measuremen Observations, diagrams & taking pho Scientific Collecting e Fundamental Laboratory Tec **Analytical Techniques as applied to forensic scienc** Sample Pre Chromat Gas & Liquid Chromat Basic Spect Atomic Spect X-Ray Fluorescence- Infrared spect Mass spect **Which includ** Alcohol Bulk drug Analysis Analysis Analysis of fire and ex Analysis of Document

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	All learning materials, including lecture notes, additional multimedia and electronic copies of subject manuals can be found in the relevant modules on Canvas.

	Interactive online lectures: The lectures arm students with the knowledge required to analyse and interpret chemical traces commonly recovered at crime scenes, including emerging technologies and methods that are at the forefront of the discipline. While the focus of the lectures is on trace evidence, the skills acquired in this subject build on the knowledge and professional skills developed in the pre-requisite subjects. The topics discussed in these sessions provide the foundation for the workshops and practicals, where students apply their new knowledge. The lectures are broken into structured blocks of information and application/activity - facilitated by interactive online tools - with opportunities for class discussion and participation. **Practicals:**The practical sessions for Chemical Criminalistics allow students to gain experience with the analysis of different types of chemical and microtraces in a collaborative, professional setting. Students are given four mock cases (based on realistic case scenarios) to investigate as a team during the semester. Prior to commencing each case, student teams will identify hypotheses (propositions of interest), the aims of their investigation, and design and implement an examination strategy to be used in the laboratory. The hands-on session time is dedicated to the analysis of evidence and formulating the initial interpretation of their findings in the context of the case. This initial interpretation is then refined by each student and used to synthesise and report their expert opinion in different styles of expert witness testimony. These classes are student-led with one-on-one and group support provided by teaching and professional staff. As cases are assigned on rotation, students familiarlise themselves with the techniques required for their case scenarios by designing an examination strategy as a pre-lab activity for each new case.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, Physical evidence
Week 2	Chemicals in the criminal.
Week 3	Blood drop studies
Week 4	DNA
Week 5	Toxicology
Week 6	Drugs
Week 7	Fingerprints
Week 8	Forensic medicine
Week 9	Hair and fibers
Week 10	Handwriting and ink analysis
Week 11	Polymer identification
Week 12	Instrument used in forensic chemistry.
Week 13	UV detection
Week 14	Criminal cases
Week 15	exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: safety-and security
Week 2-4	Lab 2-4: sampling sciences

Week 5	Lab 5: Detection, collection, analysis and interpretation of forensic traces
Week 6	Lab 6: identification for different materials by chemical method
Week 7	Lab 7: Select appropriate techniques for evidence recording, packaging and labelling
Week 8	Lab 8: identification of blood
Week 9	Lab 9: identification of drags
Week 10	Lab 10: identification of poisons
Week 11	Lab 11 : identification of toxic material
Week12-14	Lab14: identification of unknown
Week12	Lab15:review before final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Curran, J., Hicks, T., Buckleton, J., Forensic Interpretation of Glass Evidence, CRC Press LLC, 2000 (online & print)	no
Recommended Texts	Nanotoxicity: From In Vivo and In Vitro Models to Health Risks, Editor(s): Saura C. Sahu Daniel A. Casciano	yes
Websites	https://www.intechopen.com/chapters/66164	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

7. Graduation Project

Module Information معلومات المادة الدراسية					
Module Title	**project**			**Module Delivery**	
Module Type	**Core**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR**				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1		**Semester of Delivery**	1	
Administering Department	FORN		**College**	SC	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2023		**Version Number**	1.0	

Relation with other Modules 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	4-Students will be expected to demonstrate practice skills and knowledge of social work theory and methods of intervention and apply these appropriately in an ethical and research evidence based way to the context of social work practice. 5-The module aims to help students develop an awareness of the methods and techniques available for further investigation of the problem, including designing investigations, collecting appropriate results, analysing the results and evaluating the results and the process by which they have been achieved. 6-The module aims to provide students with an understanding of the legal, ethical and professional context of Computer Science, in its applied context.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	4. On successfully completing the module students will be able to: 1. Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to Forensic Science. 2. Demonstrate skills in presenting scientific material and arguments clearly and correctly, to a range of audiences. 3. Demonstrate competence in the planning, design and execution of research investigations, from the problem-recognition stage through to the evaluation and appraisal of results and findings; this to include the ability to select appropriate techniques and procedures.
Indicative Contents المحتويات الإرشادية	This module will include the following:[2h for each step] • Development of a project topic and carrying out independent research • Complete management of the project. • Writing a literature review of the selected area of investigation. • Writing a progress report. • Performing an investigation in a group setting with minimal supervision. • Giving a presentation. • Writing a project report.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم

Strategies	The majority of learning will be independent learning, in line with other courses on the programmes. The teaching will mainly be in the form of Pre-recorded lectures and Seminar sessions. Each lecture will be based around exercises applying and illustrating the particular theme that week with specific reference to practical HR issues (e.g. diversity analysis for bivariate analysis, predicting turnover from selection scores for regression and prediction, making sense of engagement surveys with factor analysis, analysing the gender pay gap for moderation, etc.).

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Review Introduction
Week 2	Who Needs Research Ethics?

Week 3	Ethical Decision-Making
Week 4	Conflict of Interest
Week 5	Research Misconduct and Whistleblowing
Week 6	Mentorship
Week 7	Human Subjects Research and the IRB
Week 8	Research with Animals
Week 9	Authorship and Peer Review
Week 10	Authorship and Research Misconduct
Week 11	Entrepreneurship and Commercialization
Week 12	exam
Week 13	Practical Applications in Reporting and Peer Review
Week 14	Scientists' Relationships with Funding Sources
Week 15	Student Presentations

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Adams, R., Dominelli, L. & Payne, M., 2009. Social Work Themes, Issues and Critical Debates. Basingstoke: Palgrave Macmillan	Yes
Recommended Texts	Kara, H., 2017. Research and Evaluation for Busy Students and Practitioners, 2nd ed. Bristol: Policy Press	No
Websites	https://readinglists.surrey.ac.uk	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

Module Description 4th Grade course 2

1. Course Specification Form (Weapons and Toolmarks)

Course Description (Weapons and Toolmarks)

Weapons and Tool marks for Students of the College of Science / Department of Forensic Evidence / Fourth Level

This academic program description provides a concise summary of the most important characteristics of the program and the learning outcomes the student is expected to achieve, demonstrating whether they have made the most of the available opportunities. It is accompanied by a description of each course within the program.

1. Educational Institution	Al-Karkh University of Science / College of Science
2. Scientific Department / Center	Department of Forensic Evidence
3. Course Name / Code	Weapons and Toolmarks / 402
4. Available Attendance Modes	Compulsory
5. Semester / Year	First Semester / 2023-2024 (Course System)
6. Number of Study Hours (Total	30hours
7. Date of Preparing This Description	2024/2/18

1. Course Objectives
1- Students will study the anatomical and physiological principles of the human body's functioning.
2- Students will study the forensic medical aspects to be applied upon human death.
3- Students will study the physical changes that occur to the deceased body after death.
4- Students will study the classification of wounds and their causing factors
5- Students will study gunshot injuries and firearms
6- Students will study drowning, asphyxiation, burns, hypothermia, and accident injuries.
7- Students will study explosions and their impact on the human body
8- Students will study infant mortality and the types of methods used in child abuse.
9Course Outcomes, Teaching, Learning, and Assessment Methods

A- Cognitive Objectives
B- Course-Specific Skill Objectives
Teaching and Learning Methods
1- Measurement method 2- Self-learning method 3- Theoretical and video lectures 4- Practical lectures and training students on using laboratory equipment
Assessment Methods
1- Daily quizzes

2- Scientific research
3- Monthly exams
4- Practical exams
5- Final exam

C- Affective and Value Objectives

a. Strengthening the relationship between the course instructor and the student
b. Encouraging the student's interest in studying the subject
c. Honesty in work and not prioritizing the material aspect over the professional ethical aspect

Teaching and Learning Methods

1. Presenting educational videos to the student
2. Working in the laboratory and conducting experiments
3. Illustrative aids such as PowerPoint
4. Explanation by the instructor and video recording the lecture

Assessment Methods

- Oral questions
- Homework
- Term and daily exams
- Reports

General and Transferable Skills
(Other skills related to employability and personal development)

8. Course Structure

Week	Hours	Intended Learning Outcomes	Teaching Method	Assessment Method
First	2	Human anatomy and physiology	Theoretical Lecture	Weekly Exam
Second	2	Medical aspects of death	Theoretical Lecture	Weekly Exam
Third	2	Injury classification & causes	Theoretical Lecture	Weekly Exam
Fourth	2	Firearms and firearm injuries	Theoretical Lecture	Weekly Exam
Fifth	2	Asphyxia	Theoretical Lecture	Weekly Exam
Sixth	2	Drowning	Theoretical Lecture	Weekly Exam
Seventh	2	Hypothermia	Theoretical Lecture	Weekly Exam
Eighth	2	Fires, burns and carbon monoxide poisoning	Theoretical Lecture	Weekly Exam
Ninth	2	Explosions	Theoretical Lecture	Weekly Exam
Tenth	2	Child deaths and abuse	Theoretical Lecture	Weekly Exam

9. Infrastructure

➢ **Siddheshwar Forensic science book – Dr. Satish Shindadkar sir.** ➢ **Forensic medicine and jurisprudence –S.K.Singhal**	-Required Textbooks
➢ **Forensic notes – Dr. Pravin Firke sir** ➢ **Forensic notes – Dr. Satish Shindadkar sir.** ➢ **Amarasekara, K., & Bagaric, M. (2004). Moving from voluntary euthanasia to non-voluntary euthanasia: equality and compassion. Ratio Juris, 17(3), 398-423.**	-Main References (Sources)
➢ **Angell M.The case of Helga Wanglie. NEJM 1991;325: 511-512.** ➢ **Miles SH. Informed demand for "nonbeneficial treatment. NEJM 1991;325:512-515.** ➢ **Emergency Cardiac Care Committee JAMA 1992; 268: 2282-2288.** ➢ **American Thoracic Society Ann Intern Med 1991;115: 478-485.**	Recommended Books and References (Scientific Journals, Reports, etc)
➢ **http://welcometoafreeworld.blogspot.com/2010/06/germany-supreme-court-rules-assisted.htm** ➢ **http://www.pitt.edu/~cep/31wear.html** ➢ **http://myportfolio.usc.edu/schaikin/2009/10/physician** ➢ **http://www.csmonitor.com/USA/2010/0102/Montana-becomes-third-state-to-legalize-physician-assisted-suicide**	Electronic References, Websites, etc.

10. Course Development Plan

- Updating information for theoretical and practical lectures to keep pace with developments
- Introducing modern technologies
- -Enhancing technical education skills

Course Description Form

College of Science / Forensic evidence science

1. Course Name:
Automated DNA Analysis of Tissues and Fibers
2. Course Code:
3. Semester / Year:
First Semester / 2025-2026 (Course System)
4. Description Preparation Date:
1/9/2025
5. Available Attendance Forms:
Mandatory
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours (2 theory + 1 practical) weekly
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hala Email:
8. Course Objectives

Course Objectives	1- .The student will learn about DNA and its structure 2- The student will understand forensic science related to DNA .and its sources 3- The student will learn how to collect DNA evidence in criminal sciences 4- Learning how to analyze DNA in forensic medicine and biotechnology tools in the sciences 5- The most important tools of biotechnology in the sciences and applications of forensic science are defined 6- The diversity of DNA forms and categories is studied
9. Teaching and Learning Strategies	
Strategy	1. The student will learn about DNA and its structure.

	2. The student will learn about forensic DNA and its sources. 3. The student will learn how to collect DNA evidence in forensics. 4. The student will learn how to analyze DNA in forensics and the tools of biotechnology in science. 5. The student will learn about the most important biotechnology tools in science and their applications in forens science. 6. The student will study the different types and categories DNA.

10. Course Structure

The week	Hours	Name of the unit or topic	Required learning outcomes	Learning method	Assessment method
First	2+1	,Study knowledge, a practical application	DNA structure a functions	+ Theoretical Practical	Gener Quest ons a Discu sion
Second	2+1	,Study knowledge, a practical application	DNA forensic science	+ Theoretical Practical	Gener Quest ons a Discu sion
Third	2+1	,Study knowledge, a practical application	Tissue (biology source of DNA evidence)/skin		
Fourth		+ Theoretical Practical	General Questio and Discussion		
Fifth	2+1	,Study knowledge, a practical application	Tissue (biology source of DNA evidence)/hair	+ Theoretical Practical	Gener Quest ons a Discu sion
Sixth	2+1	,Study knowledge, a practical application	Tissue (biology source of DNA evidence)/bone	+ Theoretical Practical	Gener Quest ons a Discu sion
Seventh	2+1	,Study knowledge, a practical application	Tissue (biology source of DNA evidence)/teeth		
eighth	2+1	,Study knowledge, a	Collecting DNA evidence at crim sciences		

		practical application			
ninth		+ Theoretical Practical	General Questio and Discussion		
tenth	2+1	,Study knowledge, a practical application	Biological evide and collection	+ Theoretical Practical	Gener l Quest ons a Discu sion
eleventh	2+1	,Study knowledge, a practical application	DNA polymorphism a classes	Practical exan	Mont ly ex
The twelfth	2+1	,Study knowledge, a practical application	/ polymorphism blood group	+ Theoretical Practical	Gener l Quest ons a Discu sion
thirteenth	2+1	,Study knowledge, a practical application	single nucleotide polymorphism (SNP)	+ Theoretical Practical	Gener l Quest ons a Discu sion
fourteenth	2+1	,Study knowledge, a practical application	Microsatellites o short tandem rep	+ Theoretical Practical	Gener l Quest ons a Discu sion
fifteenth					

Evaluation of the course (distribution of the grade out of 100 according to the tasks assigned to the -11 (.student such as daily preparation, daily, oral, monthly, and written exams, and reports, etc						
Final Exam	Activities	Duty	attendance	monthly exam	da y exam	
50	10	10	10	10		10

3. Forensic Psychology

1. Course Name:	**Forensic Psychology**
2. Course Code:	FOR35130
3. Semester / Year:	2025 / 2026
4. Description Preparation Date:	01/09/2026
5. Available Attendance Forms:	In-person / Online
6. Number of Credit Hours (Total) / Number of Units (Total)	75 / 3
7. Course administrator's name (mention all, if more than one name)	م.م يوسف حسن
8. Course Objectives	
Course Objectives	Forensic psychology is the scientific study of criminals' thoughts, intentions, and reactions, as well as the behaviors that contribute to the commission of crime. Interest in the psychological aspects of offenders led to the emergence of this field. It also developed due to the inability of social institutions to find appropriate solutions to deter criminal behavior, and the resulting persistence of such behavior. In addition, societies have expressed concern over the increasing prevalence and evolution of crime in both small and large communities. Many educational institutions, in some countries, have also struggled to adequately guide adolescents and modify their behavior. These challenges motivated psychologists and educators to investigate and research these issues that have placed significant burdens on societies and security systems worldwide. **Objectives of teaching this course for forensic science students:** 1. To detect crime and identify the offender on a scientific and humane basis, relying on observable behavioral traits of suspects and linking them to the crime scene. 2. To study criminal behavior in terms of its causes and conscious and unconscious motivations, which helps in understanding the personality of the offender and forming hypotheses that either confirm or eliminate suspicion regarding the accused based on personality traits. 3. To study the environmental and situational factors that facilitate and contribute to the occurrence of crime.

	4. To classify criminals according to their age, types of crimes, and psychological and mental conditions in order to define the specific characteristics of each offender category. 5. The integration of psychology into legal cases involves the use of psychological theories and research methodologies to better understand legal issues. This can range from the micro level, such as understanding the motives behind a specific crime, to the macro level, such as evaluating the effectiveness of rehabilitation programs within the prison system.
9. Teaching and Learning Strategies	
Strategy	The teaching and learning strategy for delivering this course includes the following aspects: **First:** Continuous use of external scientific sources throughout the semester, incorporating them into seminar-style discussion sessions led by the course instructor. **Second:** Providing expertise in the field of specialization throughout the semester, with at least two experts invited to present their experience as forensic investigators through the discussion of various criminal cases with students. **Third:** Assigning students to work in groups to write reports on selected cases, agreed upon with the course instructor, to be discussed during the second half of the semester. **Fourth:** Conducting scientific visits to relevant institutions in the field of forensic psychology, in order to observe and analyze various case details, which in turn enhances students' practical skills and experience.

10. Theoretical Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1		Define general and forensic psychology and explain their relationship to forensic sciences.	Introduction to General Psychology and Forensic Psychology	Lecture and classroom discussion	
2		Distinguish between the branches of general psychology and the functions of each.	Branches of General Psychology	Lecture and visual presentations	
3		Identify branches of forensic psychology such as criminal, police, legal, and correctional psychology.	Branches of Forensic Psychology	Lecture and discussion	
4		Explain criminal and deviant behavior from a psychological perspective.	Criminal and Deviant Behavior Psychology	Lecture and case studies	

5		Describe the role of psychology in policing and court systems.	Police and Legal Psychology	Lecture and professional simulation	
6		Explain psychological rehabilitation methods for offenders.	Correctional Psychology	Lecture and discussion	
7		Analyze the relationship between psychological disorders and criminal behavior.	Mental Health and Criminal Behavior	Lecture and case studies	
8		Explain the influence of genetic factors on criminal behavior.	Forensic Psychology and Genetics	Lecture and scientific discussion	
9		Relate personality traits to criminal behavior.	Personality Traits and Crime	Lecture and personality assessments	
10		Analyze the relationship between economic conditions and crime.	Poverty and Crime	Lecture and case studies	
11		Explain the motivations behind criminal behavior in adult males.	Criminal Behavior of Adult Males and Their Motives	Lecture and discussion	
12		Describe the long-term effects of childhood abuse on future criminal behavior.	Child Abuse and Its Future Impact	Lecture and case studies	
13		Apply behavioral analysis techniques to understand suspect motivations.	Applications of Forensic Psychology (Behavioral Analysis)	Lecture and practical applications	
14		Assess the credibility of testimonies using psychological tools.	Evaluation of Testimonies and Witness Reliability	Lecture and courtroom simulation	
15		Integrate forensic psychology concepts in research analysis and prepare for the final exam.	Research Topics and Comprehensive Review + Preparatory Week	Review, discussion, and student presentations	

11. Practical Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1					
2					
3					
4					

5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

12. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**علم النفس** الاكلينيكى التطورات المعاصرة فى الفحص والتشخيص والعلاج النفسى الأستاذة اسيا الجري الطبعة الثانية 2018
Main references (sources)	**The Psychology of Criminal Conduct: Theory, Research and Practice** by Ronald Blackburn 2011
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://fivebooks.com/best-books/forensic-psychology-david-canter/

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

4. Principles of Medical jurisprudence

Module Information معلومات المادة الدراسية					
Module Title	**Principles of Medical jurisprudence**			**Module Delivery**	
Module Type	**Core**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR48042**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level		1	**Semester of Delivery**		1
Administering Department		FOR	**College**	SC	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientiic Committee Approval Date		01/09/2023	**Version Number**		1.0

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The main aim of this course is to provide a sound understanding of pollution and their causes to enable a well-informed strategy to controlling them. The aim of the course will be achieved by: • introducing you to pollution control practices right from the local approach to the use of modern techniques • inderstanding the concept of pollution • classifying the various forms of pollution • understanding the methods of controlling pollution • explaining different environmental media • providing you the basic knowledge of living with pollution free environment.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of this course, the student in forensic department should be able to: • define and explain the concept of pollution • identify different types of pollutants • explain varying forms of pollution • describe sources of pollution • state the different environmental media • discuss the impact of pollutants on the environment and human health • explain the strategies for the control of pollution.
Indicative Contents المحتويات الإرشادية	The indicative contents required: 1- understanding things or items or media (water, food, soil, Air) are found in their natural, pure and pristine forms as expected in both quality and quantity.[20h] 2- The phenomena of pollution occur in our environment every day as a result of our daily endeavours/activities either deliberately or by share coincidence. [15h] 3- At a micro level we pollute the water we reserved for drinking even at home by pouring some ink or paint or saw dust into the reservoir thereby making it noticeably changed or polluted and unattractive for drinking.[20h] 4- larger level a stream can be polluted by emptying large human excreta into it, Often things or items or media (water, food, soil, Air) are found in their natural, pure and pristine forms as expected in both quality and quantity. [18h] 5- When an undesirable substance which normally is not an aspect of that originalitem/mediais found in such a noticeable concentration as to affect the value of such item/media, pollution has taken place. [16h]

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	strategy for working through the course: 1. Read this course guide thoroughly 2. Organise a study schedule. Refer to the _course content', for more details. 3. Once you have created your own study schedule, do everything you can to stick to it. The major reason that students fail is that they get behind with their course work. If your get into difficulties with your schedule, please let your tutor know before it is too late. 4. Turn to unit 1 and read the introduction and the objectives for the unit. 5. Work through the unit. The content of the unit itself has been arranged to provide a sequence for student to follow.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.1
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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - enviromental toxins and distrial pollution
Week 2	Definition and Concept of Pollution
Week 3	Types and Classification of Pollutants and Contaminants
Week 4-5	Environmental Media 1 (Air) Environmental Media 2 (Water) Environmental Media 3 (Soil) Environmental Media 4 (Food)
Week 6	Anthropogenic Sources of Pollution
Week 7	Monitoring of Pollutants and Contaminants Assessment of Pollutants
Week 8-9	Impact of Pollutants on Human Health Impact of Pollutants on the Ecosystem Economic Impact of Pollution
Week 10	Industrial Methods of Pollution Control
Week 11	Waste Management Control Measures
Week 12	
Week 13-14	Pollution and forensic science
Week 15	exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: safety and security
Week 2	Lab 2: how to collect sample (sampling science)
Week 3	Lab 3: identification of pollution in air
Week 4-5	Lab 4-5: identification of pollution in water
Week 6-7	Lab 6-7: identification of pollution in soil
Week 8-9	Lab 8-: determination of heavy metals in environments
Week -10	Lab 10-11: determination the effect of exposure for pollutant for human body.
Week 11-12	Lab 11-12: identification the Excretion of Toxins
Week 13-14	Lab13-14: identification Types of Exposure
Week 15	exam

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	https://nou.edu.ng/coursewarecontent/EHS211%20.pdf POLLUTION CONTROL	Yes
Recommended Texts	https://www.atsdr.cdc.gov/training/toxmanual/modules/2/lectureno tes.html#anchor_1556579661564	yes
Websites	https://www.epa.gov/expobox/exposure-assessment-tools-media-air	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

5. crime scene

Module Information معلومات المادة الدراسية					
Module Title	**crime scene**			**Module Delivery**	
Module Type	**Core**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR23008**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		1	**Semester of Delivery**		1
Administering Department		FORN	**College**		SCI
Module Leader	م.م عدنان ملوح		**e-mail**		adnanmalooh65@gmail.com
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor	Name (if available)		**e-mail**		E-mail

Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	none	**Semester**	2/1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Upon completion of this module, the student can: 1-explain the key theories and approaches of Crime Science. differentiate the (classical) sociological-criminological approach from modern Crime Science. 2-apply the Crime Science mind-set to real-life crime and security problems. 3-critically reflect upon crime prevention and security policymaking. 4-Formulate a response strategy to security and crime problems. 5-analyse long-standing as well as pressing future issues in crime prevention and detection. 6-Upon completion of this module, the student can: 7-explain the key theories and approaches of Crime Science. 8-differentiate the (classical) sociological-criminological approach from modern Crime Science. 9-apply the Crime Science mind-set to real-life crime and security problems. 10-critically reflect upon crime prevention and security policymaking. 11-formulate a response strategy to security and crime problems. 12-analyse long-standing as well as pressing future issues in crime prevention and detection.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successfully completing the module you will be able to... 1. Describe in some detail and discuss the cellular and molecular basis of inheritance

	2. Explain the differences between acquired, monogenic, polygenic and epigenetic disease 3. Explain the different mechanisms by which genes are regulated in humans 4. Discuss the contribution of genetics and environment to disease processes in humans 5. Show awareness of, and discuss the ethical issues in modern genetics 6. Discuss with examples the importance of interaction between patients, scientists and clinician
Indicative Contents المحتويات الإرشادية	Lectures: [6 h] Introduction to Forensic Science, Crime Scene to Court Process. Scenes of Crime: The role of crime scene investigators in the preservation, recovery and recording of evidence at the scene of crime and evaluation of crime scene evidence. Overview of Forensic Science in the UK: Police Forces Scientific Support in relation to other Forensic Agencies. Overview of physical evidence including DNA, Toxicology, footwear and tool marks, finger-marks. Introduction to forensic evidence associated with arson, explosions and firearms. Courts and their structure. Giving expert testimony; evidence-in-chief and cross-examination. Admissibility of forensic evidence in Court: differences between UK and USA. Writing of laboratory reports and expert witness statements. Health and safety issues at scenes and in forensic examination. Thus: the main inductive contents include: [4h for each part] 1-The importance of a crime scene and of material evidence in criminal proceedings 2-The role of the court-appointed expert in criminal proceedings 3- Forms of evidence, kinds of traces and methods of analysis 4-Searching for and securing evidence and Case study 5-Searching for and recovering evidence that is accepted in court 6- Independent analysis and documentation of this evidence 7- Defence and discussion of the results. 8-Computer systems and IT/computing science Internet, WWW, HTML Calculations based on spreadsheet programs Basics of programming . 9-The students provide evidence of active participation in the tutorial relating to the lecture by solving exercises in class and/or by taking a written test at the end of the semester.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Students will attend formal timetabled lectures throughout the module. There will be class discussions and the opportunity to share information, and develop good communication skills. Students will visit a series of simulated crime scenes, where they will gain practical experience of crime scene examination. This will include the search, identification and recording of evidence located at these scenes. Students will complete reports on crime scene examination including, risk assessment, results and evaluation.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	42	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	33	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - crime science
Week 2	collect and package evidence, prepare laboratory submission forms and identify errors in them,
Week 3	recover contact trace material in practical forensic examination, and write a simple expert report
Week 4-5	The role of crime scene investigators in the preservation, recovery and recording of evidence at the scene of crime and evaluation of crime scene evidence.
Week 6	the scope, methods and limitations of crime scene examination and forensic enquiry in the crime to court process.
Week 7	main evidence types in volume, major and serious crimes
Week 8	Evidence found at crime scenes.
Week 9	□ Investigation of crime scenes. □□ □

Week 10	Search techniques.
Week 11	Recovering evidence and other information.
Week 12	Team working at crime scenes.
Week 12-13	Reporting crime
Week 14	scene investigations.
Week 15	Exam
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Cook, T. Hill, M. and Hibbitt, S. (2016) Blackstone's Crime Investigator's Handbook. Oxford: Oxford University Press.	Yes
Recommended Texts	Beaufort- Moore, D. (2015) Crime Scene Management and Evidence Recovery, 2nd Edition. Oxford: Oxford University Press	No
Websites	Self html (the English version is still (early 2005) in its infancy at: http://www.selfhtml.org/	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

6. Basics of fingerprint analysis and fonts

Module Information معلومات المادة الدراسية					
Module Title	**Basics of fingerprint analysis and fonts**			**Module Delivery**	
Module Type	**Core**			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	**FOR48042**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	4		**Semester of Delivery**	2	
Administering Department	FOR		**College**	SC	
Module Leader	Name		**e-mail**	E-mail	

Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/09/2023	**Version Number**	1.0

Relation with other Modules

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	A fingerprint-based biometric system is essentially a pattern recognition system that recognizes a person by determining the authenticity of her fingerprint. Depending on the application context, a fingerprint-based biometric system may be called either a verification system or an identification system: • a verification system authenticates a person's identity by comparing the captured fingerprints with her own biometric template(s) pre-stored in the system. It conducts one-to-one comparison to determine whether the identity claimed by the individual is true; • an identification system recognizes an individual by searching the entire template database for a match. It conducts one-to-many comparisons to establish the identity of the individual.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. After studying this module, you shall be able to know – 2. • The correlation between fingerprints and ridges on the fingertips. 3. • The functions of finger ridges. 4. • Fundamental principles on which the science of fingerprinting and sign is based. 5. • The broad patterns of fingerprints. 6. • How fingerprints and sign may be used for individualization.
Indicative Contents المحتويات الإرشادية	**Indicative continent required four section:** **Pattern** area is a part of a loop or a whorl where appears the core, deltas and ridges that are primarily responsible for classifying fingerprints. It exists in all patterns but in most arches, it is indefinable.[20h] **Type lines enclose** the pattern areas of loops and whorls. Type lines are the ridges that determine the pattern area of loops and whorls. The arches lack presence of type lines. These may be well-defined as the two inner most ridges starting parallel or run parallel to each other then, diverge and tend to covers the Pattern Area. They do not form two continuous ridges. Infact, they are frequently seen to split apart. [26h] **Delta is formed** when a ridge bifurcates and two arms of the bifurcating ridge diverge or when two adjacent ridges running side by side diverge causing an interspace within which the pattern lies. [20h]

	Core is the central point of the pattern. The core is approximately the center of the finger impression[20h]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Choosing an indexing technique alone is usually not sufficient; a retrieval strategy is also usually defined according to the application requirements, such as the desired accuracy and efficiency, the matching algorithm used to compare fingerprints, the involvement of a human reviewer, and so on. In general, different strategies may be defined for the same indexing mechanism. For instance, the search may be stopped when a fixed portion of the database has been explored or as soon as a matching fingerprint is found. (In latent fingerprint individualization, a forensic expert visually examines the fingerprints that are considered sufficiently similar by the minutiae matcher and terminates the search when a true correspondence is found.)

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Basics of fingerprint analysis and fonts
Week 2	the basics of fingerprint recognition
Week 3	the 3 basic types of fingerprint patterns
Week 4	types of fingerprint classification
Week 5	fingerprint format and steps of fingerprinting
Week 6	the most common type of fingerprin
Week 7	levels of fingerprints
Week 8	basic categories of fingerprints
Week 9	Development of the Identification System by Fingerprints
Week 10	Fingerprint Analysis
Week 11	
Week 12	Parameters influence in fingerprint
Week 13	Applications of fingerprint
Week 14	
Week 15	exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: safety and security
Week 2	Lab 2: Collecting Latent Prints
Week 3	Lab 3: analysis the parts of fingerprint
Week 4	Lab 4: identifying Ridge of fingerprint
Week 5	Lab 5: Developers method for fingerprint
Week 6	Lab 6: Developers method for fingerprint
Week 7	Lab 7: Developers method for fingerprint
Week 8	Lab 8: analysis fingerprint
Week 9-10	Lab9-10: identification of fingerprint by different conditions microscopy
Week 11-12	Lab 11: development method for identify fingerprint
Week 13-14	Lab 13 -14: experimental applications of fingerprint
Week 15	exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Bazen, A.M., Gerez, S.H.: Segmentation of Fingerprint Images. Proc. Workshop on Circuits Systems and Signal Processing (ProRISC 2001) (2001) 276 280	Yes
Recommended Texts	https://www.ojp.gov/pdffiles1/nij/225320.pdf fingerprint sources	No
Websites	https://collections.nlm.nih.gov/catalog/nlm:nlmuid-9513718-bk	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required