

Academic Program Description Form

University name/Wasit University

College/Institute/ College of Science

Scientific Department/ Department of pathological analysis

Name of the academic or professional program/

Bachelor's degree in of pathological analysis

Name of final degree/ Bachelor of Science in of pathological analysis & Bachelor of Science in of pathological analysis

Academic system/ semesters**Description Preparation Date:**

File Completion Date: 7 / 9 / 2025

Signature:

Head of Department Name:

Dr. Hussein Ali Mohammed

Date: 8 / 9 / 2025

Signature:

Scientific Associate Name:

Dr. Ali Jabbar Freih

Date: 9 / 9 / 2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date : 11\9\2025

Signature/-

م.م. دنيا فاضل عباس
مسؤول قسم ضمان الجودة والإدارة العامة

Approval of the Dean

الاستاذ المساعد الدكتور
فائق حميد حسين المياحي
عميد كلية العلوم

ا.م.د. فائق جمیل حسن

Assist Prof

Dr. Faik Jameel Hassan Mayah

Dear



**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**

Academic Program and Course Description Guide

2026-2025

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.

1. Program Vision

The Pathological Analysis Department strives to champion education and scientific research based on modern and advanced principles that keep pace with rapid technological progress and discoveries and inventions in various disciplines that form the backbone of the department. In addition to following a scientific and educational research methodology for the teaching staff in order to raise generations with a high level of awareness and competence to bear responsibility and contribute effectively to building our beloved country and raising its status among nations, The department's vision also aims to spread a spirit of optimism and hope for a bright future for students, teaching staff and employees in the department, scientifically, artistically, administratively and even on a human level, by strengthening the bonds of love and peace among its members.

Therefore, the strategic vision of the department is to be integrated in terms of infrastructure, human resources, economic resources, and modern technology, and to be a source of attraction for students of science and a beacon of scientific and humanistic output. In particular, the Department of Pathological Analysis must integrate its specializations, which are microbiology, biochemistry, pathology, hematology and genetics.

2. Program Mission

The department adopts honesty, sincerity and prudence as its mission and approach in preparing specialised human resources who enter the job market with confidence and contribute scientifically and practically to building society and driving it forward through involvement in various state institutions, especially medical ones, given their impact on human health and safety. In order to complement the department's mission, it must emphasise conducting sound scientific studies and research, particularly applied research aimed at serving society and the country. The department's mission is imbued with a humanitarian dimension through instilling the principles of medical ethics in its graduates as they practise their profession, thus making the department's mission scientific, national, economic and humanitarian.

3. Program Objectives

Provided that ambition remains and aspirations for the future continue to be entertained, the ceiling of goals will be subject to renewal through the agency of new developments, activity, and diligent work. Such work may be undertaken by the department's staff or through the support and overcoming of difficulties by the

college and university administrations. The department's strategic goals are as follows:

- 1-The primary objective is the preparation of human resources that will contribute to the development and progress of society.
- 2-The conferring of bachelor's degrees in pathological analysis constitutes the fundamental basis upon which the medical field is constructed.
- 3-Thirdly, the introduction of postgraduate studies in a range of medical specialisations is to be noted.
4. The development of the research skills of the department's students is to be pursued through the following means: firstly, by following the scientific research methodology; secondly, by keeping pace with technical developments; and thirdly, by applying everything new and innovative in practice.
5. It is recommended that the teaching staff be encouraged and supported in their efforts to be creative and innovative by publishing applied and academic research in international research journals with a high impact factor.
6. It is vital to ensure that the Department of Pathological Analysis maintains a fixed goal of becoming a source of scientific and practical inspiration for state institutions and society. This can be achieved by holding conferences, training courses, introductory seminars, and other activities that raise the level of the department and the faculty and reflect positively on the university.
7. The establishment of a scientific and administrative system within the department is imperative, with the objective of ensuring its development and progression in accordance with the university's growth and societal demands.
8. The integration of contemporary technological frameworks within educational settings and the administration of departments is a subject that warrants consideration.
9. It is imperative that scientific and cultural exchange with international universities is elevated to the status of a strategic objective for the department. This should be achieved through the implementation of research fellowships, study missions, and training courses.
10. The establishment of an integrated data unit is to be based on comprehensive quality standards in education, under the supervision of competent specialists from the department.

4. Program Accreditation

Does the program have program accreditation? And from which agency?
NO.

5. Other external influences

Weak infrastructure in the labor market.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	-	-	-	-
College Requirements	4	24	-	-
Department Requirements	34	180	%50	Basic
Summer Training	-	-	-	-
Other	-	-	-	-

* This can include notes whether the course is basic or optional.

Description of the academic program

المرحلة الثالثة - الفصل الاول :

عدد الوحدات	عدد الساعات الاسبوعية		الدرس باللغة الإنكليزية	الدرس باللغة العربية	ت
	العملي	النظري			
3	2	2	Infectious diseases	امراض معدية	1
3	2	2	Clinical immunology	مناعة سريرية	2
3	2	2	Medical molecular biology	علم الاحياء الجزيئي الطبي	3
3	2	2	Pathological analysis	تحليلات مرضية	4
3	2	2	Microbial diagnosis	تشخيص مايكروبي	5
3	2	2	Hematology	علم الدم	6
18	12	12		المجموع (24 ساعة)	

المرحلة الثالثة - الفصل الثاني

ت	الدرس باللغة العربية	الدرس باللغة الإنكليزية	عدد الساعات الاسبوعية		عدد الوحدات
			النظري	العملي	
1	البكتريا الملوثة للمياه والاعذية	Food and water polluted bacteria	2	2	3
2	كيمياء سريرية	Clinical chemistry	2	2	3
3	وراثة طبية	Medical genetics	2	2	3
4	علم الاجنة	Embryology	2	2	3
5	مضادات حيوية	Antibiotics	2	2	3
6	تقنيات احيائية طبية	Medical biotechnology	2	2	3
المجموع (24 ساعة)					
			12	12	18

المرحلة الرابعة الفصل الاول

ت	الدرس باللغة العربية	الدرس باللغة الإنكليزية	عدد الساعات الاسبوعية		عدد الوحدات
			النظري	العملي	
1	امراض دم	Blood diseases	2	2	3
2	علم المصول واللقاحات	Serology and Vaccine	2	2	3
3	هندسة وراثية	Genetic engineering	2	2	3
4	المعلوماتية الحيوية	Bioinformatics	2	2	3
5	الادلة الجنائية	Forensic Science	2	2	3
المجموع (24 ساعة)					
			10	10	15

المرحلة الرابعة الفصل الثاني

ت	الدرس باللغة العربية	الدرس باللغة الإنكليزية	عدد الساعات الاسبوعية		عدد الوحدات
			النظري	العملي	
1	علم سموم	Toxicology	2	2	3
2	غدد صم	Endocrinology	2	2	3
3	علم الامراض النسيجية	Pathology	2	2	3
4	علم الوبائيات	Epidemiology	2	2	3
5	مشروع بحث	Graduation project	0	2	2

14	10	8	المجموع (24 ساعة)
----	----	---	-------------------

7. Expected learning outcomes of the program
Knowledge
Graduates of the Department of Pathological Analysis receive a bachelor's degree in pathological analysis. This degree provides them with basic knowledge in the field of pathological analysis, with a focus on general biology, biotechnology, molecular biology, and blood analysis, as well as the fundamentals of pre-medical or pre-dental education. After completing all stages, students are qualified to enrol in professional health programmes and work in practical laboratories, environmental centres, and scientific research centres. They can also pursue postgraduate studies. The scientific outcomes that students achieve after graduation are: A1- The ability to enumerate cell components and explain their relationship to each other in a living cell. A2- The ability to present research results in their field of specialisation in written and oral form. A3- The ability to conduct various biological laboratory experiments and field studies using scientific equipment, taking into account biosafety and biosecurity protocols. A4- The ability to analyse data statistically.
Skills
B1-Teaching students how to think logically. B2- Teaching students how to analyse and use the vocabulary of the prescribed curriculum. B3- Developing students' mental and personal abilities in their specialisation is an important part of their field of study. B4- Equipping students with communication skills and the ability to use modern teaching techniques effectively.
Ethics
C1- Directing his requests within a short period of time C2- Develop and support discussions within the classroom
D - General and transferable skills (other skills related to employability and personal development).
D1 - Basic communication skills through (sports activities, educational guidance, college-specific conferences, department-specific seminars, and seminars to discuss student research). D2 - Teaching students how to develop and enhance creative and innovative thinking skills in the field of specialization.

8. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in the implementation of the program in general.

9. Evaluation methods
Implemented at all stages of the program in general.

10. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof. Dr. Hussein Ali Mohamed	Veterinary medicine	Virology			Yes	
Assist. Prof. Dr. Ali Mahdi mutlaq	Veterinary medicine	Histology			Yes	
Assist. Prof. Dr. Mahdi saber al-dresawi	Biology	Molecular biology			Yes	
Prof. Dr. Noor habib humaidan	Biology	Zoology-immunity			Yes	
Assist. Prof. Dr. jenan tuma	Biology	Genetics			Yes	
Prof. Dr. mutashar jaduua	Veterinary medicine	Physiology			Yes	
Assist. Prof. Dr. majeda abdukhaliq ali	Biology	Parasitology			Yes	
Prof. zinah shakir shalal	Veterinary medicine	Infectious diseases			Yes	
Assist. Prof. Dr. naser nafia Ibrahim	Biology	Nano Biotechnology			Yes	
Dr. Nada hameed ajam	Biology	Zoology- Physiology			Yes	
Assist. prof. Aqdas Mohamed	Biology	Zoology- Physiology			Yes	
Dr. Asawer A. Ibrahim	Biology	Zoology-Histology			Yes	
Dr. hanan sajad ahmed	Biology	Zoology- Physiology			Yes	
Dr. Zahra alwan jasim	Biology	Zoology- Physiology			Yes	
Dr. Lina musa khadim	Biology	Zoology-genetics			Yes	
Assist. Lec. Ali Shakir kamil	Biology	Zoology- virology			Yes	

Assist. Lec. Raghda saad jameel	Biology	Biotechnology			Yes	
Assist. Lec. Aya hatam	Biology	Zoology- genetics			Yes	
Assist. Lec. Aya ethaib Mohamed	Biology	Zoology-parasite			Yes	
Assist. Lec. Ehab majed abas	Biology	Microbiology			Yes	
Assist. Lec. Mohsen abas sahib	Biology	Microbiology			Yes	
Dr. Hala fauzy hasan	Biology	Zoology-genetics			Yes	
Assist. Lec. Sama ali fadhil	Biology	Zoology-physiology			Yes	
Assist. Lec. Anfal abdulsalam	Biology	Microbiology			Yes	
Assist. Lec. Zainab ali abdulhussein	Computer	Computer			Yes	
Assist. Lec. Ansam majed hasan	Law	Law			Yes	
Assist. Lec. Zahra jalil obaid	Biology	Zoology-histology			Yes	
Dr. Rafel firas jabber	Biology	Zoology-histology			Yes	
Assist. Lec. Rusul faris kadhim	Biology	Zoology-histology			Yes	
Dr. Raghad ali Hussein	Biology	Zoology-histology			Yes	
Assist. Lec. Ryiam nemah akar	Medical microbiology	Medical microbiology			Yes	
Assist. Lec. Nabaa ali	Biology	Microbiology			Yes	
Assist. Lec. Duaa abdukhaliq	Biology	Zoology-parasite			Yes	
Assist. Lec. Ahmed abdulrazaq	Biology	Microbiology			Yes	
Assist. Lec. Eman hamza khudur	Biology	Zoology-physiology			Yes	
Assist. Lec. Nora abas farhan	Biology	Biology			Yes	

Karar ali tawfiq	Biology	Biology			Yes	
Assist. Lec. Zahra karim jabber	Biology	Biology			Yes	
Mohamed razaq Hussein	Pathological analysis	Pathological analysis			Yes	

Professional Development

Mentoring new faculty members

Directing new faculty members to the need to work on developing the scientific method, methods of delivering scientific lectures, and how to deliver scientific material to the student.

Professional development of faculty members

Work on finding development ideas and work on developing scientific laboratories and the scientific aspect, as the students' specialization is a scientific specialization.

11.Acceptance Criterion

Students who graduate from the preparatory school, the scientific branch, are allowed to be admitted to the College of Science, Department of Pathological analysis, after passing the preparatory stage and passing it with a rate of 70 or more for admission.

12.The most important sources of information about the program

1. Books prescribed by the Ministry of Higher Education and Scientific Research.
2. External scientific sources.
3. Use libraries and the Internet..

13.Program Development Plan

The department has a lot of methodological and research plans for the development of the department, where the department presidency, the department council and the scientific committee are working to provide all the requirements for the development of the department.

Program skills chart																			
Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation																			
Learning outcomes required from the programme																			
General and qualifying transferable skills (other skills related to employability and personal development)				Emotional and value goals				Subject-specific skill objectives				Cognitive objectives				Basic Or optional	Course Name	Course Code	Year/level
		D2	D1			C2	C1	B4	B3	B2	B1	A4	A3	A2	1A				
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Principles of microbiology		First stage - the first semester
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Human cytology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Analytical chemistry		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Biosafety and biosecurity		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Computer		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	English language		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Principles of pathological analysis		First stage - the
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Human anatomy		

		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Medical physics		second semeste r
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Statistics		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Human rights and democracy		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Arabic language		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Human histology		Second stage – first semeste r
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Pathogenic bacteria		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Medical virology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Principles of physiology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Parasitic protozoa		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	General genetics		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Crimes of baath regime in Iraq		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Principles of immunology		Second stage – second semeste r
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Medical physiology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Parasitic heminths		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Biochemistry		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Computer 2		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	English language 2		

		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Arabic language 2		Third stage first semester
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Infectious diseases		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Clinical immunology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Medical molecular biology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Pathological analysis		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Microbial diagnosis		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Hematology		Third stage - second semester
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Food and water polluted bacteria		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Clinical chemistry		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Medical genetics		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Embryology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Antibiotics		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Medical biotechnology		Forth stage - first semester
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Blood diseases		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Serology and Vaccine		

		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Genetic engineering		r
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Bioinformatics		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Forensic Science		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Toxicology		Forth stage - second semeste r
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Endocrinology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Pathology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Epidemiology		
		√	√			√	√	√	√	√	√	√	√	√	√	Basic	Graduation project		

المرحلة الثالثة-فصلي

الفصل الاول

2025-2026م

Course Description Form

1. CourseName: Clinical immunology	
2. CourseCode: Path-223	
3. Semester/Year: semester	
4. Description Preparation Date: 2025-9-1	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 4	
7.Courseadministrator's name (mentionall,if morethanone name) Name: Prof .Dr noor habeeb	
8. Course Objectives	
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours 4	Definition of Immunity and Immune system. Historical Background of Immunolog	Introduction to Immunology as Science	Data show	
2	hours 4	Innate host defenses A. Anatomical barriers against infections: B. Humoral barriers against infections: C. Cellular barriers against infections: Characteristics of non-specific (Innate) immunity	Innate Immunity	Data show	Quizzes and monthly exam.
3	hours 4	Granulocytes:- polymorphonuclear cells Non- granulated cells Monocyte Lymphocytes	Cells of the immune system	Data show	Quizzes and monthly exam.
4	hours 4	Characteristics of Acquired Immunity Classification of adaptive immunity	Adeptive immunity	Data show	Quizzes and monthly exam.
5	hours 4	Lymph nodes Spleen	Lymphatic organs	Data show	Quizzes and monthly exam.
6	hours 4	Mechanisms of IR Primary IR Secondary IR	The effectiveness of the immune system and the immune response	Data show	Quizzes and monthly exam.
7	hours 4	Properties of Immunogen Haptens adjuvant	Antigens and Immunogen	Data show	Quizzes and monthly exam.
8	hours 4	Structure of Ab Classes of Ab	Antibodies	Data show	Quizzes and monthly exam.
9	hours 4	Consequences of Antigen-Antibody Binding Properties of Ag-Ab reaction	Antigen-Antibody Reaction	Data show	Quizzes and monthly exam.

10	hours 4	Pathways of Complement activation	Complement System	Data show	Quizzes and monthly exam.
11	hours 4	Organ specific autoimmune diseases Non -Organ specific autoimmune diseases	Autoimmune diseases	Data show	Quizzes and monthly exam.
12	hours 4	Central and peripheral tolerance	Immunologic Tolerance	Data show	Quizzes and monthly exam.
13	hours 4	Types of Immune-deficiency Factors cause immune deficiency	Immunodeficiency	Data show	Quizzes and monthly exam.
14	hours 4	Immune cell with antitumor activity Tumor associated antigens immunotherapy	Relationship between tumor and immunity	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	Quizzes and monthly exam.

--	--	--	--	--	--

11. Course Evaluation

Distributing the score out of 100 according to the tasks assign 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)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Molecular Biology	
2. Course Code	
3. Semester / Year: Semester	
4. Description Preparation Date: 1-9-2025	
5. Available Attendance Forms: Theoretical and Practical	
6. Number of Credit Hours: (4) , Number of Units (3)	
7. Course administrator's name (mention all, if more than one name)	
Name : Mahdi Saber Al-deresawi Email: Malderesawi@uowasit.edu.iq	
8. Course Objectives	
Course Objectives ***** ***** 1. Enabling the students understand nucleic acids and their various types. 2. Enhance students' ability to recognize genetic mutations and understand how they are linked to certain genetic disorders. 3. Prepare students to participate in scientific research focusing on the molecular level. 4. Familiarize students with contemporary molecular techniques and highlight their significance in the fields of diagnosis and treatment.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures presented using modern methods of presentation, such as video lectures or electronic lectures for training purposes.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Molecular Biology: Introduction and History Background	Introduction	LCD	Quizzes, Monthly exams, Seminars and Daily activity
2	2	Nucleic Acids : DNA	DNA	LCD	Quizzes, Monthly exams, Seminars and Daily activity
3	2	Nucleic acids: RNA	RNA	LCD	Quizzes, Monthly exams, Seminars and Daily activity
4	2	RNA Transcription	Transcription	LCD	Quizzes, Monthly exams, Seminars and Daily activity
5	2	RNA modification and splicing	RNA splicing	LCD	Quizzes, Monthly exams, Seminars and Daily activity
6	2	DNA Replication	Replication	LCD	Quizzes, Monthly exams, Seminars and Daily activity
7	2	Mutagens and Mutations	Mutation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
8	2	Repair Systems	Repair systems	LCD	Quizzes, Monthly exams, Seminars and Daily activity
9	2	Gene Regulation	Gene Regulation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
10	2	Transposable Elements	Transposon	LCD	Quizzes, Monthly exams, Seminars and Daily activity
11	2	Genetic Vectors	Plasmids	LCD	Quizzes, Monthly exams, Seminars and Daily activity
12	2	Bacterial genetics: conjugation	conjugation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
13	2	Bacterial genetics: Transformation	Transformation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
14	2	Bacterial genetics: Transduction	Transduction	LCD	Quizzes, Monthly exams, Seminars and Daily activity
15	2	Genetic engineering	Gene cloning	LCD	Quizzes, Monthly exams, Seminars and Daily activity

11- Course Evaluation

12- Learning and Teaching Recourse

Required textbooks (Curricular book, if any)	Molecular Biology /3rd Edition- 2018 David Clark, Nanette Pazdernik, Michelle McGehee
Main references (Source)	ABC OF CLINICAL GENETICS /Third edition/Helen M Kingston <i>Consultant Clinical Geneticist, Regional Genetic Service, St Mary's Hospital, Manchester, UK</i>
Recommended books and reference (Scientific journal m reports....	Molecular Genetics of Bacteria/4th Edition Jeremy W. Dale and Simon F. Park/University of Surrey, UK
Electronic Reference	https://www.objectivequiz.com/dna-replication- questions-answers

Course Description Form

1. CourseName: Pathological Analysis					
2. CourseCode:					
3. Semester/Year: semester					
4. DescriptionPreparationDate: 1-9-2025					
5.AvailableAttendanceForms: (theoretical and practical)					
6.Number of Credit Hours (4)/ Number of Unit s(Total) 3					
7.Courseadministrator's name (mentionall,if morethanone name)					
Name: assist. Prof. Dr . naser nafia Ibrahim nalaurashy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.					
9. Teaching and Learning Strategies					
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	hours 4	Definition of hematology as science, Function of blood and the composition of blood	Introduction to pathological analysis	Data show	Quizzes and monthly exam.
2	hours 4	Hematopoiesis period and Haemopoietic growth factors	Haemopoiesis	Data show	Quizzes and monthly exam.
3	hours 4	myeloid and lymphoid stem cells, classification and function	progenitor cells	Data show	Quizzes and monthly exam.
4	hours 4	Steps of erythropoiesis process, Erythrocyte production, and metabolism	Erythropoiesis	Data show	Quizzes and monthly exam.
5	hours 4	Steps of hemostasis, Formation of a Platelet Plug	Hemostasis	Data show	Quizzes and monthly exam.
6	hours 4	Types of Hemoglobin, Abnormalities of Hemoglobin Production, and Haemoglobin Degradation	Hemoglobin Production and Degradation	Data show	Quizzes and monthly exam.
7	hours 4	Synthesis of Heme-molecule and Synthesis of Globin-molecule	Synthesis of Haemoglobin	Data show	Quizzes and monthly exam.
8	hours 4	Iron Absorption and Metabolism, Dietary Iron: Heme Iron and non- Heme Iron	Iron Metabolism	Data show	Quizzes and monthly exam.
9	hours 4	Regulation of Total Iron in The Body, The sites of iron storage in the body	Iron transport and storage	Data show	Quizzes and monthly exam.
10	hours 4	Platelets formation and function	Platelets	Data show	Quizzes and monthly exam.
11	hours 4	Membrane lipid in Outer Monolayer and inner Monolayer	Erythrocyte Membrane – lipid composition	Data show	Quizzes and monthly exam.

12	hours 4	Types of Erythrocyte Membrane Proteins and Membrane integrity	Erythrocyte Membrane Proteins Composition	Data show	Quizzes and monthly exam.
13	hours 4	Regulation of RBC production and Degradation	The life cycle of a red blood cell	Data show	Quizzes and monthly exam.
14	hours 4	Disorders of leukocyte ,function Leukaemoid reaction, and General characteristic of monocytes	white blood cells (leucocytes)	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	Quizzes and monthly exam.

	1- الكتب المقررة المطلوبة
- Essentials of Clinical Pathology Book First Edition: 2010 ISBN 978-93-80704-19-7 - Manual of laboratory and Diagnostic Tests. Edition (8) copyright2009 Vol. (1) (2).by Lippincott Williams& wilkins. - Robbins Pathology Books - Textbook of Diagnostic Microbiology ISBN: 978-1-4160-6165-6-Fourth Edition.	2- المراجع الرئيسية (المصادر)
Molecular diagnostics - Healthcare scientist - Laboratory automation - Automated analyzer	أ- الكتب والمراجع التي يوصى بها (المجلات العلمية , التقارير ,)
International Laboratory Accreditation Cooperation. ILAC http://ilac.org/signatory-detail Health Management Technology magazine Journal of Laboratory Automation	ب - المراجع الالكترونية, مواقع الانترنت

Course Description Form

1. Course Name: Diagnostic Microbiology	
2. Course Code:	
3. Semester/Year: Semester	
4. Description Preparation Date: 2025-9-1	
5. Available Attendance Forms: (Theoretical and Practical)	
6. Number of Credit Hours (Total)/Number of Units (Total) 30hr , 3 Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof .Dr. Hussein Ali Al.Bayati hmohmmad@uowasit.edu.iq 	
8. Course Objectives	
Course Objectives 1. Develop a working knowledge of techniques and procedures commonly used in the clinical microbiology laboratory. 2. Use appropriate safety protocol and laboratory techniques for processing specimens.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations. The students should gain fundamental knowledge on various aspects of virology and immunology and should get acquainted

	with the infrastructure required for working with viruses and to also acquire knowledge about various safety measures.
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours	Introduction and History	Introduction	Data show	
2,3	4 hours	Biosafety Levels and its related Microorganisms	Risk and managements	Data show	Quizzes and monthly exam.
4,5	4 hours	Diagnostic applications	Different Methods	Data show	Quizzes and monthly exam.
6,7	4 hours	Blood infections Diag	Diagnosis and Prevention	Data show	Quizzes and monthly exam.
8	2 hours	Respiratory tract infections Diag	-----	Data show	Quizzes and monthly exam.
9,10	4 hours	Urinary tract infection	-----	Data show	Quizzes and monthly exam.
11,12	4 hours	Genital tract infections	-----	Data show	Quizzes and monthly exam.
13,14	4 hours	Digestive Tract Infections	-----	Data show	Quizzes and monthly exam.
15	4 hours	C.N.S infections, Exam	-----	Data show	Quizzes and monthly exam.

--	--	--	--	--	--

11. Course Evaluation

Distributing the score out of 100 according to the tasks assign 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)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. CourseName: Infectious diseases	
2. CourseCode:	
3. Semester/Year: semester	
4. Description Preparation Date: 2025-9-1	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: prof. Ahmed Darwesh Jabar adarweesh@uowasit.edu.iq	

8. Course Objectives	
Course Objectives ***** • Prepare the laboratory samples individually. - Providing the student with the ability to draw blood samples and perform various blood analyses. • Implementing plans, instructions and controls issued by the higher authorities. . Conduct all laboratory experiments while adhering to modern technologies. • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours 4	The important infectious diseases and the methods of transmitting of infectious diseases.	Microbiology safety rules.	Data show	
2	hours 4	The important methods to prevent, control of infectious diseases and defenses against infection	Procedure and equipment's for specimen collection.	Data show	Quizzes and monthly exam.
3	hours 4	-Anthrax disease and <i>Mycobacterium spp</i>	Analytical profile index, and principle of its.	Data show	Quizzes and monthly exam.
4	hours 4	Morphology, shape of Botulism disease.	Bacterial culture techniques, and study the morphological of shape of bacteria	Data show	Quizzes and monthly exam.
5	hours 4	Bacterial staining methods and study culture techniques of its.	<i>Staphylococcus spp.</i> , <i>E. coli</i> and Salmonellosis .	Data show	Quizzes and monthly exam.
6	hours 4	Monthly Exam.		Data show	Quizzes and monthly exam.
7	hours 4	<i>Haemophilus influenzae</i> , Pasturelosis and the methods of transmission.	Bacterial staining methods and study the incubation conditions and duration through the culturing techniques of its.	Data show	Quizzes and monthly exam.
8	hours 4	Vibriosis and Campylobacterosis.	To study the method which use to Culture and Cultivation of its Bacteria.	Data show	Quizzes and monthly exam.

9	hours 4	Giardiasis , <i>Cryptosporidium spp.</i> and Scabies infection	The important methods to diagnosis of this parasites	Data show	Quizzes and monthly exam.
10	hours 4	Malaria disease.	The methods techniques to prepare blood slide and staining from infected patient	Data show	Quizzes and monthly exam.
11	hours 4	Classification of viruses and study Corona virus general characteristics of virus and life cycle of its.	The methods techniques to diagnosis of corona virus.	Data show	Quizzes and monthly exam.
12	hours 4	Monthly Exam.		Data show	Quizzes and monthly exam.
13	hours 4	Hepatitis virus.	The methods techniques to diagnosis of virus	Data show	Quizzes and monthly exam.
14	hours 4	HIV ,MUMPS ,Herpes simples virus .	The methods techniques to diagnosis of viruses	Data show	Quizzes and monthly exam.
15	hours 4	Small pox , Ebolavirus . Final Exam	The methods techniques to diagnosis of viruses	Data show	Quizzes and monthly exam.

--	--	--	--	--	--

11. Course Evaluation

Distributing the score out of 100 according to the tasks assign 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)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. CourseName: Hematology					
2. CourseCode:					
3. Semester/Year: semester					
4. DescriptionPreparationDate: 2025-9-1					
5.AvailableAttendanceForms: (theoretical and practical)					
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3					
7.Courseadministrator's name (mentionall,if morethanone name)					
Name: lecturer Dr . Aqdas mohammed aaltaiy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.					
9. Teaching and Learning Strategies					
Strategy		Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	hours 4	Definition of hematology as science, Function of blood and the composition of blood	Introduction to hematology	Data show	Quizzes and monthly exam.
2	hours 4	Hematopoiesis period and Haemopoietic growth factors	Haemopoiesis	Data show	Quizzes and monthly exam.
3	hours 4	myeloid and lymphoid stem cells, classification and function	progenitor cells	Data show	Quizzes and monthly exam.
4	hours 4	Steps of erythropoiesis process, Erythrocyte production, and metabolism	Erythropoiesis	Data show	Quizzes and monthly exam.
5	hours 4	Steps of hemostasis, Formation of a Platelet Plug	Hemostasis	Data show	Quizzes and monthly exam.
6	hours 4	Types of Hemoglobin, Abnormalities of Hemoglobin Production, and Haemoglobin Degradation	Hemoglobin Production and Degradation	Data show	Quizzes and monthly exam.
7	hours 4	Synthesis of Heme-molecule and Synthesis of Globin-molecule	Synthesis of Haemoglobin	Data show	Quizzes and monthly exam.
8	hours 4	Iron Absorption and Metabolism, Dietary Iron: Heme Iron and non- Heme Iron	Iron Metabolism	Data show	Quizzes and monthly exam.
9	hours 4	Regulation of Total Iron in The Body, The sites of iron storage in the body	Iron transport and storage	Data show	Quizzes and monthly exam.
10	hours 4	Platelets formation and function	Platelets	Data show	Quizzes and monthly exam.
11	hours 4	Membrane lipid in Outer Monolayer and inner Monolayer	Erythrocyte Membrane – lipid composition	Data show	Quizzes and monthly exam.

12	hours 4	Types of Erythrocyte Membrane Proteins and Membrane integrity	Erythrocyte Membrane Proteins Composition	Data show	Quizzes and monthly exam.
13	hours 4	Regulation of RBC production and Degradation	The life cycle of a red blood cell	Data show	Quizzes and monthly exam.
14	hours 4	Disorders of leukocyte ,function Leukaemoid reaction, and General characteristic of monocytes	white blood cells (leucocytes)	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign 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)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

المرحلة الثالثة-فصلي

الفصل الاول

2025-2026م

Course Description Form

1. CourseName: Clinical immunology	
2. CourseCode: Path-223	
3. Semester/Year: semester	
4. Description Preparation Date: 2025-9-1	
5. Available Attendance Forms: (theoretical and practical)	
6. Number of Credit Hours (Total)/Number of Unit s(Total) 4	
7. Course administrator's name (mention all, if more than one name) Name: Prof .Dr noor habeeb	
8. Course Objectives	
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours 4	Definition of Immunity and Immune system. Historical Background of Immunolog	Introduction to Immunology as Science	Data show	
2	hours 4	Innate host defenses A. Anatomical barriers against infections: B. Humoral barriers against infections: C. Cellular barriers against infections: Characteristics of non-specific (Innate) immunity	Innate Immunity	Data show	Quizzes and monthly exam.
3	hours 4	Granulocytes:- polymorphonuclear cells Non- granulated cells Monocyte Lymphocytes	Cells of the immune system	Data show	Quizzes and monthly exam.
4	hours 4	Characteristics of Acquired Immunity Classification of adaptive immunity	Adeptive immunity	Data show	Quizzes and monthly exam.
5	hours 4	Lymph nodes Spleen	Lymphatic organs	Data show	Quizzes and monthly exam.
6	hours 4	Mechanisms of IR Primary IR Secondary IR	The effectiveness of the immune system and the immune response	Data show	Quizzes and monthly exam.
7	hours 4	Properties of Immunogen Haptens adjuvant	Antigens and Immunogen	Data show	Quizzes and monthly exam.
8	hours 4	Structure of Ab Classes of Ab	Antibodies	Data show	Quizzes and monthly exam.
9	hours 4	Consequences of Antigen-Antibody Binding Properties of Ag-Ab reaction	Antigen-Antibody Reaction	Data show	Quizzes and monthly exam.

10	hours 4	Pathways of Complement activation	Complement System	Data show	Quizzes and monthly exam.
11	hours 4	Organ specific autoimmune diseases Non -Organ specific autoimmune diseases	Autoimmune diseases	Data show	Quizzes and monthly exam.
12	hours 4	Central and peripheral tolerance	Immunologic Tolerance	Data show	Quizzes and monthly exam.
13	hours 4	Types of Immune-deficiency Factors cause immune deficiency	Immunodeficiency	Data show	Quizzes and monthly exam.
14	hours 4	Immune cell with antitumor activity Tumor associated antigens immunotherapy	Relationship between tumor and immunity	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	Quizzes and monthly exam.

--	--	--	--	--	--

11. Course Evaluation

Distributing the score out of 100 according to the tasks assign 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)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Molecular Biology	
2. Course Code	
3. Semester / Year: Semester	
4. Description Preparation Date: 1-9-2025	
5. Available Attendance Forms: Theoretical and Practical	
6. Number of Credit Hours: (4) , Number of Units (3)	
7. Course administrator's name (mention all, if more than one name)	
Name : Mahdi Saber Al-deresawi Email: Malderesawi@uowasit.edu.iq	
8. Course Objectives	
Course Objectives ***** ***** 1. Enabling the students understand nucleic acids and their various types. 2. Enhance students' ability to recognize genetic mutations and understand how they are linked to certain genetic disorders. 3. Prepare students to participate in scientific research focusing on the molecular level. 4. Familiarize students with contemporary molecular techniques and highlight their significance in the fields of diagnosis and treatment.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures presented using modern methods of presentation, such as video lectures or electronic lectures for training purposes.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Molecular Biology: Introduction and History Background	Introduction	LCD	Quizzes, Monthly exams, Seminars and Daily activity
2	2	Nucleic Acids : DNA	DNA	LCD	Quizzes, Monthly exams, Seminars and Daily activity
3	2	Nucleic acids: RNA	RNA	LCD	Quizzes, Monthly exams, Seminars and Daily activity
4	2	RNA Transcription	Transcription	LCD	Quizzes, Monthly exams, Seminars and Daily activity
5	2	RNA modification and splicing	RNA splicing	LCD	Quizzes, Monthly exams, Seminars and Daily activity
6	2	DNA Replication	Replication	LCD	Quizzes, Monthly exams, Seminars and Daily activity
7	2	Mutagens and Mutations	Mutation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
8	2	Repair Systems	Repair systems	LCD	Quizzes, Monthly exams, Seminars and Daily activity
9	2	Gene Regulation	Gene Regulation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
10	2	Transposable Elements	Transposon	LCD	Quizzes, Monthly exams, Seminars and Daily activity
11	2	Genetic Vectors	Plasmids	LCD	Quizzes, Monthly exams, Seminars and Daily activity
12	2	Bacterial genetics: conjugation	conjugation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
13	2	Bacterial genetics: Transformation	Transformation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
14	2	Bacterial genetics: Transduction	Transduction	LCD	Quizzes, Monthly exams, Seminars and Daily activity
15	2	Genetic engineering	Gene cloning	LCD	Quizzes, Monthly exams, Seminars and Daily activity

11- Course Evaluation

12- Learning and Teaching Recourse

Required textbooks (Curricular book, if any)	Molecular Biology /3rd Edition- 2018 David Clark, Nanette Pazdernik, Michelle McGehee
Main references (Source)	ABC OF CLINICAL GENETICS /Third edition/Helen M Kingston <i>Consultant Clinical Geneticist, Regional Genetic Service, St Mary's Hospital, Manchester, UK</i>
Recommended books and reference (Scientific journal m reports....	Molecular Genetics of Bacteria/4th Edition Jeremy W. Dale and Simon F. Park/University of Surrey, UK
Electronic Reference	https://www.objectivequiz.com/dna-replication- questions-answers

Course Description Form

1. CourseName: Pathological Analysis					
2. CourseCode:					
3. Semester/Year: semester					
4. DescriptionPreparationDate: 1-9-2025					
5.AvailableAttendanceForms: (theoretical and practical)					
6.Number of Credit Hours (4)/ Number of Unit s(Total) 3					
7.Courseadministrator's name (mentionall,if morethanone name)					
Name: assist. Prof. Dr . naser nafia Ibrahim nalaurashy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.					
9. Teaching and Learning Strategies					
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	hours 4	Definition of hematology as science, Function of blood and the composition of blood	Introduction to pathological analysis	Data show	Quizzes and monthly exam.
2	hours 4	Hematopoiesis period and Haemopoietic growth factors	Haemopoiesis	Data show	Quizzes and monthly exam.
3	hours 4	myeloid and lymphoid stem cells, classification and function	progenitor cells	Data show	Quizzes and monthly exam.
4	hours 4	Steps of erythropoiesis process, Erythrocyte production, and metabolism	Erythropoiesis	Data show	Quizzes and monthly exam.
5	hours 4	Steps of hemostasis, Formation of a Platelet Plug	Hemostasis	Data show	Quizzes and monthly exam.
6	hours 4	Types of Hemoglobin, Abnormalities of Hemoglobin Production, and Haemoglobin Degradation	Hemoglobin Production and Degradation	Data show	Quizzes and monthly exam.
7	hours 4	Synthesis of Heme-molecule and Synthesis of Globin-molecule	Synthesis of Haemoglobin	Data show	Quizzes and monthly exam.
8	hours 4	Iron Absorption and Metabolism, Dietary Iron: Heme Iron and non- Heme Iron	Iron Metabolism	Data show	Quizzes and monthly exam.
9	hours 4	Regulation of Total Iron in The Body, The sites of iron storage in the body	Iron transport and storage	Data show	Quizzes and monthly exam.
10	hours 4	Platelets formation and function	Platelets	Data show	Quizzes and monthly exam.
11	hours 4	Membrane lipid in Outer Monolayer and inner Monolayer	Erythrocyte Membrane – lipid composition	Data show	Quizzes and monthly exam.

12	hours 4	Types of Erythrocyte Membrane Proteins and Membrane integrity	Erythrocyte Membrane Proteins Composition	Data show	Quizzes and monthly exam.
13	hours 4	Regulation of RBC production and Degradation	The life cycle of a red blood cell	Data show	Quizzes and monthly exam.
14	hours 4	Disorders of leukocyte ,function Leukaemoid reaction, and General characteristic of monocytes	white blood cells (leucocytes)	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	Quizzes and monthly exam.

	1- الكتب المقررة المطلوبة
• Essentials of Clinical Pathology Book First Edition: 2010 ISBN 978-93-80704-19-7 • Manual of laboratory and Diagnostic Tests. Edition (8) copyright2009 Vol. (1) (2).by Lippincott Williams& wilkins. • Robbins Pathology Books • Textbook of Diagnostic Microbiology ISBN: 978-1-4160-6165-6-Fourth Edition.	2- المراجع الرئيسية (المصادر)
Molecular diagnostics • Healthcare scientist • Laboratory automation • Automated analyzer	ا- الكتب والمراجع التي يوصى بها (المجالات العلمية , التقارير ,)
International Laboratory Accreditation Cooperation. ILAC http://ilac.org/signatory-detail Health Management Technology magazine Journal of Laboratory Automation	ب - المراجع الالكترونية, مواقع الانترنت

Course Description Form

1. Course Name: Diagnostic Microbiology	
2. Course Code:	
3. Semester/Year: Semester	
4. Description Preparation Date: 2025-9-1	
5. Available Attendance Forms: (Theoretical and Practical)	
6. Number of Credit Hours (Total)/Number of Units (Total) 30hr , 3 Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof .Dr. Hussein Ali Al.Bayati hmohammad@uowasit.edu.iq 	
8. Course Objectives	
Course Objectives 1. Develop a working knowledge of techniques and procedures commonly used in the clinical microbiology laboratory. 2. Use appropriate safety protocol and laboratory techniques for processing specimens.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations. The students should gain fundamental knowledge on various aspects of virology and immunology and should get acquainted

	with the infrastructure required for working with viruses and to also acquire knowledge about various safety measures.
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours	Introduction and History	Introduction	Data show	
2,3	4 hours	Biosafety Levels and its related Microorganisms	Risk and managements	Data show	Quizzes and monthly exam.
4,5	4 hours	Diagnostic applications	Different Methods	Data show	Quizzes and monthly exam.
6,7	4 hours	Blood infections Diag	Diagnosis and Prevention	Data show	Quizzes and monthly exam.
8	2 hours	Respiratory tract infections Diag	-----	Data show	Quizzes and monthly exam.
9,10	4 hours	Urinary tract infection	-----	Data show	Quizzes and monthly exam.
11,12	4 hours	Genital tract infections	-----	Data show	Quizzes and monthly exam.
13,14	4 hours	Digestive Tract Infections	-----	Data show	Quizzes and monthly exam.
15	4 hours	C.N.S infections, Exam	-----	Data show	Quizzes and monthly exam.

--	--	--	--	--	--

11. Course Evaluation

Distributing the score out of 100 according to the tasks assign 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)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. CourseName: Infectious diseases	
2. CourseCode:	
3. Semester/Year: semester	
4. Description Preparation Date: 2025-9-1	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: prof. Ahmed Darwesh Jabar adarweesh@uowasit.edu.iq	

8. Course Objectives	
Course Objectives ***** • Prepare the laboratory samples individually. - Providing the student with the ability to draw blood samples and perform various blood analyses. • Implementing plans, instructions and controls issued by the higher authorities. . Conduct all laboratory experiments while adhering to modern technologies. • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours 4	The important infectious diseases and the methods of transmitting of infectious diseases.	Microbiology safety rules.	Data show	
2	hours 4	The important methods to prevent, control of infectious diseases and defenses against infection	Procedure and equipment's for specimen collection.	Data show	Quizzes and monthly exam.
3	hours 4	-Anthrax disease and <i>Mycobacterium spp</i>	Analytical profile index, and principle of its.	Data show	Quizzes and monthly exam.
4	hours 4	Morphology, shape of Botulism disease.	Bacterial culture techniques, and study the morphological of shape of bacteria	Data show	Quizzes and monthly exam.
5	hours 4	Bacterial staining methods and study culture techniques of its.	<i>Staphylococcus spp.</i> , <i>E. coli</i> and Salmonellosis .	Data show	Quizzes and monthly exam.
6	hours 4	Monthly Exam.		Data show	Quizzes and monthly exam.
7	hours 4	<i>Haemophilus influenzae</i> , Pasturelosis and the methods of transmission.	Bacterial staining methods and study the incubation conditions and duration through the culturing techniques of its.	Data show	Quizzes and monthly exam.
8	hours 4	Vibriosis and Campylobacterosis.	To study the method which use to Culture and Cultivation of its Bacteria.	Data show	Quizzes and monthly exam.

9	hours 4	Giardiasis , <i>Cryptosporidium spp.</i> and Scabies infection	The important methods to diagnosis of this parasites	Data show	Quizzes and monthly exam.
10	hours 4	Malaria disease.	The methods techniques to prepare blood slide and staining from infected patient	Data show	Quizzes and monthly exam.
11	hours 4	Classification of viruses and study Corona virus general characteristics of virus and life cycle of its.	The methods techniques to diagnosis of corona virus.	Data show	Quizzes and monthly exam.
12	hours 4	Monthly Exam.		Data show	Quizzes and monthly exam.
13	hours 4	Hepatitis virus.	The methods techniques to diagnosis of virus	Data show	Quizzes and monthly exam.
14	hours 4	HIV ,MUMPS ,Herpes simples virus .	The methods techniques to diagnosis of viruses	Data show	Quizzes and monthly exam.
15	hours 4	Small pox , Ebolavirus . Final Exam	The methods techniques to diagnosis of viruses	Data show	Quizzes and monthly exam.

--	--	--	--	--	--

11. Course Evaluation

Distributing the score out of 100 according to the tasks assign 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)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. CourseName: Hematology					
2. CourseCode:					
3. Semester/Year: semester					
4. DescriptionPreparationDate: 2025-9-1					
5.AvailableAttendanceForms: (theoretical and practical)					
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3					
7.Courseadministrator's name (mentionall,if morethanone name)					
Name: lecturer Dr . Aqdas mohammed aaltaiy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.					
9. Teaching and Learning Strategies					
Strategy		Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	hours 4	Definition of hematology as science, Function of blood and the composition of blood	Introduction to hematology	Data show	Quizzes and monthly exam.
2	hours 4	Hematopoiesis period and Haemopoietic growth factors	Haemopoiesis	Data show	Quizzes and monthly exam.
3	hours 4	myeloid and lymphoid stem cells, classification and function	progenitor cells	Data show	Quizzes and monthly exam.
4	hours 4	Steps of erythropoiesis process, Erythrocyte production, and metabolism	Erythropoiesis	Data show	Quizzes and monthly exam.
5	hours 4	Steps of hemostasis, Formation of a Platelet Plug	Hemostasis	Data show	Quizzes and monthly exam.
6	hours 4	Types of Hemoglobin, Abnormalities of Hemoglobin Production, and Haemoglobin Degradation	Hemoglobin Production and Degradation	Data show	Quizzes and monthly exam.
7	hours 4	Synthesis of Heme-molecule and Synthesis of Globin-molecule	Synthesis of Haemoglobin	Data show	Quizzes and monthly exam.
8	hours 4	Iron Absorption and Metabolism, Dietary Iron: Heme Iron and non- Heme Iron	Iron Metabolism	Data show	Quizzes and monthly exam.
9	hours 4	Regulation of Total Iron in The Body, The sites of iron storage in the body	Iron transport and storage	Data show	Quizzes and monthly exam.
10	hours 4	Platelets formation and function	Platelets	Data show	Quizzes and monthly exam.
11	hours 4	Membrane lipid in Outer Monolayer and inner Monolayer	Erythrocyte Membrane – lipid composition	Data show	Quizzes and monthly exam.

12	hours 4	Types of Erythrocyte Membrane Proteins and Membrane integrity	Erythrocyte Membrane Proteins Composition	Data show	Quizzes and monthly exam.
13	hours 4	Regulation of RBC production and Degradation	The life cycle of a red blood cell	Data show	Quizzes and monthly exam.
14	hours 4	Disorders of leukocyte ,function Leukaemoid reaction, and General characteristic of monocytes	white blood cells (leucocytes)	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign 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)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

المرحلة الرابعة -فصلي

الفصل الاول

2025-2026م

Forth stage – First semester

Course Description Form

1. Course Name: Forensic science	
2. Course Code:	
3. Semester / Year:	Semester
4. Description Preparation Date: 1-9-2025	
5. Available Attendance Forms: Theoretical and Practical	
6. Number of Credit Hours: (4) , Number of Units (3)	
7. Course administrator's name (mention all, if more than one name)	
Name : Hala Fawzi Hassan Al-Ta'ee Email: haalaf@uowasit.edu.iq	
8. Course Objectives	
Course Objectives ***** 1- To introduce students to the fundamental concepts and principles of forensic evidence and its role in criminal investigations. ***** 2- To develop students' knowledge of the types, sources, collection, preservation, and documentation of forensic evidence. 3- To provide students with an understanding of biological evidence, including blood, body fluids, hair, tissues, and DNA, and their forensic applications. 4- To develop students' skills in the basic laboratory techniques used for the examination and analysis of forensic evidence. 5- To enable students to interpret forensic findings scientifically and understand their importance in crime reconstruction and the judicial process.	
9. Teaching and Learning Strategies	
Strategy	Interactive lectures to explain the fundamental concepts and principles of forensic evidence using examples and real-life cases. Practical and laboratory learning to train students in the collection, preservation, examination, and analysis of forensic evidence. Case studies and group discussions to develop students' critical thinking and ability to analyze evidence and relate it to criminal investigations.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction	Introduction to Forensic Evidence: Concepts and Significance	LCD	Quizzes, Monthly exams, Seminars and Daily activity
2	2	Classification and Types of Evidence	Classification and Types of Forensic Evidence	LCD	Quizzes, Monthly exams, Seminars and Daily activity
3	2	Crime Scene Investigation	Crime Scene Investigation: Examination, Documentation, and Evidence Collection	LCD	Quizzes, Monthly exams, Seminars and Daily activity
4	2	Collection and Preservation of Evidence	Collection, Preservation, and Transportation of Evidence	LCD	Quizzes, Monthly exams, Seminars and Daily activity
5	2	Chain of Custody	Chain of Custody and Evidence Documentation Procedures	LCD	Quizzes, Monthly exams, Seminars and Daily activity
6	2	Physical and Trace Evidence	Physical Evidence and Trace Evidence	LCD	Quizzes, Monthly exams, Seminars and Daily activity
7	2	Fingerprints Evidence	Fingerprint Evidence: Detection and Analytical Methods	LCD	Quizzes, Monthly exams, Seminars and Daily activity
8	2	Biological Evidence	Biological Evidence: Blood, Saliva, Hair, and Tissues	LCD	Quizzes, Monthly exams, Seminars and Daily activity
9	2	Bloodstain Pattern Evidence	Bloodstain Evidence and Bloodstain Patterns	LCD	Quizzes, Monthly exams, Seminars and Daily activity
10	2	Forensic DNA Evidence	Genetic Evidence and DNA Techniques in Criminal Investigation	LCD	Quizzes, Monthly exams, Seminars and Daily activity
11	2	Forensic Toxicology	Forensic Toxicology: Detection of Drugs and Toxic Substances	LCD	Quizzes, Monthly exams, Seminars and Daily activity
12	2	Forensic Anthropology	Forensic Anthropology and Its Applications in Human Identification	LCD	Quizzes, Monthly exams, Seminars and Daily activity
13	2	Document and Handwriting Examination	Forensic Examination of Documents, Signatures, and Handwriting	LCD	Quizzes, Monthly exams, Seminars and Daily activity
14	2	Digital and Other Modern Forensic Evidence	Digital Evidence and Modern Technologies in Forensic Science	LCD	Quizzes, Monthly exams, Seminars and Daily activity
15	2	Evaluation and Presentation of Forensic Evidence	Evaluation, Presentation, and Interpretation of Forensic Evidence in Judicial Proceedings	LCD	Quizzes, Monthly exams, Seminars and Daily activity

11- Course Evaluation

Reviewing and developing the lectures and introducing everything new to this course. Also sending students to factories, hospitals or any other place that increases their knowledge in the field of technology

12- Learning and Teaching Recourse

Required textbooks (Curricular book, if any)	Saferstein, R. (2018). Criminalistics: An
Main references (Source)	Introduction to Forensic Science. 12th ed. Pearson.
	Houck, M. M., & Siegel, J. A. (2015). Fundamentals of Forensic Science. 3rd ed. Academic Press.
	Butler, J. M. (2015). Advanced Topics in Forensic DNA Typing: Methodology. Academic Press.

Course Description Form

1. Course Name: Vaccine and Sera					
2. Course Code					
3. Semester / Year: Semester					
4. Description Preparation Date: 1-9-2025					
5. Available Attendance Forms: Theoretical and Practical					
6. Number of Credit Hours (5) / Number of Units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name : Nada Hameed Ajam					
Email: Nada@uowasit.edu.iq					
8. Course Objectives					
- Study of serum, its components and its role in immunity - Identify vaccines, their components, types, and how they work. - Identify the most important methods used in immunological tests					
9. Teaching and Learning Strategies					
Strategy		Theoretical lectures presented using modern methods of presentation, such as video lectures or electronic lectures for training purposes			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	introduction in serology and vaccination		LCD	Quizzes, Monthly exams, Seminars and Daily activity
2	2	serologic diagnostic methods	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
3	2	herd immunity	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
4	2	types of immunity		LCD	Quizzes, Monthly exams, Seminars and Daily activity

5	2	types of vaccines	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
6	2	first exam	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
7	2	vaccine composition and production	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
8	2	bacilli calmette-guerin (bcg) vaccine and polio vaccines	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
9	2	dpt vaccine and mmr vaccine	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
10	2	hepatitis b vaccine, rotavirus vaccine and haemophilus influenza type b vaccine	•	LCD	Quizzes, Monthly exams, Seminars and Daily activity
11	2	rabies vaccine and chickenpox (varicella zoster) vaccine		LCD	Quizzes, Monthly exams, Seminars and Daily activity
12		second exam		LCD	Quizzes, Monthly exams, Seminars and Daily activity
13		typhoid vaccine, cholera vaccine and influenza vaccine		LCD	Quizzes, Monthly exams, Seminars and Daily activity
14		DNA vaccination		LCD	Quizzes, Monthly exams, Seminars and Daily activity
15		alternative approaches for vaccine production		LCD	Quizzes, Monthly exams, Seminars and Daily activity

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)	
Main references (sources)	Immunology and Serology (Fifth edition) Mary L.Turgeon Clinical Immunology & Serology (Fifth edition) Linda E.Miller
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



Course Description Form

1. Course Name: Bioinformatics					
2. Course Code					
3. Semester / Year: Semester					
4. Description Preparation Date: 1-9-2025					
5. Available Attendance Forms: Theoretical and Practical					
6. Number of Credit Hours (5) / Number of Units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name : Ahmed Darweesh Jabar					
Email: adarweesh@uowasit.edu.iq					
8. Course Objectives					
- Enabling the students understand genetic engineering and their technology. - Enhance students' ability to recognize genetic disease and role of gene therapy in treatment of genetic disorders. - Prepare students to participate in scientific research that deal with the genetic engineering					
9. Teaching and Learning Strategies					
Strategy		Theoretical lectures presented using modern methods of presentation, such as video lectures or electronic lectures for training purposes			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Major types of Bioinformatics Data	Types of data available	LCD	Quizzes, Monthly exams, Seminars and Daily activity
2	2	Nucleic acids	- Isolation of DNA and RNA - Gel electrophoresis - DNA sequencing	LCD	Quizzes, Monthly exams, Seminars and Daily activity
3	2	Restriction enzymes—cutting DNA	- Type of restriction enzymes - DNA modifying enzymes	LCD	Quizzes, Monthly exams, Seminars and Daily activity

			DNA ligase		
4	2	Bioinformatics Essential Terminology	Core Terminology: Biological Data	LCD	Quizzes, Monthly exams, Seminars and Daily activity
5	2	Cloning strategies	- Cloning from mRNA - Cloning from genomic DNA - Advanced cloning strategies	LCD	Quizzes, Monthly exams, Seminars and Daily activity
6	2	The polymerase chain Reaction	The methodology of the PCR More exotic PCR techniques Processing of PCR products Applications of the PCR	LCD	Quizzes, Monthly exams, Seminars and Daily activity
7	2	Selection ,screening, And analysis of recombinants	Genetic selection and screening methods - Screening using nucleic acid hybridization - Use of the PCR in screening Protocols Immunological screening for expressed genes	LCD	Quizzes, Monthly exams, Seminars and Daily activity
8	2	Genetic engineering and biotechnology	- Making proteins - Protein engineering - Examples of biotechnological applications of rDNA technology	LCD	Quizzes, Monthly exams, Seminars and Daily activity
9	2	Transgenic plants and animals	- Transgenic plants - Transgenic animals	LCD	Quizzes, Monthly exams, Seminars and Daily activity
10	2	Bioinformatics	- What Is bioinformatics? - The role of the computer - Biological datasets - bioinformatics as a tool	LCD	Quizzes, Monthly exams, Seminars and Daily activity
11	2	Medical and forensic applications of gene manipulation	Diagnosis and characterization of medical conditions - Treatment using rDNA technology—gene therapy - RNA interference—are Recent discovery with great potential	LCD	Quizzes, Monthly exams, Seminars and Daily activity

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)	GENETIC ENGINEERING Manipulating Mechanisms of Life/ Copyright © 2009 by F Hodge
Main references (sources)	Gene Cloning and Manipulation Second Edition Christopher Howe University of Cambridge
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	An Introduction to Genetic Engineering 3rd Edition Cambridge University Press & Assessment

Course Description Form

1. Course Name: Genetic Engineering					
2. Course Code					
3. Semester / Year: Semester					
4. Description Preparation Date: 1-9-2025					
5. Available Attendance Forms: Theoretical and Practical					
6. Number of Credit Hours (5) / Number of Units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name : Mahdi Saber Al-deresawi					
Email: Malderesawi@uowasit.edu.iq					
8. Course Objectives					
- Enabling the students understand genetic engineering and their technology. - Enhance students' ability to recognize genetic disease and role of gene therapy in treatment of genetic disorders. - Prepare students to participate in scientific research that deal with the genetic engineering.					
9. Teaching and Learning Strategies					
Strategy		Theoretical lectures presented using modern methods of presentation, such as video lectures or electronic lectures for training purposes			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction of genetic engineering	- What is genetic engineering - Laying the foundations - The structure of DNA and RNA	LCD	Quizzes, Mon exams, Semi and Daily activi
2	2	Nucleic acids	- Isolation of DNA and RNA - Gel electrophoresis - DNA sequencing	LCD	Quizzes, Mon exams, Semi and Daily activi

3	2	Restriction enzyme cutting DNA	• Type of restriction enzymes • DNA modifying enzymes • DNA ligase	LCD	Quizzes, Mon exams, Semi and Daily activity
4	2	The methodology of gene manipulation	• Plasmid vectors • Bacteriophage vectors • Other vectors • Getting DNA into cells	LCD	Quizzes, Mon exams, Semi and Daily activity
5	2	Cloning strategies	• Cloning from mRNA • Cloning from genomic DNA • Advanced cloning strategies	LCD	Quizzes, Mon exams, Semi and Daily activity
6	2	The polymerase chain Reaction	• The methodology of the PCR • More exotic PCR techniques • Processing of PCR products • Applications of the PCR	LCD	Quizzes, Mon exams, Semi and Daily activity
7	2	Selection ,screening, And analysis recombinants	• Genetic selection and screening methods • Screening using nucleic acid hybridization • Use of the PCR in screening Protocols • Immunological screening for expressed genes	LCD	Quizzes, Mon exams, Semi and Daily activity
8	2	Genetic engineering biotechnology	• Making proteins • Protein engineering • Examples of biotechnological applications of rDNA technology	LCD	Quizzes, Mon exams, Semi and Daily activity
9	2	Transgenic plants animals	• Transgenic plants • Transgenic animals	LCD	Quizzes, Mon exams, Semi and Daily activity
10	2	Bioinformatics	• What Is bioinformatics? • The role of the computer • Biological datasets • bioinformatics as a tool	LCD	Quizzes, Mon exams, Semi and Daily activity
11	2	Medical and forensic applications of gene manipulation	• Diagnosis and characterization of medical conditions • Treatment using rDNA technology—gene therapy • RNA interference—are Recent discovery with great potential	LCD	Quizzes, Mon exams, Semi and Daily activity
12	2			LCD	Quizzes, Mon exams, Semi and Daily activity
13	2			LCD	Quizzes, Mon

					exams, Semi and Daily activit
14	2			LCD	Quizzes, Mon exams, Semi and Daily activit
15	2			LCD	Quizzes, Mon exams, Semi and Daily activit

11. 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)	GENETIC ENGINEERING Manipulating Mechanisms of Life/ Copyright © 2009 by F Hodge
Main references (sources)	Gene Cloning and Manipulation Second Edi Christopher Howe University of Cambridge
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	An Introduction to Genetic Engineering 3rd Edi Cambridge University Press & Assessment

Course Description Form

1. Course Name: blood diseases					
2. Course Code					
3. Semester/Year: semester					
4. Description Preparation Date: 2025-9-1					
5. Available Attendance Forms: (theoretical and practical)					
6. Number of Credit Hours (Total)/Number of Units (Total) 3					
7. Course administrator's name (mention all if more than one name)					
Name: lecturer Dr . Aqdas mohammed aaltaiy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.					
9. Teaching and Learning Strategies					
Strategy		Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours 4	General introduction and Definition of anemia	Anemia	Data show	Quizzes and monthly exam.
2	hours 4	Iron absorption and metabolism, Causes of iron Iron-deficiency	Iron-deficiency anemia	Data show	Quizzes and monthly exam.

		anemia			
3	hours 4	Types of sideroblastic anemia, diagnosis and treatment of sideroblastic anemia	Sideroblastic Anemia	Data show	Quizzes and monthly exam.
4	hours 4	Congenital sideroblastic anemia, Acquired clonal sideroblastic anemia, and Acquired reversible sideroblastic anemia.	Causes of Sideroblastic Anemia	Data show	Quizzes and monthly exam.
5	hours 4	Causes of sickle cell anemia, Diagnosis and treatment of sickle cell anemia	Sickle Cell Anemia	Data show	Quizzes and monthly exam.
6	hours 4	HbSS, HbSC, HbS beta thalassemia .	Types of sickle cell disease	Data show	Quizzes and monthly exam.
7	hours 4	Definition of Thalassemia Diagnosis and treatment of Thalassemia	Thalassemia	Data show	Quizzes and monthly exam.
8	hours 4	Alpha- thalassemia and Beta thalassemi	Types of Thalassemia	Data show	Quizzes and monthly exam.
9	hours 4	General Definition of Leukemia, Acute Leukemia and chronic Leukemia Diagnosis and treatment of Leukemia	Leukemia	Data show	Quizzes and monthly exam.
10	hours 4	ALL, AML, CLL CML	Types of Leukemia	Data show	Quizzes and monthly exam.
11	hours 4	Causes of megaloblastic anemia, Clinical features of megaloblastic anemia Diagnosis and treatment of Megaloblastic Anemia	Megaloblastic Anemia	Data show	Quizzes and monthly exam.
12	hours 4	Causes of bleeding disorders,	Bleeding Disorders	Data show	Quizzes and monthly exam.

		Types of bleeding disorders Symptoms of bleeding disorder			
13	hours 4	Definition of lymphoma Causes of lymphoma Diagnosis and treatment of lymphoma	Lymphoma	Data show	Quizzes and monthly exam.
14	hours 4	Classification of Reticuloendothelial cell, Functions of Reticuloendothelial System	The reticuloendothelial system (RES)	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

المرحلة الرابعة -فصلي

الفصل الثاني

2025-2026م

Course Description Form

1. Course Name: Toxicology	
2. Course Code	
3. Semester/Year: Semester	
4. Description Preparation Date: 2025-9-1	
5. Available Attendance Forms: (theoretical and practical)	
6. Number of Credit Hours (Total)/Number of Unit s(Total) 30hr , 2	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof .Dr. Hussein Al.Bayati ***** hmohmmad@uowasit.edu.iq ***** *****	
8. Course Objectives	
● Course Objectives ● • Define the microbial toxicology ● Familiar with microorganisms produced toxins ● Differentiate between chemical toxins and biological toxins ● Compare between Endotoxins and Exotoxins ● Diagnose the symptoms of bacterial toxins and mycotoxins ● list the types of bacterial and mycotoxins ● write briefly the structure of any microbial toxin ● Discuss the mechanism action of any toxin ● Describe the detoxification methods of the microbial toxins ● List the method used for assaying the bacterial and myco-toxins ● Diagram the chemical structure of microbial toxins ● Calculate the lethal dose of any toxin ● Predict with the type of toxin through the symptoms Summarize the conditions influencing the production of microbial toxins	

9. Teaching and Learning Strategies

Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.
-----------------	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4 hours	Introduction: to microbial toxicology -Definition of microbial toxins -Historical background about the microbial toxins -Types of toxins (chemical or biological toxins) An overview about Microorganisms produced Toxins	Introduction	Data show	
2	4 hours	General properties of microbial toxins - Properties and Structures of microbial toxins -Mode of action of microbial toxins	TOXIN Characteristics and Action	Data show	Quizzes and monthly exam.
3	4 hours	Bacterial toxins -General properties of bacterial toxins Microorganisms produced toxins	Bacterial toxins	Data show	Quizzes and monthly exam.
4	4 hours	-Type of bacterial toxins (Endotoxins, Exotoxins): Botulinum, Tetanus toxin, Staphylococcal toxins, Anthrax toxin , Diphtheria toxins , Shiga toxin , Salmonella toxins,	Different types of Bacterial Toxins	Data show	Quizzes and monthly exam.

		Erythrotoxic Toxins,			
5	4 hours	-Structure of bacterial toxins -Level of toxicity -Symptom of each bacteria toxins	Toxicity Details	Data show	Quizzes and monthly exam.
6	4 hours	Mechanism of action of bacterial toxins	Cellular interaction	Data show	Quizzes and monthly exam.
7	4 hours	Diseases caused by or associated with bacterial toxins:	Toxin Pathogenesis	Data show	Quizzes and monthly exam.
8	4 hours	Methods for detoxification of bacterial toxins	Toxin antidotes	Data show	Quizzes and monthly exam.
9	4 hours	Production of microbial toxins Factors influence production of bacterial and fungal toxins	Toxin Production	Data show	Quizzes and monthly exam.
10	4 hours	Mycotoxins: -General properties of fungal toxins Microorganisms produced toxins	Mycotoxins	Data show	Quizzes and monthly exam.
11	4 hours	-Type of fungal toxins: (Aflatoxins , Ochratoxin , Citrinin , Ergot Alkaloids, Patulin , Fusarium toxins)	Mycotoxins Types	Data show	Quizzes and monthly exam.
12	4 hours	Structure of fungal toxins -level of toxicity -Symptom of each toxin	Mycotoxins	Data show	Quizzes and monthly exam.
13	4 hours	Mechanism of action of fungal toxins -Diseases associated with fungal toxins	Mycotoxicosis	Data show	Quizzes and monthly exam.

14	4 hours	Methods for detoxification of fungal toxins	Toxicity Treatments	Data show	Quizzes and monthly exam.
15	4 hours	Exam	Exam	Data show	Quizzes and monthly exam.

Course Description Form

1. Course Name: endocrinology					
2. Course Code:					
3. Semester/Year: Semester					
4. Description Preparation Date: 1-9-2025					
5. Available Attendance Forms: (theoretical and practical)					
6. Number of Credit Hours (Total) / Number of Units (Total) 3					
7. Course administrator's name (mention all if more than one name)					
Name: Zahraa Alwan Jassim Zalsaray@uowasit.edu.iq					
8. Course Objectives					
Course Objectives					
9. Teaching and Learning Strategies					
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours 4	Functions of the endocrine system, Functions of the Hypothalamus gland	Endocrine system	Data show	
2	hours 4	Characteristics or properties of hormone, Positive :feedback system,	Feedback mechanism :for hormones	Data show	Quizzes and monthly exam.
3	hours 4	Six important peptide hormones, Physiological Functions of Growth	Pituitary gland	Data show	Quizzes and monthly exam.

		(Hormone (GH)			
4	hours 4	A abnormality of ACTH secretion,Thyroid stimulation hormones :((TSH	Adrenocorticotrophic hormone (ACTH	Data show	Quizzes and monthly exam.
5	hours 4	Definition and function of Thyroid gland	Thyroid gland	Data show	Quizzes and monthly exam.
6	hours 4	Diagnostic and Symptoms of the disorder of thyroid gland	Grave's Disease	Data show	
7	hours 4	Function of Parathyroid hormone (PTH), Complications of parathyroid disorders	Parathyroid glands	Data show	Quizzes and monthly exam.
8	hours 4	Hypoparathyroidism	Mechanism of calcium balance	Data show	Quizzes and monthly exam.
9	hours 4	Zona glomerulosa, Aldosterone, Disorder of aldosterone	Adrenal glands	Data show	Quizzes and monthly exam.
10	hours 4	Function of Cortisol,Hypercortisolism	cortisol and corticosterone hormones	Data show	Quizzes and monthly exam.
11	hours 4	Function of Insulin hormone, glucagon	The pancreas :	Data show	Quizzes and monthly exam.
12	hours 4	Disorder of pancreas hormones, Hypoglycemia and Insulin Shock	Disorder of pancreas hormones	Data show	Quizzes and monthly exam.
13	hours 4	Functions of Estrogen Hormone, Progesterone hormone: inhibin	The gonad glands (Ovaries and Testes)	Data show	Quizzes and monthly exam.
14	hours 4	Function of serotonin , Diagnostic of disease	Pineal gland	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	

- Williams' textbook of endocrinology, 8th edition, 1992
- Oxford Handbook of Endocrinology and Diabetes, John Wass, Helen Turner 4th edition

Essentials of Endocrinology and Metabolism: A Practical Guide for Medical Students 1st ed. 2020 Edition

CourseDescriptionForm

1. CourseName: Epidemiology	
2. Course Code:	
3. Semester/Year: Semester	
4. Description Preparation Date: 2025-9-1	
5.AvailableAttendanceForms:(theoretical and practical)	
6.NumberofCreditHours(Total)/Number of Units(Total) 3	
7.Courseadministrator's name (mention all ifmoreethanone name)	
Name: Prof .Zinah Shakir Shallal zalsoza@uowasit.edu.iq	
8. Course Objectives	
Course Objectives : ***** To provide students with fundamental and applied knowledge in epidemiology, and to develop their ability to analyze health problems, identify risk factors, and apply epidemiological methods in disease prevention and control, thereby enhancing their professional competence in public health and community service.	
9. Teaching and Learning Strategies	
Strategy	1. To introduce students to the fundamental concepts and principles of epidemiology. 2. To enable students to understand the distribution and determinants of diseases in populations. 3. To develop students' ability to identify risk factors and analyze patterns of disease occurrence. 4. To enhance understanding of the epidemiological triad (agent, host, and environment) and its role in disease causation.

	5. To explain the chain of infection and methods of disease transmission. 6. To familiarize students with the determinants of health and factors affecting community health. 7. To develop students' knowledge of disease prevention strategies (primary, secondary, and tertiary). 8. To strengthen students' ability to apply epidemiological methods in public health practice.
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours 4	Introduction to Epidemiology and Definitions	Introduction to Epidemiology: Basic Course Definitions, Key Concepts, and the Relationship Between Epidemiology and Public Health	Data show	
2	hours 4	Basic Concepts of Epidemiology and Public Health	Communicable Diseases How to Control Them - Modes of - Transmission: Air, Water, and Food	Data show	Quizzes and monthly exam.
3	hours 4	Health and Disease Concepts & Natural History of Disease	Medical Insects - General Characteristics - Their Role in Disease Transmission	Data show	Quizzes and monthly exam.
4	hours 4	Disease Occurrence and Risk Factors	Discussion of Student Reports	Data show	Quizzes and monthly exam.
5	hours 4	Epidemiological Triad (Agent, Host, Environment)	The Mosquito Family and Their Role in Disease Transmission	Data show	Quizzes and monthly exam.
6	hours 4	Exam.	Exam	Data show	
7	hours 4	Chain of Infection and Reservoirs	Practical Training on Epidemiological Investigation Methods	Data show	Quizzes and monthly exam.
8	hours 4	Portals of Entry and Exit	Scientific Visit to the Center for Communicable Disease	Data show	Quizzes and monthly exam.

			Control		
9	hours 4	Modes of Transmission (Direct & Indirect methods)	Discussion of Student Reports	Data show	Quizzes and monthly exam.
10	hours 4	Determinants of Health (Social & Economic Factors)	Hemorrhagic Fever - Causes, Prevention, Diagnostic Methods, and Transmission	Data show	Quizzes and monthly exam.
11	hours 4	Physical Environment and Behavioral Factors	Types of Hepatitis	Data show	Quizzes and monthly exam.
12	hours 4	Disease Prevention (Primary & Secondary)	Hospital Visit	Data show	Quizzes and monthly exam.
13	hours 4	Tertiary Prevention and Rehabilitation	Malaria - Causes, Prevention, Diagnostic Methods, and Transmission	Data show	Quizzes and monthly exam.
14	hours 4	Health Promotion and Public Health Strategies Review and Application of Epidemiological Concepts	Discussion of Student Reports	Data show	Quizzes and monthly exam.
15	hours 4	Exam	Exam	Data show	

11. Course of evaluation:

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

12. Learning and teaching recourses:

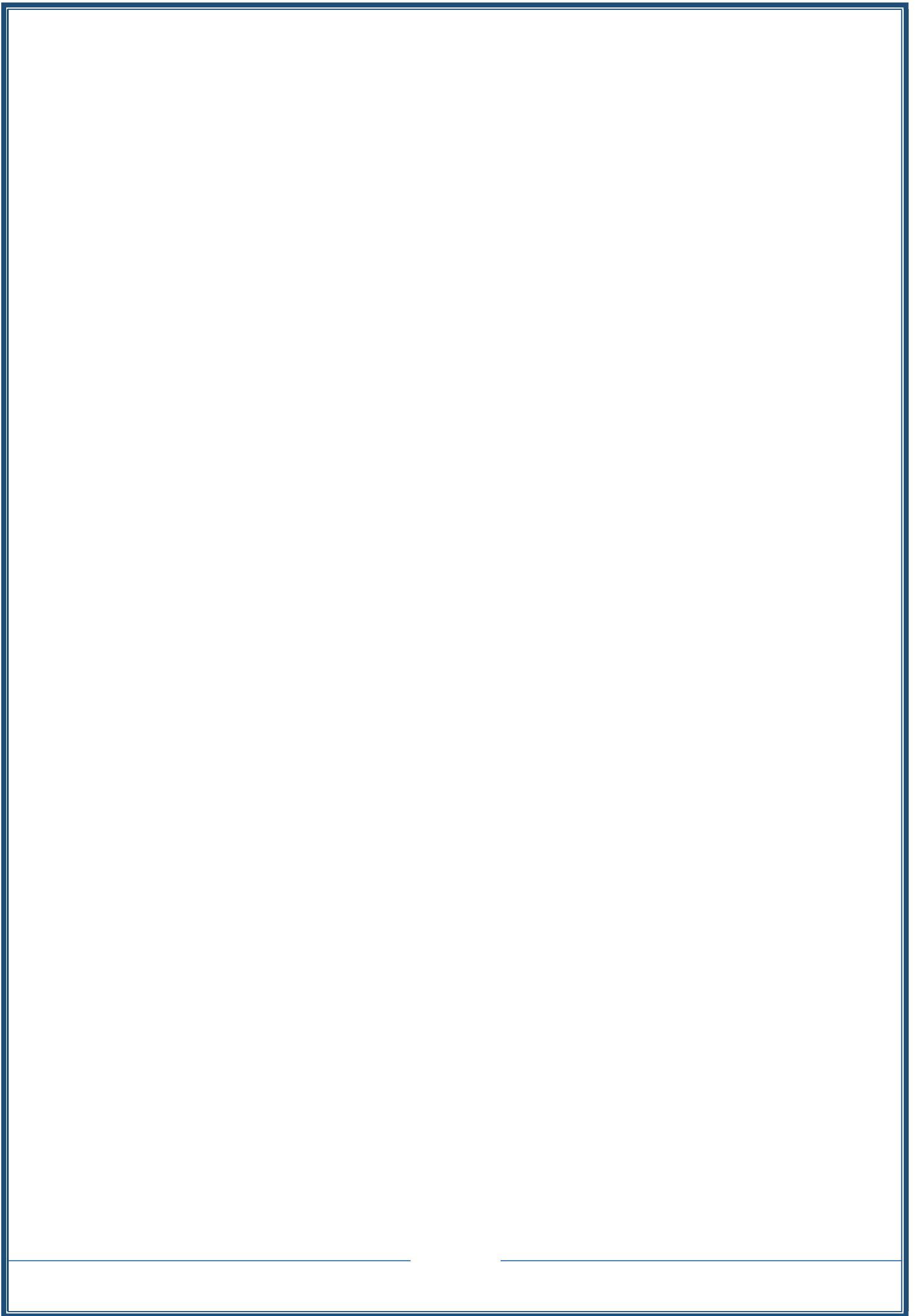
1. Gordis Epidemiology (David Celentano & Moyses Szklo):
2. Epidemiology: Beyond the Basics (Moyes Szklo & Javier Nieto):
3. Modern Epidemiology (Kenneth Rothman)
4. Basic Epidemiology (WHO):

- Centers for Disease Control and Prevention (CDC):
- World Health Organization (WHO):

JOURNALS FOR EPIDEMIOLOGY DISEASE :

- The Lancet Infectious Diseases:
- PubMed / Google Scholar

Electronic References and Websites



Course Description Form

1. Course Name: Histopathology	
2. Course Code:	
3- Semester / Year: Fourth Year / Second Semester	
3. Description Preparation Date: 1-9-2025	
4. Available Attendance Forms: (theoretical and practical)	
5. Number of Credit Hours (Total) / Number of Units (Total)4	
6. Course administrator's name (mention all, if more than one name)	
Name: Dr.Raghad Ali Hussein Email: raghad.hussien@uowasit.edu.iq	
7. Course Objectives	
Course Objectives :• Giving the student the ability to understand the basic principles of histopathology and pathological changes in tissues. • Providing the student with the ability to understand tissue fixation, processing, embedding, sectioning, and staining techniques. • Giving the student the ability to distinguish between normal and pathological tissues through microscopic examination. • Providing the student with the ability to recognize the main histopathological features of inflammation, degeneration, repair, and neoplasia. • Giving the student the ability to examine and interpret histopathological slides and correlate the findings with pathological conditions.	• • •
8. Teaching and Learning Strategies	
Strategy	Theoretical: Lectures and group discussions for the purpose of facilitating the explanation of histopathological concepts, in addition to the use of diagrams, illustrations, and microscopic images. Practical: Practical laboratory sessions for microscopic examination of histopathological slides, identification of normal and pathological tissue changes, and group discussion to facilitate the interpretation and correlation of

histopathological findings.

9. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Define pathology and histopathology and understand the basic terminology used in pathology	Introduction to Pathology (Terminology)	Data show, lecture and discussion	
2	4	Explain the causes and mechanisms of cell injury and identify the basic cellular adaptations	Cell Injury and Adaptation – Part I	Data show, lecture and discussion	Quizzes and daily assessment
3	4	Recognize the major patterns of cell injury, cell death, and cellular adaptation.	Cell Injury and Adaptation – Part II	Data show, lecture and discussion	Quizzes and daily assessment
4	4	Distinguish between acute and chronic inflammation and describe their major pathological features.	Acute and Chronic Inflammation	Data show, lecture and discussion	Quizzes and daily assessment
5	4	Understand the mechanisms of thrombosis and identify the major types and consequences of thrombi.	Thrombosis and Types of Thrombi	Data show, lecture and discussion	Quizzes and daily assessment
6	4	Explain the causes, mechanisms, and pathological consequences of hemorrhage	Hemorrhage	Data show, lecture and discussion	Quizzes and daily assessment
7	4	Understand the basic functions of the kidney and recognize the	Kidney Function and Major Renal Disorders	Data show, lecture and discussion	Quizzes and daily assessment

		major pathological changes associated with renal disorder			
8	4	Identify the major pathological changes associated with common gastrointestinal diseases.	Gastrointestinal (GI) Disorders	Data show, lecture and discussion	Quizzes and daily assessment
9	4	Recognize the major pathological changes affecting the liver, gallbladder, and biliary system	Hepatobiliary System Disorders	Data show, lecture and discussion	Quizzes and daily assessment
10	4	Understand the pathological changes and major features of chronic obstructive pulmonary disease	Chronic Obstructive Pulmonary Disease (COPD)	Data show, lecture and discussion	Quizzes and daily assessment
11	4	Identify the major pathological and histopathological features of common lung cancers.	Lung Cancer	Data show, lecture and discussion	Quizzes and daily assessment
12	4	Recognize the major pathological changes associated with common cardiovascular disorders.	Cardiovascular System Disorders	Data show, lecture and discussion	Quizzes and daily assessment
13	4	Understand the basic principles of neoplasia and distinguish between benign and malignant tumors	Neoplasia and Tumors	Data show, lecture and discussion	Quizzes and daily assessment
14	4	Understand the basic pathological features of genetic and pediatric diseases and their effects on tissues.	Genetic and Pediatric Diseases	Data show, lecture and discussion	Quizzes and daily assessment
15	4	Final Examination	Exam	Final Examination	

10. 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

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)	-Required textbook: <i>Robbins Basic Pathology</i> . -Pathology Practical Book – Harsh Mohan, 3rd Edition.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	