Academic Program Description Form

University Name: Al-Turath University

College/Institute: College of Health and Medical Technologies

Scientific Department: Department of Medical Laboratory Technologies

Academic or Professional Program Name: Bachelor of Medical Laboratory Technologies

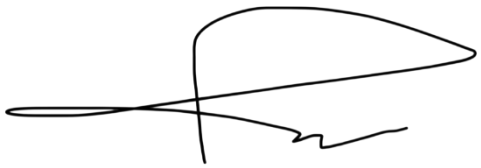
Final Certificate Name: Technical Bachelor in Medical Laboratory Technologies

Academic System: Course-based (First – Second – Third – Fourth)

Description Preparation Date: 15-11-2025

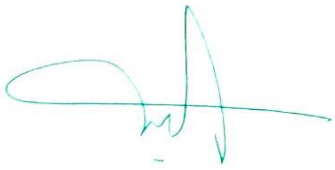
File Completion Date: 20-11-2025

Name of the Head of Department: Lecturer
Dr. Aysar Imad Abdulaziz
Date: 21/11/2025



Name of the Associate Dean for
Scientific Affairs: Lect. Dr. Sanan Thaer
Abdulwahab
Date: 21/11/2025

The file was audited by
Quality Assurance and University Performance Division
Name of the Director of the Quality Assurance and University
Performance Division:
Lecturer Dr. Mohammed Anwar Abbood
Date: 26 /11/2025



A.Pro.Dr.Abbas Hashim Abdul Salam
Dean of College of Health
and Medical Technologies
Date: 27/11/2025

1. Program Vision

The academic program strives to be a distinguished, pioneering center for education, research, and training in the field of medical laboratory technologies. It aims to graduate qualified technical cadres with high competence and advanced skills, committed to professional ethics and international quality standards, and capable of contributing effectively to the provision of accurate and advanced medical diagnostic services, promoting scientific research in the field of medical laboratories, and meeting the needs of the local and regional labor market.

2. Program Mission

The mission of the academic program of the Department of Medical Laboratory Technologies is to graduate competent and highly qualified medical laboratory technicians who possess the knowledge and skills required to work in various medical laboratories in both the public and private sectors. The program also aims to promote and develop scientific research in the field of medical laboratory technologies, and for the department to contribute to community service by offering distinguished educational and training programs.

3. Program Objectives

General Objectives:

1- The department aims to graduate technical cadres capable of working in medical laboratories

2- Performing routine laboratory analyses, general chemical tests, and the examination of body fluids

3- Operating and maintaining laboratory instruments

Behavioral Objectives:

1- The graduate's ability to draw blood from patients by various methods

2- Conducting tests on blood samples

3- Conducting biochemical tests

4- Examination of stool, urine, and chest secretions

5- Performing immunological tests and sensitivity tests

6- Skill in using and performing all genetic tests

4. Program Accreditation

There is no program accreditation; the department is working to meet the requirements of program accreditation.

5. Other External Influences

Ministerial instructions, the twinning partner, and the labor market.

6.Program Structure				
Program Structure	**Number of Courses**	**Credit unit**	**Percentage**	**Notes ***
Institution Requirements	4	8	%8.5	
College Requirements	2	4	%4.5	
Department Requirements	41	198	%87%	
Summer Training				Fulfilled
Other				

* The notes may state whether the course is a core or an elective course.

7. Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
First Stage First Semester			Theoretical	Practical
	MC1101	General Chemistry 1	2	5
	MT1102	Medical Terminology	2	-
	MH1103	Human Biology 1	2	5
	ME1104	Laboratory Instruments 1	2	4
	ME1105	Professional Conduct	2	-
	MC1106	Computer Principles 1	1	2
	MR1107	Human Rights and Democracy	1	-
	ME1108	English Language	3	-
First Stage Second Semester	MC1201	General Chemistry 2	2	5
	MA1202	Anatomy	2	5
	MH1203	Human Biology 2	2	5
	ME1204	Laboratory Instruments 2	2	4
	MC1205	Computer Principles 2	1	2
	MA1206	Arabic Language	2	-

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Second Stage First Semester	MB2101	Medical Bacteriology 1	2	4
	MC2102	Biochemistry 1	2	4
	MP2103	Human Physiology 1	2	4
	MH2104	Histology 1	2	4
	MM2105	Molecular Biology	2	4
	MP2106	Medical Parasitology 1	2	4
	MB2107	Crimes of the Ba'ath Regime in Iraq	2	-
Second Stage Second Semester	MB2201	Medical Bacteriology 2	2	4
	MC2202	Biochemistry 2	2	4
	MP2203	Human Physiology 2	2	4
	MH2204	Histology 2	2	4
	MP2205	Medical Parasitology and Entomology 2	2	4
	MS2206	Descriptive Biostatistics	1	2
	MA1206	Arabic Language	2	0
	MC308	Computer Applications	2	2

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Third Stage - First Semester	MP301	Histopathology	2	2
	MH302	Hematology	2	2
	MV303	Virology	2	4
	MC304*	Clinical Endocrinology	2	4
	MG305	Medical Genetics	2	4
	MI306	Clinical Immunology	2	4
	MT307	Advanced Laboratory Techniques	2	2

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Third Stage - Second Semester	MP301	Histopathology 2	2	2
	MH302	Hematology 2	2	2
		Mycology	2	4
		Analytical Biostatistics	1	3
	MG305	Medical Genetics 2	2	4
	MI306	Clinical Immunology 2	2	4
		Metabolic Disorders	2	4

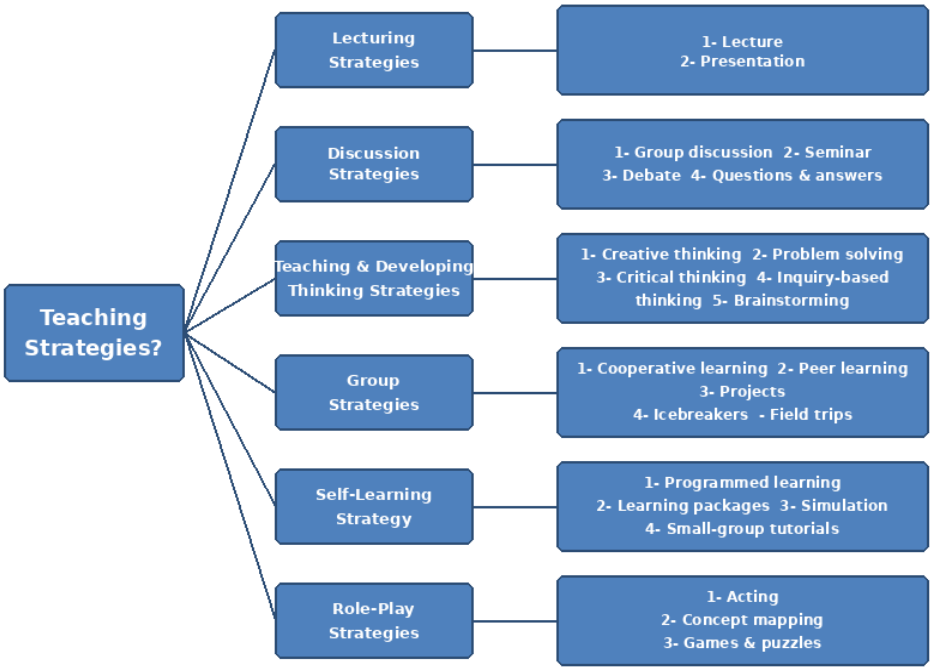
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	**Practical**
Fourth Stage - First Semester	MI401	Clinical Immunology	2	4
	MB402	Diagnostic Bacteriology 1	2	4
		Clinical Enzymology 1	2	4
	MP404	Diagnostic Parasitology	2	4
	MT405	Blood Transfusion	2	4
	MP406	Pathology	2	4
	MM408	Research Methods	1	-
	ME409	Professional Ethics	2	-

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Fourth Stage - Second Semester	MI401	Clinical Immunology 2	2	4
	MB402	Diagnostic Bacteriology 2	2	4
	MC403	Advanced Clinical Chemistry	2	4
	MP404	Diagnostic Parasitology 2	2	4
		Stem Cell Science and Embryology	2	-
		Antibiotics and Infection Control	2	4
	MM408	Laboratory Management + Research Methods	1	-
	MP407	Graduation Project	-	6

8. Expected Learning Outcomes of the Program	
Knowledge	
Upon completion of the course, the graduating student should be able to: **A1- Performs the laboratory work pertaining to all laboratory tests and examinations.** **A2- Prepares and sterilizes all culture media and examines foods for food contaminants.** **A3- Operates and maintains the medical laboratory instruments used in medical laboratories in governmental and private medical institutions.** **A4- Works at patient reception in laboratories, in addition to receiving specimens, drawing blood, guiding patients, and delivering results, as well as performing storekeeping duties for medical laboratory stores**	
Skills	
B- Upon completion of the course, the student should be able to: **B1 – Thinking according to a sound scientific basis** **B2 – Working in a team spirit** **B3 - Providing all the supplies required to carry out analytical and diagnostic tests in the laboratories** **B4 - Using modern instruments in laboratory analysis**	
C1- Working in a team spirit **C2- Commitment to the ethics of the university institution** **C3- Receiving information and cognitive acceptance** **C4- Dedication to the work assigned to him**	

Ethics	
D - General and Transferable Skills (other skills relevant to employability and personal development). **D1 - Presentation skills and expressing opinions during the lecture** **D2- Discussion during the lecture** **D3 - Carrying out experiments by assigning homework to students** **D4 - Managing the group by assigning one of the students to receive the assignments they are tasked with completing.**	

9. Teaching and Learning Strategies



10. Evaluation Methods

Oral and written examinations; ministerial assessment; daily, semester, monthly, mid-year, end-of-course, and annual examinations

11. Faculty

Professional Development

Mentoring new faculty members

Participating in teaching-methods and teaching-qualification courses and obtaining certificates of completion for these courses, together with full awareness of the department's vision, mission, and objectives, and taking part in the courses and programs accredited by the department.
Professional development of faculty members
Holding seminars and training courses, twinning with public colleges, using modern learning strategies, and relying on recent research and up-to-date books
12. Admission Criteria
Central admission – biological + scientific tracks, in accordance with the instructions of the Ministry of Higher Education and Scientific Research + the decision of the University Eligibility Committee

13. The Most Important Sources of Information about the Program
Curricula, the instructions of the Ministry of Higher Education and Scientific Research, academic programs, the opinions of graduates, the labor market, books, research, and the Internet.
14. Program Development Plan
Holding seminars and training courses, twinning with government colleges, and engaging the services of professors from government colleges

Year/Level	Course Code	Course Name	Basic/Optional	Cognitive objectives				The program's specific skills objectives				Affective and value-based objectives			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First Stage (First Semester)	MC1101	General Chemistry 1	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MT1102	Medical Terminology	Basic	✓	✓										
	MH1103	Human Biology 1	Basic	✓	✓	✓		✓			✓				
	ME1104	Laboratory Instruments 1	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	ME1105	Professional Conduct	Secondary	✓	✓		✓					✓	✓		✓
	MC1106	Computer Principles 1	Secondary	✓	✓	✓		✓		✓					
	MR1107	Human Rights and Democracy	Secondary	✓	✓	✓						✓	✓	✓	✓
First Stage (Second Semester)	MC1201	General Chemistry 2	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MA1202	Anatomy	Basic	✓	✓			✓	✓	✓	✓				
	MH1203	Human Biology 2	Basic	✓	✓	✓		✓			✓				
	ME1204	Laboratory Instruments 2	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MC1205	Computer Principles 2	Secondary	✓	✓		✓	✓		✓					
	MA1206	Arabic Language	Secondary	✓	✓	✓									
	MB2101	Medical Bacteriology 1	Basic	✓	✓	✓	✓	✓	✓	✓	✓				

Second Stage (First Semester)	MC2102	Biochemistry 1	Basic	✓	✓	✓	✓	✓	✓	✓					
	MP2103	Human Physiology 1	Basic	✓	✓	✓	✓	✓	✓	✓					
	MH2104	Histology 1	Basic	✓	✓	✓	✓		✓	✓	✓				
	MM2105	Molecular Biology	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MP2106	Medical Parasitology 1	Basic	✓	✓	✓	✓	✓	✓	✓					
	MB2107	Crimes of the Ba'ath Regime in Iraq	Secondary	✓	✓							✓	✓		✓
Second Stage (Second Semester)	MB2201	Medical Bacteriology 2	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MC2202	Biochemistry 2	Basic	✓	✓	✓	✓	✓	✓	✓					
	MP2203	Human Physiology 2	Basic	✓	✓	✓	✓	✓	✓	✓					
	MH2204	Histology 2	Basic	✓	✓	✓	✓		✓	✓	✓				
	MP2205	Medical Parasitology and Entomology 2	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MS2206	Descriptive Biostatistics	Secondary	✓	✓		✓								
		Arabic Language	Secondary	✓	✓	✓									

Year/Level	Course Code	Course Name	Basic/Elective	Cognitive objectives				The program's specific skills objectives				Affective and value-based objectives			
			Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Third Stage	MP301	Histopathology		✓	✓	✓	✓	✓	✓	✓	✓				
	MH302	Hematology	Basic	✓	✓	✓	✓	✓	✓	✓					
	MV303	Virology and Mycology	Basic	✓	✓		✓	✓		✓					
	MC304	Clinical Chemistry	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MG305	Human Genetics	Basic	✓	✓	✓	✓	✓	✓	✓					
	MI306	Immunology	Basic	✓	✓	✓	✓	✓	✓	✓					
	MT307	Advanced Laboratory Techniques	Basic	✓	✓	✓	✓		✓	✓	✓				
	MC308	Computer Applications	Secondary	✓	✓	✓	✓	✓	✓	✓	✓				

Year/Level	Course Code	Course Name	Basic / Elective	Cognitive objectives				The program's specific skills objectives				Affective and value-based objectives			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Fourth Stage	MI401	Clinical Immunology	Basic	✓	✓	✓	✓	✓	✓	✓					
	MB402	Diagnostic Bacteriology	Basic	✓	✓	✓	✓	✓	✓	✓					
	MC403	Advanced Clinical Chemistry	Basic	✓	✓		✓	✓		✓					
	MP404	Medical Parasitology	Basic	✓	✓	✓	✓	✓	✓	✓	✓				
	MT405	Blood Transfusion	Basic	✓	✓	✓	✓	✓	✓	✓					
	MP406	Histopathology	Basic	✓	✓	✓	✓	✓	✓	✓					
	MP407	Graduation Project	Basic	✓	✓	✓	✓		✓	✓	✓				
	MM408	Laboratory Management + Research Methods	Secondary	✓	✓	✓	✓								
	ME409	Professional Ethics	Secondary	✓	✓		✓					✓	✓	✓	✓

Course Description Program

First Stage

Course Description Form

1. **Course Name:** Professional Conduct - First Stage
2. **Course Code:** ML 1105
3. **Semester / Year:** Semester-based, 2025-2026
4. **Description Preparation Date:** 15-8-2025
5. Available Attendance Forms
Weekly lectures, in-person only
6. **Number of Credit Hours** (Total) / Number of Units (Total)
Two hours per week only (30 hours); two units
7. Course administrator's name (mention all, if more than one name)

Name: Asst. Lect. Saif Karim Mansour

8. **Course Objectives**: To introduce the student to the subject of professional conduct and make them fully acquainted with the proper behaviors for dealing with patients, instruments, and equipment in the workplace.

Course Objectives	• General Objectives: To enable the student to learn how to deal with the behavioral patterns of patients as well as of staff in healthcare institutions. • Behavioral objectives: Enabling the student to learn how to maintain laboratory tools and instruments and how to protect himself from hazards.

9. Teaching and Learning Strategies

Strategy	Using modern teaching and learning methods, such as electronic display devices. Discussion method, motivational questions, and daily examinations.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	Two theoretical hours	Understanding and comprehension	Principles of professional ethics through the stages of civilizational development	Lecture delivery	Reports
2.	Two theoretical hours	Understanding and comprehension	Professional Conduct	Discussion	Examinations

			Its definition - its concept and practical applications - the relationship between employees and their superiors		
3.	Two theoretical hours	Understanding and comprehension	Basic etiquette of the profession Characteristics of professional ethics as a guide and director of conduct How to employ professional etiquette as a guide for the individual's behavior, emotions, and ability to make appropriate decisions Characteristics and attributes of workers in the health field - appearance, behavior, and commitment The moral and legal rights of the patient Dealing with the patient and their companions according to their behavior	Role-playing	Exams + reports
4.	Two theoretical hours	Understanding and comprehension	Behavioral / humanistic patterns – interactive – collective Its definition, nature, motives, and interpretations	Role-playing	Examinations
5.	Two theoretical hours	Understanding and comprehension	Communication methods: verbal and non-verbal	Role-playing	Exams + reports

			Its definition, types, and effects; designing successful communication methods How communication methods affect behavior; the art of listening and how to train in it, with applied examples		
6.	Two theoretical hours	Understanding and comprehension	Behavioral attitudes and inclinations Its definition, classification, the factors influencing it, and the ways in which it is carried out	Discussion	Exams + reports
7.	Two theoretical hours	Understanding and comprehension	Values, customs, and traditions Its definition, classification, the factors influencing it, and the ways in which it is carried out	Discussion	Exams + reports
8.	Two theoretical hours	Understanding and comprehension	Personality types, how to deal with them, definition of personality, its types, its relationships	Discussion	Exams + reports
	Two theoretical hours	Understanding and comprehension	Exam	Discussion	Exams + reports
9.	Two theoretical hours	Understanding and comprehension	Laboratory safety: instructions and tools	Discussion	Exams + reports
10.	Two theoretical hours	Understanding and comprehension	Types of laboratories, laboratory instruments, and result-collection tools	Discussion	Exams + reports

11.	Two theoretical hours	Understanding and comprehension	Instruments associated with contamination and methods of infection prevention	Discussion	Exams + reports
12.	Two theoretical hours	Understanding and comprehension	Asepsis; physical and chemical sterilization	Discussion	Exams + reports
	Two theoretical hours		Exam		Exams + reports
13.	Two theoretical hours	Study, knowledge, and practical application	Hazards of working in medical laboratories and how to prevent them	Discussion	Exams + reports
14.	Two theoretical hours	Familiarity with the course material	Occupational safety: prevention of occupational hazards and accidents; prevention of the risks of microbial, toxic, and radiological contamination; prevention of the risk of infection with communicable and contagious diseases Avoiding improper practices in the field of work	Mastery	Exams + reports
15.	Two theoretical hours	Understanding and comprehension	Review and applications in professional conduct	Discussion	Exams + reports

11. Course Evaluation: 40 marks for coursework and 60 marks for the final examination

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	1- The Professional Conduct Handbook for Physicians, by Dr. Raji Al-Tikriti
Recommended books and references (scientific journals, reports...)	1 - Laboratory Safety Manual / October 2017 / University of Washington
Electronic References, Websites	

Course Description Form

1. Course Name: Human Rights and Democracy
2. Course Code
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms
In-person lectures only
6. Number of Credit Hours (Total) / Number of Units (Total)
15 hours (one hour per week) / one unit only
7. Course administrator's name (mention all, if more than one name)
Name: Lecturer Dr. Mohammed Qasim Mohammed
8. Course Objectives: Introducing students to the subject of human rights and democracy.

Course Objectives	General Objectives: Raising students' awareness of their own rights and the rights of members of their commun by developing their personality and instilling respect for the rights and fundamental freedoms of others, in accordance with the values of a democratic society. Specific objectives: Educating students about the constitution, the rule of law, and the legislative and executive authorities

9. Teaching and Learning Strategies

Strategy	Using modern teaching and learning methods, such as electronic display devices. Discussion method - motivational questions - daily quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	One theoretical hour	Understanding and comprehension	Human rights: their definition and objectives Human rights in ancient civilizations, especially the Mesopotamian civilization	Lecture delivery and discussion	On-the-spot questions reports, and exams
2.	One theoretical hour	Understanding and comprehension	Human rights in the divinely revealed laws, with emphasis on human rights in Islam; human rights in modern contemporary history: international recognition of human rights since World War I and the League of Nations	Lecture delivery and discussion	On-the-spot questions, reports, and exams

3.	One theoretical hour	Understanding and comprehension	Regional recognition of human rights: the European Convention on Human Rights 1950, the American Convention on Human Rights 1969, the African Charter on Human Rights 1981, and the Arab Charter on Human Rights 1994 Non-governmental organizations and human rights (the International Committee of the Red Cross, Amnesty International, Human Rights Watch) National human rights organizations	Lecture delivery and discussion	On-the-spot questions, reports, and exams
4.	One theoretical hour	Understanding and comprehension	Human rights in Iraqi constitutions between theory and reality The relationship between human rights and public freedoms: 1- In the Universal Declaration of Human Rights 2- In regional charters and national constitutions	Lecture delivery and discussion	On-the-spot questions, reports, and exams
5.	One theoretical hour	Understanding and comprehension	Economic, social, and cultural human rights, and civil and political human rights	Lecture delivery and discussion	On-the-spot questions, reports, and exams
6.	One theoretical hour	Understanding and comprehension	Modern human rights: the right to development, the right to a clean environment, the right to solidarity, the right to religion	Lecture delivery and discussion	On-the-spot questions, reports, and exams
7.	One theoretical hour	Understanding and comprehension	Modern human rights: the right to development, the right to a clean environment, the right to solidarity, the right to religion	Lecture delivery and discussion	On-the-spot questions, reports, and exams

	One theoretical hour	Understanding and comprehension	Guarantees of respect for and protection of human rights at the national level; guarantees in the constitution and laws; guarantees in the principle of... The rule of law: guarantees of constitutional oversight, guarantees of freedom of the press and public opinion, and the role of non-governmental organizations in respecting and protecting human rights	Lecture delivery and discussion	On-the-spot questions, reports, and exams
8.	One theoretical hour	Understanding and comprehension	Guarantees, respect, and protection of human rights at the international level: the role of the United Nations and its specialized agencies in providing guarantees The role of regional organizations (the Arab League, the European Union, the African Union, the Organization of American States, ASEAN) The role of international, regional, and non-governmental organizations and public opinion in respecting and protecting human rights	Lecture delivery and discussion	On-the-spot questions, reports, and exams
9.	One theoretical hour	Understanding and comprehension	General theories of freedoms: the origin of rights and freedoms; the legislator's position on the declared rights and freedoms; the use of the term public freedoms	Lecture delivery and discussion	On-the-spot questions, reports, and exams

10	One theoretical hour	Understanding and comprehension	Equality: The historical development of the concept of equality The modern development of the concept of equality Gender equality Equality among individuals irrespective of their beliefs and race Democracy: its definition and types Democratic systems in the world and the concept of freedoms	Lecture delivery and discussion	On-the-spot questions, reports, and exams
11	One theoretical hour	Understanding and comprehension		Lecture delivery and discussion	On-the-spot questions, reports, and exams
12	One theoretical hour	Understanding and comprehension	The right to security and a sense of safety	Lecture delivery and discussion	On-the-spot questions, reports, and exams
13	One theoretical hour	Understanding and comprehension	Freedom of trade and industry, and women's freedom	Lecture delivery and discussion	On-the-spot questions, reports, and exams
14	One theoretical hour	Understanding and comprehension	Political parties, public freedoms, and their future	Lecture delivery and discussion	On-the-spot questions, reports, and exams
15	One theoretical hour	Understanding and comprehension	The future of public freedoms	Lecture delivery and discussion	On-the-spot questions, reports, and exams

11. Course Evaluation: 40 marks for coursework and 60 marks for the final examination

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	1- Hadi Naeem Al-Maliki, Introduction to the Study of International Huma Rights Law, Dar Al-Salam, Baghdad, 2009
Recommended books and references (scientific journals, reports...)	- The Universal Declaration of Human Rights - The Charter of the United Nations.
Electronic References, Websites	

Course Description Form

1. Course Name: Computer Principles
2. Course Code: ML1106
3. Semester / Year: Second Semester 2025-2026
4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms

In-person (theoretical lectures - practical laboratory sessions)

6. Number of Credit Hours (Total) / Number of Units (Total)

45 hours, theoretical and practical (1 theoretical + 2 practical); two units

7. Course administrator's name (mention all, if more than one name)

Name: Asst. Lect. Fouad Sahib

8. Course Objectives

Course Objectives	• General Objectives: To learn about the importance of computers and the classification of computers • Becoming familiar with the hardware and software components of the computer • Behavioral Objectives: The ability to work with the binary number system, understand the difference between it and the decimal number system, and convert between them • Acquiring the skill of working with computer operating systems, understanding their importance, and the relationship between operating systems, the tasks they perform, and their accessories

9. Teaching and Learning Strategies

Strategy	A- Cognitive Objectives A-1 The student becomes familiar with Windows operating systems A-2 The student learns how to use email A3- The student learns how to use Microsoft Office applications B- The skills objectives specific to the course. 1– The student uses the computer and identifies its internal and external components 2- Recognizes the desktop components and icons 3– Becoming familiar with the Windows operating system and its most important commands

	C- Affective and value objectives o The ability to relate the theoretical material to practical reality. o The ability to diagnose problems and propose different alternatives for solving them. o The ability to link environmental variables and analyze the relationship between them. o Enhancing self-confidence and building personality.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• The importance of computers and their classification	- Various examples from real-world practice - In-person discussion in the classroom - Research papers - Scientific discussions	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
2	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Computer hardware components	- In-person discussion in the classroom	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)

3	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Computer software components	- In-person discussion in the classroom	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
4	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• The binary number system	• Brainstorming • Discussions • Exercises	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
5	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• The decimal number system and how to convert between the binary and decimal number systems	• Brainstorming • Discussions • Exercises	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
6	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Operating systems	• In-person discussion in the classroom	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes

					3- Examinations (coursework and final)
7	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Programming languages	• Brainstorming • Discussions	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
8	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Familiarization with the desktop and icons	• Brainstorming • Discussions	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
9	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Identifying the parts Task Bar	• Brainstorming • Discussions	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
10	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Identifying the motherboard components mother board	• Scientific material • Lectures	1- Daily assignments (discussion, participation, research papers)

					2- Short quizzes 3- Examinations (coursework and final)
11	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Introduction to RAM and ROM and the difference between them	• Scientific material • Lectures • Discussions	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
12	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• The student learns a number of commands that serve the user while working with the computer	• Scientific material • Lectures • Discussions	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
13	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• The student learns the importance of the right mouse button and its uses	• Scientific material • Lectures • Discussions	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)

14	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Introduction to the Word program: its importance, its uses, and a number of the most important commands	• Brainstorming • Discussions • Exercises	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)
15	1 theoretical 2 Practical	Theoretical lectures and practical application on computers	• Introduction to the Excel program: its importance, its uses, and a number of the most important commands	• Brainstorming • Discussions • Exercises	1- Daily assignments (discussion, participation, research papers) 2- Short quizzes 3- Examinations (coursework and final)

11. Course Evaluation

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

Coursework (25 marks theoretical + 15 marks practical)

Final (35 marks theoretical + 25 marks practical)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Introduction to windows 2-Introduction to the operating system 3- Hardware and software fundamentals 4- Office Desktop Programmers
Main references (sources)	
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	TechBoomers website. GCFLearnFree website Northstar Digital Literacy Assessment website. Intel Education website

Course Description Form

1. Course Name: Laboratory Instruments 1&2
2. Course Code: ML1104
3. Semester / Year: Semesters 1+2, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
(2 weekly × 15 theoretical) + (4 practical weekly × 15) = (90 hours) per semester / 4 units
7.
Name: Asst. Lect. Marwa Mahmoud Abdul Razzaq
8. Course Objectives

	General Objectives: 1- Understanding the types of laboratory instruments used in laboratory work 2- Accuracy in operating laboratory instruments Behavioral objectives: 1- How to handle and maintain laboratory instruments

9. Teaching and Learning Strategies

Strategy	• Brainstorming strategy • Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Wee	Hours	Required Learning Outcor	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 4 practical	Understanding and comprehension	Introduction to the ordinary (lig microscope	Lecture method with the presentation of illustrative pictu and short films via display scre	Oral and written examinatic

2	2 theoretical + 4 practical	Understanding and comprehension	The light microscope / its types	Lecture method with the presentation of illustrative pictu and short films via display scre	Oral and written examination
3	2 theoretical + 4 practical	Understanding and comprehension	Types of the light microscope / parts	Brainstorming method	Oral and written examination
4	2 theoretical + 4 practical	Understanding and comprehension	Light microscopes	Problem-solving method	Oral and written examination
5	2 theoretical + 4 practical	Understanding and comprehension	Parts of microscopes	Lecture followed by conducting experiments	Oral and written examination
6	2 theoretical + 4 practical	Understanding and comprehension	The working principle of light microscopes	Mastering the skill	Oral and written examination
7	2 theoretical + 4 practical	Understanding and comprehension	Applications / care procedures	Mind maps	Oral and written examination
8	2 theoretical + 4 practical	Understanding and comprehension	Parts – principle – magnification applications	Combining various strategies	Oral and written examination
9	2 theoretical + 4 practical	Understanding and comprehension	Spectrophotometer / parts	Similarities and differences (compare-and-contrast) method	Oral and written examination
10	2 theoretical + 4 practical	Understanding and comprehension	Spectrophotometer / working principle, calibration Usage	Combining various strategies	Oral and written examination
11	2 theoretical + 4 practical	Understanding and comprehension	Centrifuge / its parts - the princi Its types	Combining various strategies	Oral and written examination

12	2 theoretical + 4 practical	Understanding and comprehension	Sterilizer / principle of operatio	Mastery learning	Oral and written examination
13	2 theoretical + 4 practical	Understanding and comprehension	Biological incubators / their typ and principle Work	Combining various strategies	Oral and written examination
14	2 theoretical + 4 practical	Understanding and comprehension	Laboratory incubator / types / operation	Cooperative learning	Oral and written examination
15	2 theoretical + 4 practical	Understanding and comprehension	Balance / types, parts, applicatic	Combining various strategies	Oral and written examination

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources

Main references (sources)	Instruments used in laboratories - university course syllabus The website of Tikrit University – the College of Technologies site
Recommended books and references (scientific journals, reports...)	http://www.uboby Ion.edu-iq
Electronic References, Websites	https://pharmacy-uobasrah

Course Description Form

1. Course Name: Human Biology 1&2
2. Course Code: ML1103
3. Semester / Year: Semesters 1+2, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms
In-person, weekly, theoretical and practical
6. Number of Credit Hours (Total) / Number of Units (Total)
(30 hours theoretical) + (75 hours practical) = 105 hours / 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Emad Shaker Abu Al-Ees
8. Course Objectives

Course Objectives	General objectives: It studies the many different forms of life as well as their interrelationship with the environment in which they live. Specific objectives: Provides a clear picture of living organisms through knowledge of t structure and functions, and studies the structure of the cell and the functions of the cell

9. Teaching and Learning Strategies

Strategy	1. Homework assignments, reports, films, and pictures 2. Quizzes, field visits 3. Use of computers, touch screens, a data projector, and an overhead projector. 4. Model-based teaching (use of models)

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 5 practica	Understanding and comprehension	Photosynthesis Light energy, visible light Chloroplasts, the process of Photosynthesis,	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
2	2 theoretical + 5 practica	Understanding and comprehension	Nutrition and digestion Modes of nutrition; the importan the digestive glands Nutritional balance, the digestive system Digestive hormones.	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
3	2 theoretical + 5 practica	Understanding and comprehension	Respiration and gas exchange Aquatic environments, gas excha	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
4	2 theoretical + 5 practica	Understanding and comprehension	The circulatory system Methods of secretion, blood pres Blood groups	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
5	First monthly examinati				

6	2 theoretical, 5 practical	Understanding and comprehension	The excretory system Nitrogenous wastes Osmoregulation, secretory glands	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
7	2 theoretical + 5 practica	Understanding and comprehension	The nervous system Parts of the nervous system Nerve impulses	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
8	2 theoretical + 5 practica	Understanding and comprehension	Muscular system Muscles, fibers, contraction and relaxation Muscles	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
9	2 theoretical + 5 practica	Understanding and comprehension	Hormones Classification of hormones Hormone action	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
10	2 theoretical, 5 practical	Understanding and comprehension	Cell division Meiosis (reduction division)	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
	2 theoretical + 5 practica	Understanding and comprehension	Cell division Binary fission	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
12	Second monthly exam				

13	2 theoretical + 5 practica	Understanding and comprehension	Molecules of life DNA	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
14	2 theoretical + 5 practica	Understanding and comprehension	Molecules of life RNA	Lecture method with the presentation of illustrative pictures and short films via display screens	Oral and written examination
15	2 theoretical, 5 practical	Understanding and comprehension	Review		Oral and written examination

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources

Main references (sources)	Human Biology; Biology, 7th Edition
Recommended books and references (immunology journals and research)	Research, conferences, and periodicals
Electronic References, Websites	Google websites, Wikipedia, YouTube

Course Description Form

1. Course Name: Anatomy / Second Semester
2. Course Code: ML1202
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
(2 theoretical hours weekly x 15) + (5 practical hours weekly x 15) = (105 hours) per semester / 4 units
7.
Name: Lecturer Dr. Mohammed Anwar Abboud
8. Course Objectives: Familiarizing students with the basic medical knowledge of anatomy as a cornerstone for comprehending the clinical sciences in their field of specialization

Course Objectives	• General Objectives: Studying the fundamental principles of anatomy and learning about the structure and organization of the human body and the composition of its organs and systems. • Explaining the details of the body organs and anatomical positions • Behavioral objectives: Equipping students with the necessary knowledge of anatomy based on the body systems in general

9. Teaching and Learning Strategies

Strategy	• Lecture and discussion strategy • Presentation of slides and short films. • A problem-solving strategy, or problem-based learning.

10. Course Structure

Week	Hours	Required Learning Outcom	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 5 practical	Understanding and comprehens	Introduction to anatomy, anatom positions Anatomical planes of the body, anatomical directions	Discussion	Oral and written examination
2	2 theoretical + 5 practical	Understanding and comprehens	Body tissues and membranes	Lecture method with th presentation of illustrat pictures and short films display screens	Oral and written examination
3	2 theoretical + 5 practical	Understanding and comprehens	Body regions: the upper and low limbs	Lecture	Oral and written examination
4	2 theoretical + 5 practical	Understanding and comprehens	The lower abdomen and pelvis and the head and neck	Lecture	Oral and written examination
5	2 theoretical + 5 practical	Understanding and comprehens	The musculoskeletal system: bor joints, and muscles.	Lecture	Oral and written examination
6	2 theoretical + 5 practical	Understanding and comprehens	The digestive system and glands	Mastering the skill	Oral and written examination
7	2 theoretical + 5 practical	Understanding and comprehens	The heart and blood vessels	Lecture	Oral and written examination

8	2 theoretical + 5 practical	Understanding and comprehens	Lymphatic system	Combining various strategies	Oral and written examination
9	2 theoretical + 5 practical	Understanding and comprehens	Respiratory system	Lecture	Oral and written examination
10	2 theoretical + 5 practical	Understanding and comprehens	The nervous system: central and peripheral	Lecture	Oral and written examination
11	2 theoretical + 5 practical	Understanding and comprehens	Endocrine glands	Lecture	Oral and written examination
12	2 theoretical + 5 practical	Understanding and comprehens	The urinary system	Lecture	Oral and written examination
13	2 theoretical + 5 practical	Understanding and comprehens	The reproductive system	Lecture	Oral and written examination
14	2 theoretical + 5 practical	Understanding and comprehens	Pregnancy, childbirth, childhood and growth	Lecture	Oral and written examination
15	2 theoretical + 5 practical	Understanding and comprehens	Review	Problem solving	Oral and written examination

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources

Main references (sources)	Drake R.L.(eds)(2019).*Gray's Anatomy for Students* .London :Elsevier. ,F.(2019).Atlas of Human Anatomy (7thed.). Philadelphia Netter PA: Saunders
Recommended books and references (journals and research papers on immunology)	,
Electronic References, Websites	http://teachmeanatomy.info

Course Description Form

1. Course Name: Medical Terminology / First Semester
2. Course Code ML1102
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
(2 theoretical hours weekly x 15) = 30 hours per semester / 4 units
7.
Name: Lecturer Dr. Mohammed Anwar Abboud
8. Course Objectives: For the student to acquire sufficient ability to understand and speak medical language with all medical personnel, and to communicate with patients in clear and comprehensible language

Course Objectives	• General Objectives: Structural analysis / the basic rules for forming medical terms. • Main suffixes; suffixes indicating a condition or state; suffixes indicating medical procedures • Behavioral objectives: Prefixes relating to measurements, colors, direction, and body position • Suffixes of size, time, and place, and word roots.

9. Teaching and Learning Strategies

Strategy	• Lecture and discussion strategy • Presentation of slides and short films. • A problem-solving strategy, or problem-based learning.

10. Course Structure

Week	Hours	Required Learning Outcom	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 5 practical	The student will be able to understand and communicate in medical language with medical s	Introduction to medical terminolo positions Anatomical planes of the body, anatomical directions	Discussion	Oral and written examinatior
2	2 theoretical + 5 practical	Understanding and comprehensi	Terminology of body tissues and membranes	Lecture method with tl presentation of illustra pictures and short film display screens	Oral and written examination
3	2 theoretical + 5 practical	Understanding and comprehensi	Body regions: the upper and lowe limbs	Lecture	Oral and written examination
4	2 theoretical + 5 practical	Understanding and comprehensi	Terminology of the lower abdome and pelvis and the head and neck	Slide presentations	Oral and written examination
5	2 theoretical + 5 practical	Understanding and comprehensi	Musculoskeletal system terminolo bones, joints, and muscles.	Lecture	Oral and written examination
6	2 theoretical + 5 practical	Understanding and comprehensi	Terminology of the digestive syste and glands	Mastering the skill	Oral and written examination
7	2 theoretical + 5 practical	Understanding and comprehensi	The heart and blood vessels	Lecture	Oral and written examination

8	2 theoretical + 5 practical	Understanding and comprehensi	Terminology of the lymphatic syst	Combining various strategies	Oral and written examination
9	2 theoretical + 5 practical	Understanding and comprehensi	Respiratory system terminology	Lecture	Oral and written examination
10	2 theoretical + 5 practical	Understanding and comprehensi	The nervous system: central and peripheral	Lecture	Oral and written examination
11	2 theoretical + 5 practical	Understanding and comprehensi	Endocrine glands	Lecture	Oral and written examination
12	2 theoretical + 5 practical	Understanding and comprehensi	The urinary system	Lecture	Oral and written examination
13	2 theoretical + 5 practical	Understanding and comprehensi	The reproductive system	Lecture	Oral and written examination
14	2 theoretical + 5 practical	Understanding and comprehensi	Pregnancy, childbirth, childhood, growth	Lecture	Oral and written examination
15	2 theoretical + 5 practical	Understanding and comprehensi	Review	Problem solving	Oral and written examination

11. Course Evaluation
The theoretical coursework grade of 40 marks is distributed over short daily quizzes and monthly oral and written examinations, with 60 marks for the final examination

12. Learning and Teaching Resources	
Main references (sources)	1. Nath, Judi Lindsley; Lindsley, Kelsey P. A Short Course in Medical Terminology. Wolters Kluwer Health, 2018.
Recommended books and references (scientific journals, reports...)	Collins, C. Edward: A Short Course in Medical TerminologyLippincott Williams & Wilkir Nov 5, 2013 - **Medical** - 468
Electronic References, Websites	

Course Description Form

1. Course Name: General Chemistry 1&2
2. Course Code: ML1101
3. Semester / Year: Semesters 1+2, 2025-2026
4. Description Preparation Date: 15-8-2025
Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
(2*15 theoretical) + (5*15 practical) weekly = 105 hours in the first semester, 4 units (2 x 15 theoretical) + (5 x 15) practical weekly = 105 hours in the second semester / 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Qisma Mohammed Turki
8. Course Objectives

Course Objectives	General Objectives: 1- Understanding and comprehending the fundamental content of analytical chemistry, organic chemistry, and biochemistry 2- The ability and capacity to solve problems encountered in the laboratory Behavioral objectives: 1- The ability to use the laboratory instruments and tools employed in analysis 2- The ability to perform urinalysis

9. Teaching and Learning Strategies

Strategy	• Brainstorming strategy • Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 5 practica	Understanding and comprehension	Introduction to analytical chemistry Introduction to the practical part and experiments	Lecture method, data-show projector, and display scree	Oral and written examina

2	2 theoretical + 5 practical	Understanding and comprehension	Solutions – types – concentrations Using the balance and the burette	Lecture method using a dat show projector	Oral and written examination
3	2 theoretical + 5 practical	Understanding and comprehension	Chemical reactions – their types Experiments on preparing various types of solutions	Lecture method with a data show projector presentation	Oral and written examination
4	2 theoretical + 5 practical	Understanding and comprehension	The equilibrium constant in reversible react Titration of a strong acid with a strong base	Electronic lecture method	Oral and written examination
5	2 theoretical + 5 practical	Understanding and comprehension	Chemical equilibria and the equilibrium constant Calculations Titration of a strong acid with a weak base	Lecture followed by condu the experiments	Oral and written examination
6	2 theoretical + 5 practical	Understanding and comprehension	Factors affecting equilibrium Examination with discussion of the reports	Electronic lecture and discussion	Oral and written examination
7	2 theoretical + 5 practical	Understanding and comprehension	Acidity of solutions – ion concentration Hydrogen Titration of a strong acid with carbonates	Lecture and discussion	Oral and written examination
8	2 theoretical + 5 practical	Understanding and comprehension	Determination of solution pH and related calculations	Lecture, discussion, and calculations	Oral and written examination

			pH (acidity) Determination of acetic acid in vinegar		
9	2 theoretical + 5 practical	Understanding and comprehension	Buffer solutions – their types – how they w How they function in biological systems Determination of the pH of a solution using pH meter	Lecture - discussion	Oral and written examination
10	2 theoretical + 5 practical	Understanding and comprehension	Introduction to organic chemistry Oxidation-reduction titrations	Lecture - data-show project	Oral and written examination
11	2 theoretical + 5 practical	Understanding and comprehension	Alkanes – nomenclature – reactions Detection of alkanes	Lecture - discussion - electronic presentation	Oral and written examination
12	2 theoretical + 5 practical	Understanding and comprehension	Alkenes – their types – their reactions Detection of alkenes	Mastery learning	Oral and written examination
13	2 theoretical + 5 practical	Understanding and comprehension	Alkynes – their types, nomenclature, and reactions Detection of alkynes	Combining various strategi	Oral and written examination
14	2 theoretical + 5 practical	Understanding and comprehension	Alcohols – their nomenclature – their types Phenols and their reactions Detection of alcohols	Lecture – discussion – data show presentation	Oral and written examination

15	2 theoretical + 5 practical	Understanding and comprehension	Discussion and review of previous topics For the first semester: the topic of alcohols a phenols and a comparison between them Review of the practical experiments	Combining various strategies	Oral and written examination
16	2 theoretical + 5 practical	Understanding and comprehension	Carboxylic acids and amines Detection of phenols and carboxylic acids	Lecture - data show - electronic	Oral and written examination
17	2 theoretical + 5 practical	Understanding and comprehension	Introduction to biochemistry and its importa Carbohydrates, their types, and their detecti Detection of simple carbohydrates	Combining various strategies	Oral and written examination
18	2 theoretical + 5 practical	Understanding and comprehension	Continuation of carbohydrates and their mo important functions Molisch's test for carbohydrates	Lecture - data show and electronic media	Oral and written examination
19	2 theoretical + 5 practical	Understanding and comprehension	Lipids – fatty acids Mohr's method for the titration of nitrates	Combining various strategies	Oral and written examination
20	2 theoretical + 5 practica	Understanding and comprehension	Lipids and fatty acids (continued) Functions of lipids and fatty acids Detection of lipids	Combining various strategies	Oral and written examination
21	2 theoretical + 5 practical	Understanding and comprehension	Amino acids - their types Oxidation with permanganate	Combining various strategies	Oral and written examination

22	2 theoretical + 5 practical	Understanding and comprehension	Continuation of amino acids – most importa Functions of amino acids Detection of some amino acids	Combining various strategies	Oral and written examination
23	2 theoretical + 5 practical	Understanding and comprehension	Vitamins – their types and their functional importance Detection of some vitamins	Combining various strategies	Oral and written examination
24	2 theoretical + 5 practical	Understanding and comprehension	Vitamins and their functions (continued) Detection of vitamins	Combining various strategies	Oral and written examination
25	2 theoretical + 5 practical	Understanding and comprehension	Enzymes – their types Their importance - the functions of enzymes	Lecture, discussion, and quiz	Oral and written examination
26	2 theoretical + 5 practical	Understanding and comprehension	Nucleic acids and their function Their biological importance	Combining various strategies	Oral and written examination
27	2 theoretical + 5 practical	Understanding and comprehension	Solar energy - advantages of clean solar ene - solar radiation Solar cells and their importance	Lecture and presentation of some figures	Oral and written examination
28	2 theoretical + 5 practical	Understanding and comprehension	Nanotechnology and its relationship to ener systems Energy transfer, transformation, and storage	Combining various strategies	Oral and written examination
29	2 theoretical + 5 practical	Understanding and comprehension	Nanotechnology for hydrogen production	Combining various strategies	Oral and written examination

			Semiconducting nanomaterials		
30	2 theoretical + 5 practical	Understanding and comprehension	Continuation of the topic of energy and semiconductor materials, with a review of th topics	Lecture and presentation of models on energy	Oral and written examination

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources

Main references (sources)	ALBERT L. LEHNINGER - 1 2- understanding chemistry by George Pimentel
Recommended books and references (journals and research papers on immunology)	Cho.R.(2021)Why We Need Green Hydrogen.Columbia University.
Electronic References, Websites	Organic Chemistry - Jonathan Clayden Google Book https.//book.google.iq/books

Course Description Form

1. Course Name: Arabic Language / Second Semester
2. Course Code: ML1206
3. Semester / Year: Second Semester 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms
Daily attendance in the classrooms
6. Number of Credit Hours (Total) / Number of Units (Total)
• 30 credit hours (2*15 weeks) • 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Lect. Dr. Mohammed Qasim Mohammed
8. Course Objectives

Course Objectives	• General objectives: The student should be able to understand the rules of the Arabic language • The student should be able to form and construct correct sentences

	• Behavioral Objectives: To succeed in recognizing correct language usage and identifying errors when occur

9. Teaching and Learning Strategies

Strategy	Cognitive activation, cooperative learning, questioning, and discussion.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Mastery of the subject	Writing the disjunctive and connective hamza	Lecturing and discussion	Testing on the board
Second	2	Mastery of the subject	Punctuation and dotting marks in sentences	Lecturing and discussion	Oral examination
Third	2	Enriching the student's knowledge	Correct writing of the letters Dhad and Dhaa	Lecturing and discussion	Oral examination
Fourth	2	Understanding the topic	Writing the soft alif	Lecturing and discussion	Oral examination
Fifth	2	The student's understanding and mastery	Writing the taa' marbuta	Lecturing and discussion	Homework
Sixth	2	Enriching the student's knowledge	Writing the open taa (t) + the method of looking up words in the dictionary	Lecturing and discussion	Preparation for the exam
Seventh	2	Assessing the student's level	Speech and its parts: the noun	Lecturing and discussion	Oral examination

Eighth	2	Strengthening the student's knowledge of the subject	The distinguishing marks of the verb – the particle	Lecturing and discussion	Homework
Ninth	2	Strengthening the student's knowledge of the subject	First-semester final examination	Lecturing and discussion	Written examination
Tenth	2	Strengthening the student's knowledge of the subject	Classification of verbs - the past-tense verb	Lecturing and discussion	Homework
Eleventh	2	Assessing the student's level	The present tense verb + the imperative verb	-	Written examination
Second	2	Understanding the topic	Indeclinable and declinable words	Lecturing and discussion	Oral examination
Thirteenth	2	The student's mastery of the subject	Particles – their types and functions	Lecturing and discussion	Oral examination
Week 14	2	Understanding the topic	Numerals	Lecturing and discussion	Oral examination
Fifteenth	2	Understanding the topic	Linguistic corrections	Lecturing and discussion	Oral examination

11. Course Evaluation

First Semester: 40 marks (attendance and participation / monthly exam / semester exam)
Final examination: 60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Al-Wajeez in the Arabic Language, by Dr. Muhyi Hilal Al-Sarhan

	• Arabic Language for Non-Specialists, by Prof. Hamid Makhlif Al-Hiti and Prof. Abdul Qadir Hassan • Ibn Aqil's Commentary on the Alfiyya of Ibn Malik • Al-Minhaj in Grammar and Parsing by Al-Antaki
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	*Wikipedia.com*

Second Stage

Course Description Form

1. Course Name: Molecular Biology for the Second Stage
2. Course Code: ML2105
3. Semester / Year: Semester-based, 2025-2026
Semester-based / ministerial evaluation
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms
Weekly, theoretical and practical
6. Number of Credit Hours (Total) / Number of Units (Total):
90 hours (theoretical and practical) Number of units: 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Raya Izzat
8. Course Objectives

Course Objectives	• **General Objectives: Molecular biology is concerned with the study of living organisms at the molecula level; therefore, it overlaps with microbiology, biochemistry, and genetics.**

	• **Behavioral objectives: Molecular biology is concerned with studying the various interrelationships am all cellular systems, particularly the relationships between deoxyribonucleic acid (DNA) and ribonucle acid (RNA) and the process of protein synthesis.**

9. Teaching and Learning Strategies

Strategy	1- Introducing the student to the fundamentals of molecular biology. 2- Knowing the disciplines associated with molecular biology, and that it is a multidisciplinary science. 3- Familiarizing the student with the most important applications of molecular biology. 4- Familiarizing the student with the future of molecular biology.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical + 4 practical	To learn the fundamentals of molecular biolo	Introduction to Molecular Biolo	Theoretical + practical	Theoretical + practical tests
2-4	2 theoretical + 4 practical	Familiarity with DNA replication Knowledge of DNA replication	DNA Replication DNA Transcription	Theoretical + practical	Theoretical + practical tests Theoretical + practical tests
5	2 theoretical + 4 practical	Understanding the steps of transcription	Steps of Transcription	Theoretical + Practical	

6	2 theoretical + 4 practical	Understanding how protein translation takes place	Translation to a Protein	Theoretical + Practical	Theoretical + practical tests Theoretical + practical tests
7	2 theoretical + 4 practical	Understanding the damage that DNA sustains	DNA Damage DNA Repair	Theoretical + Practical	Theoretical + practical tests
8	2 theoretical + 4 practical	DNA repair	Types of Mutations	Theoretical + Practical	Theoretical + practical tests
9	2 theoretical + 4 practical	Types of mutations	Programmed Cell Death (Apoptosis)	Theoretical + Practical	Theoretical + practical tests
10-12	24 theoretical + practical 2 theoretical + 4 practical	Understanding how programmed cell death occurs		Theoretical + Practical	Theoretical + practical tests

13				Theoretical + Practical	
14-15	2 theoretical + 4 practical	Becoming familiar with DNA technology Recombinant	**Introduction to Recombinant DNA technology** **1- Restriction enzymes** **2- Cloning vectors** **Applications in Molecular cloning**	Theoretical + Practical	Theoretical + practical t

11. Course Evaluation	
Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, and written exams, reports, etc.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Aging of the genome-The Dual Role of DNA in Life and Death(Oxford,2007). Applied Cell and Molecular Biology for Engineers-G. Waite, Waite(McGraw-Hill, 2007).
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Descriptive Biostatistics for the Second Stage

2. Course Code: ML2206
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms
In-person, weekly, theoretical and practical
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours per week * 15 weeks = (45 hours), two units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Amal Ismail Ayez
8. Course Objectives

Course Objectives	**General Objectives: The aim of teaching this subject is to acquaint the student with the statistical methods used collecting and presenting data and information, so that the student is able to make use of them** **Behavioral Objectives: To be applied in presenting the results of the graduation project, and to be drawn upon graduation in conducting scientific research in the field of specialization** **The ability to analyze results statistically**

9. Teaching and Learning Strategies	
Strategy	**Using modern teaching methods (electronic whiteboard and display screens)**

	Using discussion methods, daily examinations, homework assignments, and reports, as well as **Motivational questions; combining several teaching methods; and the skill-mastery method.**

10. Course Structure

Week	Hours	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
First	**3 theoretical hours** **Practical**	**Understanding and comprehension**	**Definition of Biostatistics, types of data, types of Variables and Sources of data..**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Second	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Methods of data** **collection and sampling typ**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Third	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Numerical methods of presentation of data.**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Fourth	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Graphical methods of presentation of data**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Fifth to seve	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Mathematical methods of presentation of data: (1): Measures of Central Tende (Arithmetic Mean, Median, Mode). (2): Measures of No**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**

			Central location (Percentil Quartiles).		
Weeks 8-9	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Measures of Dispersion (Range, Variance, Standard Deviation) of ungroup and group data. Coefficient of Variation, Standard Errs**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Tenth	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Measures of Dispersion (Range, Variance, Standard Deviation) of ungroup and group data. Coefficient of Variation, Standard Errs**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Eleventh	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Percentiles, Quartiles and Interquartile Rang.**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Twelfth	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Percentiles, Quartiles and Interquartile Rang.**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Thirteenth	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Moments, Skewness measurement and Kurtosis Measurement.**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**
Fourteenth	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Moments, Skewness measurement and**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**

			Kurtosis Measurement.		
Fifteenth	**3 hours, theoretical and practical**	**Understanding and comprehension**	**Elementary Probability Th**	**Whiteboard and projection screen**	**Theoretical and practical examinations** **Assignments and reports**

11. Course Evaluation
Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, and written exams, reports, etc. (40 marks for annual coursework, divided into 25 marks theoretical + 15 marks practical) (60 marks for the final exam, divided into 35 marks theoretical + 25 marks practical).

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Biostatistics textbook
Main references (sources)	
Recommended books and references (scientific journals, reports...)	-Wayne W. Daniel: Biostatistics "Basic Concepts and Methodology for the Health Sciences" 9th Edition ;2010
Electronic References, Websites	Selected international websites specialized in biostatistics on the Internet

Course Description Form

1. Course Name: Histology 1+2

2. Course Code: ML2204
3. Semester / Year: Semesters 1+2, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical
6. Number of Credit Hours (Total) / Number of Units (Total)
(2 theoretical * 4 practical) weekly (90 hours), 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Riyadh Salim + Asst. Lect. Marwa Mahmoud
8. Course Objectives

Course Objectives	**General objectives: Introducing the student to the basic types of and classifying those cells according to the study of the morphol they form in those tissues and the essential function of these cells which make up the various tissues and organs of the human bod** **Behavioral objectives: examining thin tissue sections under the l microscope.**

9. Teaching and Learning Strategies

Strategy	• Brainstorming strategy • Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Cartilage**	**Lecture method with the presentation o illustrative pictures and short films via display screens**	**Oral and written examination**

2	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Bones**	**Lecture method with the presentation o illustrative pictures and short films via display screens**	**Oral and written examination**
3	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Blood**	**Brainstorming method**	**Oral and written examination**
4	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Blood cell formation**	**Problem-solving method**	**Oral and written examination**
5	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Nervous tissue**	**Lecture followed by conducting the experiments**	**Oral and written examination**
6	**2 theoretical + 4 practical**	**Understanding and comprehension**	**The nervous system**	**Mastering the skill**	**Oral and written examination**
7	**2 theoretical + 4 practical**	**Understanding and comprehension**	**The circulatory system**	**Mind maps**	**Oral and written examination**
8	**2 theoretical + 4 practical**	**Understanding and comprehension**	**The lymphatic system**	**Combining various strategies**	**Oral and written examination**
9	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Respiratory system**	**Similarities and differences (compare-a contrast) method**	**Oral and written examination**
10	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Digestive system**	**Combining various strategies**	**Oral and written examination**
11	**2 theoretical + 4 practical**	**Understanding and comprehension**	**The urinary system**	**Combining various strategies**	**Oral and written examination**
12-1-	**2 theoretical + 4 practical**	**Understanding and comprehension**	**The endocrine system**	**Combining various strategies**	**Oral and written examination**
14	**2 theoretical + 4 practical**	**Understanding and comprehension**	**The reproductive system**	**Combining various strategies**	**Oral and written examination**
1415	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Sensation**	**Combining various strategies**	**Oral and written examination**

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources	
Main references (sources)	Text Book of Human Histology
Recommended books and references (journals and research papers on immunology)	Junqueira's. Basic Histology. 1- 2-Stevens &Lowe's. Human Histology
Electronic References, Websites	

Course Description Form

1. Course Name: Medical Parasitology 1+2
2. Course Code ML2106
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms: In-person, weekly, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total)

(2 hours theoretical) + (4 hours practical) weekly = (90 hours) 4 units

7. Course administrator's name (mention all, if more than one name)

Name: Prof. Dr. Abd Ali Jinzeel + Asst. Lect. Saif Kareem

8. Course Objectives

Course Objectives	General Objectives
	The student becomes generally acquainted with the parasitology laboratory. **Behavioral objectives** **- Learning how to perform analyses and prepare standard solutions and concentrations.** **The student's ability to conduct work in the laboratory while taking the necessary precautions and observing handling warnings** **With the materials** **and how to use laboratory instruments and prepare solutions.** **The student learns the methods of collecting samples and dealing with the patient.**

9. Teaching and Learning Strategies

Strategy	• Brainstorming strategy • Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**2+4** Theoretical+Practical	**Understanding and comprehens**	**General Introduction:** **Zoonosis; Host-parasite Relationships; Life Cycle** **of Parasites; Sources of Infection; Modes of Infection; Pathogenesis; Immunity** **in Parasitic Infection; Laboratory Diagnosis**	**Lecture method with the presentation of illustrative pictu and short films via display scree**	**Oral and written examination**
2	**2+4**	**Understanding and comprehens**	**ProProtozoa General Features ; Structure ; Reproduction ; Cycle ; Classification of Protozoa ; Phylum Sarcomastigoph PhylumApicomplexa; Phylum Ciliophora;Phylum Microspo**	**Lecture method with the presentation of illustrative pictu and short films via display scree**	**Oral and written examination**
3	**2+4**	**Understanding and comprehens**	**acodina, (Amoebae) Entamoeba histolytica; History and Distribution; Morphology; Life Cycle;**	**Brainstorming method**	**Oral and written examination**

4	2+4	Understanding and comprehens	Entamoeba Coli , Entamoeba Gingivalis; Endolimax nana 2 Pathogenic FreeLiving Amoebae; naegleria Fowleri; History Distribution 26; Morphology;	Problem-solving method	Oral and written examination
5	2+4	Understanding and comprehens	Entamoeba Coli , Entamoeba Gingivalis; Endolimax nana 2 Pathogenic FreeLiving Amoebae; naegleria Fowleri; History Distribution 26; Morphology;	Lecture followed by conducting experiments	Oral and written examination
6	2+4	Understanding and comprehens	Intestinal, Oral, and Genital Flagellates Giardia Lamblia; History and Distribution; Habitat; Morphology; Life Cycle; Pathogenicity and Clinical Features; Laboratory Diagnosis; Treatment	Mastering the skill	Oral and written examination
7	2+4	Understanding and comprehens	Genus Trichomonas. T. vaginalis/ urogenital flagellate	Mind maps	Oral and written examination
8	2+4	Understanding and comprehens	Heamo- flagellates(blood& tissue flagellates),general chara	Combining various strategies	Oral and written examination
9	2+4	Understanding and comprehens	Genus Trypanosoma, species of trypanosome, biology , vect medical importance of each species, forms of parasite, life cycle,Lab. Diagnosis	Similarities and differences (compare-and-contrast) method	Oral and written examination
10	2+4	Understanding and comprehens	Ciliophora: Blantidiumcoli ,Biology , medical importance, L Diagnosis. Apicomplex: General charcter.Genus Toxoplasma.,T.gondii	Combining different strategies	Oral and written examination
11	2+4	Understanding and comprehens	Genus plasmodium. Introduction to malarial parasites, mal paroxysm, general life cycle of the plasmodium , species of plasmodium.	Combining various strategies	Oral and written examination
12	2+4	Understanding and comprehens	P.falciparum, P. vivax, P ovale, P. malarae Disease, patholo medical importance, distribution, main differences during li cycle	Mastery learning	Oral and written examination
13	2+4	Understanding and comprehens	General discussion on malarial parastes ,epidemiology, met of diagnosis. Time to take clinical samples. Blood films	Combining various strategies	Oral and written examination
14	2+4	Understanding and comprehens	sopora, pathology, medical importance,Lab.Dianosis. Sarco species: pathology , medical importance,Lab diagnosis	Cooperative learning	Oral and written examination

15	2+4	Understanding and comprehens	Cryptosporidiadse Genus cryptosporidium, species belong t genus, biology, pathology, epidemiology,Lab.diagnosis.	Combining various strategies	Oral and written examination
16	2+4	Understanding and comprehens	Platyhelminth: General characters. Class cestoda: General characters. Teaniasaginata: Teaniasolium: Morphology & t adult warm and the larval stages of each species, biology, lif cycle of each species, pathologinicity of each species, Lab. Diagnosis	Combining various strategies	Oral and written examination
17	2+4	Understanding and comprehens	Hymenolepis nana, Hymenolepisdiminuta. Diplidium caninu Diphyllobathrium latum, Biology, morphology, pathoginicit eachspecies,Lab. Diagnosis	Combining various strategies	Oral and written examination
18	2+4	Understanding and comprehens	Echinococcus granulosus. Echinocuccusmultilocularis. Biology,life cycle, pathoginicity, medical importance of hyda cyst disease ,Lab. Diagnosis.	Combining various strategies	Oral and written examination
19	2+4	Understanding and comprehens	lass Trematoda: General characters. Genus Schistosoma. Sp of human schistosoma, life cycle. Schistosoma hematobium. Schistosoma mansoni.	Combining various strategies	Oral and written examination
20	2+4	Understanding and comprehens	Fasciula hepatica Biology, life cycle, pathogenicity, Lab diagnosis. Nemathelminthis. ClssNemtoda, general characte	Combining various strategies	Oral and written examination
21	2+4	Understanding and comprehens	Ascaris lambricoides Enterobius vermicularis. Biology of ad worm,lifecycle, pathgenicity and medical importanceof each species, Lab. Diagnosis of each species	Combining various strategies	Oral and written examination
22	2+4	Understanding and comprehens	Trichuris trichura. Trichenala spiralis	Combining various strategies	Oral and written examination
23	2+4	Understanding and comprehens	Strogyloidesstercoralis. Biology, life cycle, pathgenicity, mec importance, Lab. Diagnosi	Combining various strategies	Oral and written examination
24	2+4	Understanding and comprehens	Ancylostomaduadenale ,Necator Americans (Hooks worm) Biology, life cycle, pathogenicity, medical importance of eac species, Lab. Diagnosis.	Combining various strategies	Oral and written examination
25	2+4	Understanding and comprehens	he filariae: Biology, pathgenicity and medical importance of species, Lab. Diagnosis of each species. Visceral larvae migr Cutaneaus larvae migrance	Combining various strategies	Oral and written examination

26	**2+4**	**Understanding and comprehens**	**Entomology\ sand fly and Black fly**	**Combining various strategies**	**Oral and written examination**
27	**2+4**	**Understanding and comprehens**	**Mosquitoes**	**Combining various strategies**	**Oral and written examination**
28	**2+4**	**Understanding and comprehens**	**Ticks & Mites**	**Combining various strategies**	**Oral and written examination**
29	**2+4**	**Understanding and comprehens**	**Fleas**	**Combining various strategies**	**Oral and written examination**
30	**2+4**	**Understanding and comprehens**	**Revision**	**Combining various strategies**	**Oral and written examination**

11. Course Evaluation
Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources	
Main references (sources)	Medical parasitology 8th
Recommended books and references (journals and research papers on parasitology)	
Electronic References, Websites	

Course Description Form

1. Course Name: Human Physiology 1&2

2. Course Code / ML 2103

3. Semester / Year: Semester-based, 2025-2026

4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms:

Weekly in-person lectures, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total): 180 hours / 4 units

(2*15 theoretical) + (4*15) practical per week, first semester (90 hours); 4 units

(2*15 theoretical) + (4*15 practical) weekly, Second Semester (90 hours), 4 units

7. Course administrator's name (mention all, if more than one name)

Name: Lect. Dr. Atheer Kadhim Mohammed

Course Objectives: To introduce the student to the components of somatic cells and the various components of blood, so as to enable the student to prepare for practicing their profession in the future.

Course Objectives	**General Objectives: Studying the human body in terms of organ function and the ways of maintaining the body's internal environment within normal levels for its various components, elements, salts, and other constituents.**
	Knowledge of the normal levels of blood values and components; blood pressure, pulse rate, and other parameters of the cardiovascular system; lung air volumes and ventilation rate; and likewise for the rest of the body's various systems
	Specific objectives: The ability to understand how each system of the body affects the other systems, and how these various systems are coordinated to produce the appropriate response to internal and external changes affecting the body.
9. Teaching and Learning Strategies	
Strategy	• Brainstorming strategy • Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 4 practical	Understanding and comprehension	General introduction to physiology, cell physiology, and the cell membrane	Lecture method with the presentation illustrative pictures and short films vi display screens	Oral and written examination
2	2 theoretical + 4 practical	Understanding and comprehension	Body fluids: their types, composition, and functions	Lecture method with the presentation illustrative pictures and short films vi display screens	Oral and written examination
3-	2 theoretical + 4 practical	Understanding and comprehension	Blood: its composition, the differences betw plasma and serum, and their separation	Brainstorming method	Oral and written examination
4	2 theoretical + 4 practical	Understanding and comprehension	**Blood groups**	Problem-solving method	Oral and written examination
5	2 theoretical + 4 practical	Understanding and comprehension	The process of red blood cell formation, homeostasis, and cell death		Oral and written examination
6	2 theoretical + 4 practical	Understanding and comprehension	White blood cells: their classification, functions, and normal count	Lecture followed by conducting experiments	Oral and written examination
7	2 theoretical + 4 practical	Understanding and comprehension	Blood platelets: their definition, functions, and normal values	Mastering the skill	Oral and written examination
8	2 theoretical + 4 practical	Understanding and comprehension	Cardiac physiology	Mind maps	Oral and written examination
9-10	2 theoretical + 4 practical	Understanding and comprehension	Physiology of blood vessels: mechanisms, regulation, and blood pressure	Combining various strategies	Oral and written examination
11	2 theoretical + 4 practical	Understanding and comprehension	Physiology of the lymphatic system: its structure and functions	The similarities-and-differences (com and contrast) method	Oral and written examination
12-	2 theoretical + 4 practical	Understanding and comprehension	The respiratory system: its parts and functions	Combining various strategies	Oral and written examination

13	2 theoretical + 4 practical	Understanding and comprehension	External and internal respiration: mechanisms, regulation, and influencing factors	The similarities-and-differences (com and contrast) method	Oral and written examination
14	2 theoretical + 4 practical	Understanding and comprehension	Lung volumes, their normal values, and the factors affecting them	Combining various strategies	Oral and written examination
15	2 theoretical + 4 practical	Understanding and comprehension	Review	Problem solving	Reports

11. Course Evaluation	
Coursework grade of 40, divided (25 theoretical + 15 practical); ministerial final examination: 60	
12. Learning and Teaching Resources	
Main references (sources)	1William F. Ganong: review of medical physiology.(2013) 2- K Sembulingam, Prema Sembulingam Essentials of medical physiology . Lauralee Sher wood .(2004) -Human physiology from cell to system
Recommended books and references (scientific journals, reports...)	1- Elsevier journal, 2- Nature journal
Electronic References, Websites	Various books and scientific periodicals specializing in human medical physiology

Course Description Form

1. Course Name: Biochemistry 1&2
2. Course Code ML2102

3. Semester / Year: Semester-based, 2025-2026

4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms: In-person, weekly, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total)

(2 x 15 theoretical) + (4 x 15) practical weekly (90 hours) / 4 units

7. Course administrator's name (mention all, if more than one name)

Name: Assist. Lect. Kawan Mutaab + Assist. Lect. Bilal Rabah

8. Course Objectives

Course Objectives	**General Objectives: Providing basic concepts and informatic clinical chemistry and developing students' aptitude and skil pathological analyses** **Behavioral Objectives: The student should be able to perfor clinical tests and be proficient in preparing various solutions**

9. Teaching and Learning Strategies

Strategy	• Brainstorming strategy • Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**2 theoretical + 4 practical**	**Understanding and comprehensi**	**Clinical Biochemistry** **Carbohydrate metabolism... anabolism an catabolism** **Practical: Diabetes mellitus and the testin method**	**The lecture method, with the displ illustrative images and short film** **Display screens**	**Oral and written examination**
2	**2 theoretical + 4 practical**	**Understanding and comprehensi**	**Lipid metabolism – atherosclerosis – prac measurement of lipid levels, cholesterol an triglycerides**	**Lecture method with the presentat of illustrative pictures and short fi via display screens**	**Oral and written examination**

3	2 theoretical + 4 practical	Understanding and comprehensi	Metabolism of proteins and amino acids Practical: the urea cycle and amino acid reactions	Brainstorming method	Oral and written examination
4	2 theoretical + 4 practical	Understanding and comprehensi	ATP synthesis and its role in carbohydrat reactions	Problem-solving method	Oral and written examination
5	2 theoretical + 4 practical	Understanding and comprehensi	The oxidative phosphorylation pathway The Krebs cycle	Lecture followed by conducting th experiments	Oral and written examination
6	2 theoretical + 4 practical	Understanding and comprehensi	The acidity of water and the equilibrium process	Mastering the skill	Oral and written examination
7	2 theoretical + 4 practical	Understanding and comprehensi	Electrolytes and biochemistry	Mind maps	Oral and written examination
8	2 theoretical + 4 practical	Understanding and comprehensi	Hormones: classification and function and metabolism...	Combining various strategies	Oral and written examination
9	2 theoretical + 4 practical	Understanding and comprehensi	Purine and pyrimidine metabolism	Similarities and differences (comp and-contrast) method	Oral and written examination
10	2 theoretical + 4 practical	Understanding and comprehensi	Vitamins and minerals	Combining various strategies	Oral and written examination
11	2 theoretical + 4 practical	Understanding and comprehensi	Enzymes: functions, classification, theorie and enzyme nomenclature	Combining various strategies	Oral and written examination
12	2 theoretical + 4 practical	Understanding and comprehensi	Enzyme deficiency and the types of diseas	Mastery learning	Oral and written examination
13	2 theoretical + 4 practical	Understanding and comprehensi	Nucleic acids: their types and functions	Combining various strategies	Oral and written examination
14	2 theoretical + 4 practical	Understanding and comprehensi	Hemoglobin and myoglobin	Cooperative learning	Oral and written examination
15	2 theoretical + 4 practical	Understanding and comprehensi	Liver functions + kidney functions	Combining various strategies	Oral and written examination
16	2 theoretical + 4 practical	Understanding and comprehensi	Qualitative and quantitative analyses	Combining various strategies	Oral and written examination

11. Course Evaluation	
Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60	
12. Learning and Teaching Resources	
	Manipal manual of clinical biochemistry
Main references (sources)	Saunders .....laboratory and diagnostic tests Lippincott illustrated reviews Biochemistry Clinical biochemistry lecture notes
Recommended books and references (journals and research papers on biochemistry)	
Electronic References, Websites	Wikipedia Wikipedea.org.

Course Description Form

1. Course Name: Medical Bacteriology 1&2
2. Course Code: ML2201
3. Semester / Year: Semester-based, 2025-2026
Semester-based / ministerial academic calendar
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms:
Weekly in-person lectures, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total): 180 hours / 4 units
(2 x 15 theoretical) + (4 x 15) practical weekly (90 hours) / 4 units (2 x 15 theoretical) + (4 x 15) practical weekly (90 hours) / 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Haider Faisal
8. Course Objectives

Course Objectives	General Objectives: Introducing the student to the types of bacteria that cause disease in humans, and understanding their virulence factors and pathogenicity. ● Guiding the student in handling pathogenic specimens by examining them under the light microscope and culturing them on the culture media specific to each type of bacteria. Behavioral objectives: Training the student, theoretically and practically, in the laboratory isolation and identification of pathogenic bacteria using modern, advanced scientific techniques. ● Preparing the student to be able to interpret laboratory culture results
9. Teaching and Learning Strategies	
Strategy	● Brainstorming strategy ● Modeling-based learning strategy ● Group work or cooperative learning strategy ● Discussion strategy ● Project-based strategy ● Problem-solving strategy, or problem-based learning ● Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 4 practical	Understanding and comprehension	Introduction Classification of bacteria	Lecture method with the presentation o illustrative pictures and short films via display screens	Oral and written examination
2	2 theoretical + 4 practical	Understanding and comprehension	-Structure and function of bacterial components	Lecture method with the presentation o illustrative pictures and short films via display screens	Oral and written examination
3-4	2 theoretical + 4 practical	Understanding and comprehension	- Growth and death of bacteria Culturing of bacteria and media type	Brainstorming method	Oral and written examination
5	2 theoretical + 4 practical	Understanding and comprehension	- Bacterial Physiology (Bacterial metabolism). - Nutrient cycles and regulation)	Problem-solving method	Oral and written examination
6	2 theoretical + 4 practical	Understanding and comprehension	- Bacterial genetics. - Genetic material. - Plasmids, replication, mutation	Lecture followed by conducting the experiments	Oral and written examination

			and genetic recombination.		
8	2 theoretical + 4 practical	Understanding and comprehension	- Microbial virulence factors and pathos genesis of bacterial infection. - Microflora.	Mastering the skill	Oral and written examination
9	2 theoretical + 4 practical	Understanding and comprehension	- Chemo therapy and antibiotic resistance. - Vaccination.	Mind maps	Oral and written examination
10-11	2 theoretical + 4 practical	Understanding and comprehension		Combining various strategies	Oral and written examination
	2 theoretical + 4 practical	Understanding and comprehension	-Gram positive cocci: Staphylococcus,Streptococcusandenterococcus.	Similarities and differences (compare-a contrast) method	Oral and written examination
12-13	2 theoretical + 4 practical	Understanding and comprehension	Gram positive spore formingbacilli(Clostridiumand Bacillus)	Combining various strategies	Oral and written examination
14-15	2 theoretical + 4 practical	Understanding and comprehension	Grampositivenonsporeformingbacilli(Listeriaand Corynebacterium)	Combining various strategies	Oral and written examination
Second Semester					
1	2 theoretical + 4 practical	Understanding and comprehension	*Neisseria*	Lecture method with the presentation o illustrative pictures and short films via display screens	Oral and written examination
2	2 theoretical + 4 practical	Understanding and comprehension	*Enteric Gram-negative rods: Escherici coli*	Lecture method with the presentation o illustrative pictures and short films via display screens	Oral and written examination
3	2 theoretical + 4 practical	Understanding and comprehension	*Klebsiella*	Brainstorming method	Oral and written examination
4	2 theoretical + 4 practical	Understanding and comprehension	*Pseudomonads and Acinetobacter*	Problem-solving method	Oral and written examination
5	2 theoretical + 4 practical	Understanding and comprehension	*Shigella and Salmonella*	Lecture followed by conducting the experiments	Oral and written examination
6	2 theoretical + 4 practical	Understanding and comprehension	*Yersinia*	Mastering the skill	Oral and written examination

7	2 theoretical + 4 practical	Understanding and comprehension	*Vibrio*	Mind maps	Oral and written examination
8	2 theoretical + 4 practical	Understanding and comprehension	*Campylobacter*	Combining various strategies	Oral and written examination
9	2 theoretical + 4 practical	Understanding and comprehension	*Helicobacter pylori*	Similarities and differences (compare-a contrast) method	Oral and written examination
10	2 theoretical + 4 practical	Understanding and comprehension	*Haemophilus*	Combining various strategies	Oral and written examination
11	2 theoretical + 4 practical	Understanding and comprehension	*Bordetella and Brucella*	Combining various strategies	Oral and written examination
12	2 theoretical + 4 practical	Understanding and comprehension	*Chlamydia*	Mastery learning	Oral and written examination
13	2 theoretical + 4 practical	Understanding and comprehension	*Spirochetes*	Combining various strategies	Oral and written examination
14	2 theoretical + 4 practical	Understanding and comprehension	*Mycobacterium*	Cooperative learning	Oral and written examination
15	2 theoretical + 4 practical	Understanding and comprehension	*Mycoplasma and Rickettsia*	Combining various strategies	Oral and written examination

11. Course Evaluation

Coursework grade of 40, divided (25 theoretical + 15 practical); ministerial final examination: 60

12. Learning and Teaching Resources

	1-Bergeys manual of systematic bacteriology/George M. Garrity, editor- in- chief. Boone, David R.;Casten Richard W.; Garrity, Garrity, George M. 2- Medical Microbiology by Patrick R; Ken S Rosenthal; Michael A. pfaller.
Main references (sources)	Review of Medical Microbiology and Immunology, Warren Levinson, thirteenth edition,McGraw Education.
Recommended books and references (scientific journals, reports...)	

Electronic References, Websites	

Course Description:

1. Course Name/Code	**Crimes of the Ba'ath Regime in Iraq ML2107**
5. Available Attendance Forms	**Weekly**
3. Semester / Year	**Semester-based, 2025-2026**
6. Number of Credit Hours (Total)	**Two hours per week**
4. Description Preparation Date	**15-8-2025**

8. Course Objectives:

First: Providing the student with all the scientific foundations to strengthen their knowledge of the fundamentals of the crimes of the defunct Ba'ath Party, by outlining the most significant crimes and violations committed by the defunct Ba'athist regime against the Iraqi people.
Second- The student must know the most important violations committed by the defunct Ba'ath regime against rights and freedoms.
Third- The need for the student to be familiar with the psychological and social domain.
Fourth: The student must become acquainted with culture and media, and with the nature of the militarization of Iraqi society during the era of the defunct Ba'ath regime.
Fifth: The necessity for the student to understand the impact of repression and wars on the environment and the population.
Sixth - The need for the student to know the effects of the use of internationally prohibited weapons and environmental pollution
Seventh: The student must know what the mass graves are and how places of worship in Iraq were bombed during the era of the defunct Ba'ath regime.
Eighth- The necessity for the student to know about the scorched-earth policy.

Ninth: The student must know how the defunct Ba'ath regime destroyed the agricultural and livestock environment and caused radioactive contamination.

9. Course Outcomes and Teaching, Learning, and Assessment Methods:

A- Cognitive Objectives

A- Knowing the importance of the principles and provisions of democracy and human rights.
2- Learning how the Ba'ath regime committed crimes against humanity, against Iraqi society, and against its opponents.
3- Identifying the violations to which Iraqi citizens and foreign nationals in Iraq were subjected.
4- Learning about the special summary courts that the defunct Ba'ath regime used to establish.
5- Learning how sentences were carried out during the era of the defunct Ba'ath regime.

B- The skills objectives specific to the course.

1 - The skills needed to understand the crimes committed by the defunct Ba'ath regime.
2 - The skills required to understand the procedures for applying transitional justice laws.
3 – The skills required to learn about the special courts that were established during the era of the defunct regime.
4- The skills needed to identify the most significant violations of rights and freedoms.
5- The skills needed to understand the impact of the transitional period in combating authoritarian politics.

Teaching and Learning Methods:

1. **Employing the lecture method sequentially, beginning with the fundamentals and branching out into the details.**
2. **Using the whiteboard according to the topic presented, with examples given to reinforce the student's understanding.**
3. **Discussing the most important points raised in the lecture in order to consolidate the information in the student's mind.**
4. **Summative assessment (questions, and sometimes a quick test (Quiz))**

Evaluation Methods:

(40) marks / distributed among written and oral examinations, research papers, and reports completed by the student during the semester, as follows:

(30) marks for the monthly examination

10) marks for daily activity in lectures, daily preparation, surprise oral exams, and quizzes
60 marks are allocated to the final examination.

C- Affective and value-based objectives:

- Identifying the problems surrounding the understanding of the crimes of the defunct Ba'ath regime.

- Engaging students by giving them real-life examples.

- Explaining practical examples of Ba'ath crimes, including judicial rulings and real-life cases.

D - General and transferable skills (other skills related to employability and personal development).

- Evaluating the law student's general cognitive attainment.

- Field observations and indicators of qualitative and methodological progress.

10. Course Structure:

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
Week 1	**2 hours theoretical**	Week 1: A general introduction to the study of the basic concepts of the crimes of the defunct Ba'ath Party and the violations of public rights and freedoms.	Week 1: (A general introduction to the study of the fundamental concepts of the crimes of the defunct Ba'ath Party and the violations of public rights and freedoms).	Lecture / discussion / educational sessions via social media platforms	Participation Tests Oral examinations

					Semester examinations
Week 2	**2 hours theoretical**	Week 2: A descriptive overview of the political systems in Iraq (1921-2003).	Week 2: A descriptive overview of the political systems in Iraq (1921-2003).	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
Week 3	**2 hours theoretical**	Week 3: Violations of public rights and freedoms by the Ba'ath regime / violation of intellectual rights and violation of public freedoms.	Week 3: Violations of public rights and freedoms by the Ba'ath regime / violation of intellectual rights and violation of public freedoms.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams

Week 4	**2 hours theoretical**	Week 4: Violation of the right to party pluralism.	Week 4: Violation of the right to party pluralism.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
Week 5	**2 hours theoretical**	Week 5: Violations affecting social and political rights.	Week 5: Violations affecting social and political rights.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams

Week 6	**2 hours theoretical**	Week 6: Violation of cultural rights and freedoms and the most significant violations committed by the Ba'athist regime.	Week 6: Violation of cultural rights and freedoms and the most significant violations committed by the Ba'athist regime.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
Week 7	**2 hours theoretical**	Week 7: (Violation of international law).	Week 7: (Violation of international law).	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
Week 8	**2 hours theoretical**	Week 8: The impact of the Ba'ath regime's behaviors on society, and its domination over the state.	Week 8: The impact of the Ba'ath regime's behaviors on society, and its domination over the state.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations

					Semester exams
Week 9	**2 hours theoretical**	Week 9: Concentration of the three branches of power in the hands of the Ba'athist regime.	Week 9: Concentration of the three branches of power in the hands of the Ba'athist regime.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
Week 10	**2 hours theoretical**	Week 10: Party-imposed conditions for monopolizing power.	Week 10: Party-imposed conditions for monopolizing power.	**Lecture / discussion / educational sessions via social media platforms**	**Participation, quizzes, and o examinations** **Semester examinations**
Week 11	**2 hours theoretical**	Week 11: The impact of the transitional period on combating authoritarian policies.	Week 11: The impact of the transitional period on combating authoritarian policies.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations

					Semester exams
Week 12	**2 hours theoretical**	Week 12: The Psychological Domain.	Week 12: The Psychological Domain.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
Week 13	**2 hours theoretical**	Week 13: ((The social domain)).	Week 13: ((The social domain)).	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
Week 14	**2 hours theoretical**	Week 14: ((The dialectic of ruler and citizen between hypocrisy and injustice, and the reinforcement of a culture of adulation)).	Week 14: ((The dialectic of ruler and citizen between hypocrisy and injustice, and the reinforcement of a culture of adulation)).	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral

					Examinations Semester exams
Week 15	**2 hours theoretical**	Week 15: A comprehensive review of the Ba'ath regime's violations and criminal practices.	Week 15: A comprehensive review of the Ba'ath regime's violations and criminal practices.	Lecture / discussion / educational sessions via social media platforms	Participation Tests Examinations Oral Examinations Semester exams
			Final examinations are held according to the schedule set by the Ministry of Higher Education and Scientific Research for the academic year 2023/2024		
- Completing research and academic projects.					

13. Infrastructure:

1- Required textbooks (curricular books, if any)	**The 2023 Crimes of the Defunct Ba'ath Party curriculum, prepared by the Ministry of Higher Education and Scientific Research / Department of Studies, Planning and Follow-up**
2- Main references (sources)	**The 2023 Crimes of the Defunct Ba'ath Party curriculum, prepared by the Ministry of Higher Education and Scientific Research / Department of Studies, Planning and Follow-up**
A- Recommended books and references (scientific journals, reports...)	**Al-Hikma Journal - Al-Muhaqqiq Al-Hilli Journal - Journal of Comparative Law**
B - Electronic References, Websites:	**Available websites**

14. Course Development Plan:
Adding and updating syllabus items and topics in line with ongoing developments in the course, at a rate not exceeding 10% per academic year.

Third Stage

Course Description Form

1. Course Name: Histopathology 1&2 - Third Stage
2. Course Code: ML301
3. Semester / Year: Semester-based – 2025-2026
4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms

Weekly in-person lectures, theoretical and practical

6. Number of Credit Hours (Total) / Number of Units (Total)

150 hours, theoretical and practical / 7 units

7. Course administrator's name (mention all, if more than one name)

Name: Lect. Dr. Maryam Mahmoud Shaker + Lect. Dr. Omnia Nafi Ahmed

8. Course Objectives

e Objectives	**al Objectives: Defining histopathology** **tion of the most common histopathological diseases. To be entered here** **ng how histopathological diseases develop** **nizing the importance of the relationship between genetic factors and the development of tissue diseases, and how they are inherited.** **Behavioral Objectives: The student's ability to diagnose histopathological diseases**

9. Teaching and Learning Strategies

gy	Using modern methods in teaching and learning, such as projectors and electronic whiteboards Discussion method – motivational questions – skill mastery method – differentiated learning – mind maps The compare-and-contrast method; the inquiry method

Course Structure

1.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Principles of pathology**	**Motivational questions**	**assignments and reports** **and examinations**

					And theoretical and practical examinations, both oral and written
2.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Inflammation**	**Discussion me**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
3.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Acute inflammation**	**Projection dev**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
4.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Chronic inflammation**	**Method** **Discussion**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
5.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Decomposition**	**Method** **Discussion**	**assignments and reports** **and examinations** **eoretical and practical examinations, both oral ar n**

6.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Programmed cell death**	**Instruments** **Demonstration**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
7.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Tumors**	**Instruments** **Demonstration**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
8.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Development** **Tumors**	**Questions** **Stimulatory**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
9.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Differences** **Between** **Benign and malignant tumors**	**Method** **Discussion**	**Daily assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**

10.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Benign tumors**	**Instruments** **Demonstration**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
11.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Malignant tumors**	**Instruments** **Demonstration**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
12.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Cellular changes**	**Questions** **Stimulatory**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
13.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Nomenclature** **Tumors**	**Questions** **Stimulatory**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**
14.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Decalcification**	**Instruments** **Demonstration**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**

15.	**2 theoretical + 3 practical**	**Understanding and comprehension**	**Stains** **Immunological**	**Method** **Discussion**	**assignments and reports** **and examinations** **And theoretical and practical examinations, both oral and written**

11. Course Evaluation: 5 daily marks + 35 monthly and midterm + practical 0; final 60	
Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, and written exams, reports, etc.	
12. Learning and Teaching Resources	
ed textbooks (curricular books, if any)	Robbin basic pathology
eferences (sources)	Manson tropical pathology
Recommended books and references (scientific journals, reports...)	Histopathology notes Pathology outline
Electronic References, Websites	

Course Description Form

1. Course Name: Clinical Chemistry 1&2
2. Course Code: ML304

3. Semester / Year: Semester-based, 2025-2026

Formative / Ministerial

4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms: In-person, weekly, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total)

(2*30 theoretical) + (2*30 practical) weekly (120 hours) 6 units

7. Course administrator's name (mention all, if more than one name)

Name: Lect. Dr. Saleh Ali Mahmoud + Asst. Lect. Kawan Mutaib

8. Course Objectives

Course Objectives	General Objectives: To introduce the student to the basic principles related to pathological analyses with respect to clinical chemistry and to familiarize the student with them. The objectives are confined to the syllabus items, which include topics on the theoretical and practical foundations of laboratory tests in clinical chemistry fo various diseases, with emphasis... Behavioral objectives: Enabling the student to perform tests of the urinary sys and examinations of certain other organs involving biochemical components, introducing important experiments with modern techniques into laboratory

	diagnosis, thereby giving the student a new opportunity to become familiar wi specialized qualitative tests

9. Teaching and Learning Strategies

Strategy	• Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Water homeostasis**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
2	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Water homeostasis**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**

3	**2 theoretical + 2 practical**	**Discussion**	**Metabolism of minerals trace elements**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
4	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Metabolism of minerals trace elements**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
5	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Blood gases**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
6	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Blood gases**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
7	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Diabetes mellitus**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
8	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Diabetes mellitus**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
9	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Liver functions**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
10	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Liver functions**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
11	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Liver function tests**	**Discussion**	**Oral and written examination**
12	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Kidney functions**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
13	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Kidney function tests**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
14	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Disorders of lipid metabolism**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**

15	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Disorders of lipid metabolism**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
16	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Functions of the heart**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
17	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Cardiac function tests**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
18	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Pancreatic functions an tests** **Functions of the pancrea**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
19	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Blood proteins**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
20	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Blood proteins**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
21	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Tumor markers**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
22	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Tumor markers**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
23	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Enzymes**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
24	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Enzymes**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
25	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Enzymes**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
26	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Hormones**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**

27	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Hormones**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
28	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Hormones**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
29	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Hormones**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
30	**2 theoretical + 2 practical**	**Understanding and comprehen**	**Hormones**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**

11. Course Evaluation
Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources	
Main references (sources)	**Textbook of BIOCHEMISTRY for Medical Students (Seventh Edition) DM Vasudevan, Sreekumari S, Kannan Vaidyanathan**
Recommended books and references (journals and research)	
Electronic References, Websites	

Course Description Form

1. Course Name: Advanced Laboratory Techniques

2. Course Code: ML 307
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
(2*30 theoretical) + (2*30 practical) weekly (120 hours) 6 units
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Lect. Abdullah Abdulkareem
8. Course Objectives

Course Objectives	**General Objectives: To train the student to perform the various techniques related to advanced pathological analyses that were not included in the training programs of the previous two years of study and that are related to various specialized subjects** **Behavioral objectives: By the end of this year, the student should be proficient in the following techniques: advanced examinations of the various body fluids, as urine, cerebrospinal fluid, and semen analysis, in addition to the special techniques for stool examination; diagnostic immunological tests, such as the single radial immunodiffusion test for the determination of complement and the quantification of globulins and the remaining components of blood serum and the various body fluids; and immunofluorescence tests and their applications in the diagnosis of microorganisms and in immunology, as well as cellular immunity tests.**

9. Teaching and Learning Strategies

Strategy	• The lecture delivery strategy with slide presentations via display screen • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 2 practical	Understanding and compreher	Introduction	Lecture method with the presentation of illustrati pictures and short films via display screens	Oral and written examinatio
2	2 theoretical + 2 practical	Understanding and compreher	Safety and sterilization principl	Lecture method with the presentation of illustrati pictures and short films via display screens	Oral and written examination

3	**2 theoretical + 2 practical**	**Understanding and compreher**	**Collection, transport, examinati and preparation** **Reports on specimens**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
4	**2 theoretical + 2 practical**	**Understanding and compreher**	**Test in** **Urine**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
5	**2 theoretical + 2 practical**	**Understanding and compreher**	**Culturing of living organisms** **Conventional microbiological techniques**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
6	**2 theoretical + 2 practical**	**Understanding and compreher**	**Test in** **Stool**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
7	**2 theoretical + 2 practical**	**Understanding and compreher**	**Biochemistry** **Tests** **From microorganisms**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
8	**2 theoretical + 2 practical**	**Understanding and compreher**	**Sputum examination**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
9	**2 theoretical + 2 practical**	**Understanding and compreher**	**Serological diagnostic technique**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
10	**2 theoretical + 2 practical**	**Understanding and compreher**	**Swabs** **Test in** **Cerebrospinal fluid**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**

11	**2 theoretical + 2 practical**	**Understanding and compreher**	**Diagnosis of viruses**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
12	**2 theoretical + 2 practical**	**Understanding and compreher**	**Molecular** **Diagnostic techniques**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
13	**2 theoretical + 2 practical**	**Understanding and compreher**	**and PCR** **Hybridization**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
14	**2 theoretical + 2 practical**	**Understanding and compreher**	**Electrophoresis**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
15	**2 theoretical + 2 practical**	**Understanding and compreher**	**The cell and** **Tissue culture**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
16	**2 theoretical + 2 practical**	**Understanding and compreher**	**Cell** **Homogeneity** **and fractionation**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
17	**2 theoretical + 2 practical**	**Understanding and compreher**	**Separation techniques**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
18	**2 theoretical + 2 practical**	**Understanding and compreher**	**Chromatographic separation techniques**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
19	**2 theoretical + 2 practical**	**Understanding and compreher**	**Enzyme kinetics** **Monitoring techniques**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**

			Enzyme **Examination techniques**		
20	**2 theoretical + 2 practical**	**Understanding and compreher**	**Liver functions** **Tests**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
21	**2 theoretical + 2 practical**	**Understanding and compreher**	**Protein separation** **Separation** **Amino acids**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
22	**2 theoretical + 2 practical**	**Understanding and compreher**	**Kidney function test panel**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
23	**2 theoretical + 2 practical**	**Understanding and compreher**	**Glucose &** **HbA1c tests**	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Oral and written examination**
24	**2 theoretical + 2 practical**	**Understanding and compreher**	**Automation** **Analysts in a diagnostic laborat** **Biochemistry**	**Combining various strategies**	**Oral and written examination**
25	**2 theoretical + 2 practical**	**Understanding and compreher**	**Coagulation techniques**	**Combining various strategies**	**Oral and written examination**
26	**2 theoretical + 2 practical**	**Understanding and compreher**	**Immunofluorescence techniques** **ELISA**	**Combining various strategies**	**Oral and written examination**
27	**2 theoretical + 2 practical**	**Understanding and compreher**	**Radioimmunoassay**	**Combining various strategies**	**Oral and written examination**
28	**2 theoretical + 2 practical**	**Understanding and compreher**	**Blood and edema fluids**	**Combining various strategies**	**Oral and written examination**

			Group techniques **Hemoglobinopathy**		
29	**2 theoretical + 2 practical**	**Understanding and compreher**	**Stimulation and suppression tes**	**Combining various strategies**	**Oral and written examination**
30	**2 theoretical + 2 practical**	**Mastering the skill**	**Progresses** **Diagnostic technology in blood diseases** **Laboratory**	**Problem-solving method**	**Oral and written examination**

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources

Main references (sources)	**1- JAWETZ, MELNICK & Adelberg's MEDICAL MICROBIOLOGY Twenty-Seventh Edition** **2- Manual of Medical Laboratory Techniques, First Edition: 2012, S Ramakrishna and Sankara Nethralaya**
Recommended books and references (journals and research)	1-**Oxford Handbook of Clinical and Laboratory Investigation 2002 , Drew Provan and Andrew Krentz.** **2- Basic Clinical Laboratory Techniques, Sixth Edition 2012, Barbara H. Estridge and Anna P. Reynolds.** .

Electronic References, Websites	

Course Description Form

1. Course Name: Virology and Mycology
2. Course Code: ML303
3. Semester / Year: Semesters 1 & 2, 2025-2026
Formative / Ministerial
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: weekly in-person attendance, theoretical and practical
6. Number of Credit Hours (Total) / Number of Units (Total): 180 hours, 6 units

7. Course administrator's name (mention all, if more than one name)
Dr. Ali Mohammed Ridha + Asst. Lect. Heba Ahmed

8. Course Objectives	
Course Objectives	
General Objectives: 1- An introduction to and definition of the most important medical viruses and fungi.	
2- Identifying the most important medical viral and fungal diseases.	
3- Understanding the mechanism by which viral and fungal diseases develop.	
4- Understanding the factors that lead to infection with viral and fungal diseases. Behavioral Objectives: Enabling the student to deal with patients with viral infections The ability to diagnose viruses	

9. Learning strategies	
Strategy	Experiments, smart board, whiteboard, Internet

10. Course Structure:					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Teaching method**	**Evaluation method**

1	**2 theoretical + 2 practical**	Definitions, types of viruses	General properties of viruses , structure, classification	**Theoretical + Practical**	Examinations
2	**2 theoretical + 2 practical**	Strategies of viral RNA replication	Replication of RNA viruses	**Theoretical + Practical**	Examinations
3	**2 theoretical + 2 practical**	Strategies of viral DNA replication	Replication of DNA viruses	**Theoretical + Practical**	Examinations
4	**2 theoretical + 2 practical**	Methods of sampling , transporting and storage of clinical sampling, methods of virus cultivation	Virus isolation and cultivation	**Theoretical + Practical**	Examinations
5	**2 theoretical + 2 practical**	Chemotherapeutics and chemical agents affecting viral activity , effects of different vaccines	Chemotherapy , antiviral agents and vaccines	**Theoretical + Practical**	Examinations
6	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Influenza viruses	**Theoretical + Practical**	Examinations
7	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Paramyxo and Robella viruses	**Theoretical + Practical**	Examinations
8	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Enteric viruses and Rhinovirus group	**Theoretical + Practical**	Examinations
9	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Herpes viruses	**Theoretical + Practical**	Examinations

10	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Oncogenic viruses	**Theoretical + Practical**	Examinations
11	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Hepatitis viruses	**Theoretical + Practical**	Examinations
12	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Rubies and Neurotropic viruses	**Theoretical + Practical**	Examinations
13	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Arbo viruses and viral Haemorrhagic viruses	**Theoretical + Practical**	Examinations
14	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Adino ,pox and parvo viruses	**Theoretical + Practical**	Examinations
15	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Retro and AIDS viruses	**Theoretical + Practical**	Examinations
16	**2 theoretical + 2 practical**	1st. Term exam		**Theoretical + Practical**	Examinations
17	**2 theoretical + 2 practical**	Diseases caused by dermatophytes and other clinically important fungi	Fungal diseases	**Theoretical + Practical**	Examinations
18	**2 theoretical + 2 practical**	Groups of fungi , their structure and types of reproduction	Introduction ,structure , reproduction	**Theoretical + Practical**	Examinations
19	**2 theoretical + 2 practical**	Methods of fungal culturing and their characteristics ,types of fungal infections	Cultural characteristics , types of mycosis	**Theoretical + Practical**	Examinations

20	**2 theoretical + 2 practical**	Chemotherapy and other clinical methods for treatment fungal infections	General principles of treatment	**Theoretical + Practical**	Examinations
21	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Actinomyces , nocardia ,mycetoma	**Theoretical + Practical**	Examinations
22	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Dermatophytes	**Theoretical + Practical**	Examinations
23	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Candidiasis	**Theoretical + Practical**	Examinations
24	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Cytococcsis	**Theoretical + Practical**	Examinations
25	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Histoplasmosis , sporotrichosis	**Theoretical + Practical**	Examinations
26	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Aspergillosis , Mucor	**Theoretical + Practical**	Examinations
27	**2 theoretical + 2 practical**	Structure , pathogenicity , epidemiology , chemotherapy	Rhizopus and Penicillium	**Theoretical + Practical**	Examinations
28	**2 theoretical + 2 practical**	Chemotherapeutic agents used against fungal infections	Antifungal agents	**Theoretical + Practical**	Examinations

11. Course Evaluation
40 Coursework - 60 final
12. Learning and Teaching Resources

1- Required textbooks (curricular books, if any)	Medical microbiology : by Jawetz (2016)
2- Main references (sources)	Medical microbiology : by Jawetz (2016)
A- Recommended books and references (scientific journals, reports…)	
B - Electronic References, Websites:	Wikipedia encyclopedia

Course Description Form

1. Course Name: Immunology 1&2
2. Course Code / ML 306
3. Semester / Year: Semesters 1+2, 2025-2026
4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms: In-person, weekly, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total)

(2*30 theoretical) + (2*30 practical) weekly (60 hours) 6 units

7. Course administrator's name (mention all, if more than one name)

Name: Lect. Dr. Dhurgham Mohammed + Asst. Lect. Fatima Imad + Asst. Lect. Sahar Samir

8. Course Objectives

Course Objectives	**General Objectives: Understanding the principles of immunology** *** Understanding the diagnostic methods of immunology** **Behavioral objectives: Enabling the student to use the var instruments employed in immunology**

9. Teaching and Learning Strategies

Strategy	• Brainstorming strategy • Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning

	• Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 2 practical	Understanding and comprehension	Principles of immunology	Lecture method with the presentatio illustrative pictures and short films display screens	Oral and written examination
2	2 theoretical + 2 practical	Understanding and comprehension	Organs of immune system	Lecture method with the presentatio illustrative pictures and short films display screens	Oral and written examination
3	2 theoretical + 2 practical	Understanding and comprehension	Innate immunity	Brainstorming method	Oral and written examination
4	2 theoretical + 2 practical	Understanding and comprehension	Innate immune system	Problem-solving method	Oral and written examination
5	2 theoretical + 2 practical	Understanding and comprehension	First line immunity	Lecture followed by conducting the experiments	Oral and written examination
6	2 theoretical + 2 practical	Understanding and comprehension	Second line immunity	Mastering the skill	Oral and written examination
7	2 theoretical + 2 practical	Understanding and comprehension	Examination	Examination	Oral and written examination
8	2 theoretical + 2 practical	Understanding and comprehension	Defense against disease	Combining various strategies	Oral and written examination

9	**2 theoretical + 2 practical**	**Understanding and comprehension**	**complement**	**Similarities and differences (compa and-contrast) method**	**Oral and written examination**
10	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Natural killer cells**	**Combining various strategies**	**Oral and written examination**
11	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Cytokines**	**Combining various strategies**	**Oral and written examination**
12	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Examination**	**Examination**	**Oral and written examination**
13	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Specific defenses**	**Combining various strategies**	**Oral and written examination**
14	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Players of immune system**	**Cooperative learning**	**Oral and written examination**
15	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Adaptive immunity**	**Combining various strategies**	**Oral and written examination**
16	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Hummoral immunity**	**Combining various strategies**	**Oral and written examination**
17	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Cell mediated immunity**	**Combining various strategies**	**Oral and written examination**
18	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Antigen**	**Combining various strategies**	**Oral and written examination**
19	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Examination**	**Examination**	**Oral and written examination**
20	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Antibodies**	**Combining various strategies**	**Oral and written examination**
21	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Helper T cell**	**Combining various strategies**	**Oral and written examination**
22	**2 theoretical + 2 practical**	**Understanding and comprehension**	**B lymphocytes**	**Combining various strategies**	**Oral and written examination**

23	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Types of acquired immunity**	**Combining various strategies**	**Oral and written examination**
24	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Results of Ag-Ab reaction**	**Combining various strategies**	**Oral and written examination**
25	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Agglutination and precipitation**	**Combining various strategies**	**Oral and written examination**
26	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Examination**	**Examination**	**Oral and written examination**
27	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Inflamation**	**Combining various strategies**	**Oral and written examination**
28	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Complement**	**Combining various strategies**	**Oral and written examination**
29	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Primary & secondary imn response**	**Combining various strategies**	**Oral and written examination**
30	**2 theoretical + 2 practical**	**Understanding and comprehension**	**Examination**	**Examination**	**Oral and written examination**

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources

Main references (sources)	
Recommended books and references (journals and research)	

Electronic References, Websites	

Course Descriptions Form

1. Course Name: Human Genetics 1&2
2. Course Code: ML305
3. Semester / Year: Semesters 1+2, 2025-2026
4. Preparation Date: 15-8-2025
5. Available Attendance Forms: Weekly in-person lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
Credit Hours: 5*18 theoretical + practical = 120 - 7 units
7. Instructor's name (state if there is more than one name)

Lect. Dr. Emad Shaker Abu Al-Ees + Asst. Lect. Sura Abdul-Hussein

8. Course Objectives

General Objectives: For the student to understand genes and hereditary factors and their r in causing disease **Behavioral Objectives: Enabling the student to perform genetic testing** **The student's ability to use the genetic testing instrument**	

Teaching and Learning Strategies: Brainstorming strategy

Modeling learning strategy

Group work or the cooperative learning strategy

Discussion strategy

Project-based strategy

Problem-solving strategy or problem-based learning

The storytelling learning strategy.

Combining different strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1.	2+3 hours Theoretical and practical	Understanding and comprehension	Genes	Lectures with daily discussion and a quiz at any time during the lecture	The exam and Competitions and reports
2.	2+3 hours Theoretical and practical	Understanding and comprehension	Genotype and phenotype	Lectures with daily discussion and a quiz at any time during the lecture	Oral and written examinations
3.	2+3 hours Theoretical and practical	Understanding and comprehension	Genetic conditions and diagnosis	Lectures with daily discussion and a quiz at any time during the lecture	Oral and written examinations
4.	2+3 hours Theoretical and practical	Understanding and comprehension	Mendel's theory	Lectures with daily discussion and a quiz at any time during the lecture	Oral and written examinations
5.	2+3 hours Theoretical and practical	Understanding and comprehension	Mutation	Lectures with daily discussion and a quiz at any time during the lecture	Oral and written examinations
6.	2+3 hours Theoretical and practical	Understanding and comprehension	Classification of mutations	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination

7.	2+3 hours Theoretical and practical	Understanding and comprehension	Solving examples	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
8.	2+3 hours Theoretical and practical	Understanding and comprehension	Hereditary diseases	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
9.	2+3 hours Theoretical and practical	Understanding and comprehension	Down syndrome	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
10.	2+3 hours Theoretical and practical	Understanding and comprehension	Gout	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
11.	2+3 hours Theoretical and practical	Understanding and comprehension	Marfan syndrome	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
12.	2+3 hours Theoretical and practical	Understanding and comprehension	Galactosemia	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
13.	5 hours	Understanding and comprehension	Schizophrenia	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written

	Theoretical and practical				Examination
14.	2+3 hours Theoretical and practical	Understanding and comprehension	DNA repair	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
15.	2+3 hours Theoretical and practical	Understanding and comprehension	DNA and chromosomes	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
16.	2+3 hours Theoretical and practical	Understanding and comprehension	Type of mutation	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
17.	2+3 hours Theoretical and practical	Understanding and comprehension	DNA repeats	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination
18.	2+3 hours Theoretical and practical	Understanding and comprehension	Structural and chemical properties of DNA	Lectures with daily discussion and a quiz at any time during the lecture	By the oral route and Written Examination

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	1- Lewis • Human Genetics: Concepts and Applications, 9th Edition 2- *Robert Schleif, Genetics and Molecular Biology, Second Edition*
Recommended books and references (scientific journals, reports...)	Introduction to molecular genetics and Genomics; Alfred D. Hershey and Martha Chase
Electronic References, Websites	Google, Yahoo, Chrome

Course Description Form

1. Course Name: Hematology 1&2 for the Third Stage
2. Course Code: ML 302
3. Semester / Year: Semesters 1+2, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: Compulsory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)

112 hours, 6 units

7. Course administrator's name (mention all, if more than one name)

Name: Asst. Prof. Dr. Suhair Abbas Al-Salihi

8. Course Objectives

Course Objectives	

General Objectives: The composition of blood – becoming acquainted with the science of blood diseases

Behavioral Objectives: The student's ability to use the various diagnostic methods for diseases affecting the blood

9. Teaching and Learning Strategies

Strategy	Experiments, smart board, whiteboard, the Internet Using brainstorming, cooperative learning, skill mastery, and internet-based WebQuests

10. Course Structure:

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**2 theoretical + 2 practical**	Definition, classification, causes	Neonatal jaundice (1)	**Combining different teaching methods**	Examinations
2	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Neonatal jaundice (2)	**Combining different teaching methods**	Examinations
3	**2 theoretical + 2 practical**	Definition, classification, causes	Iron deficiency anemia (1)	**Combining different teaching methods**	Examinations
4	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Iron deficiency anemia (2)	**Combining different teaching methods**	Examinations
5	**2 theoretical + 2 practical**	Definition, classification, causes	megaloblastic anemia (1)	**Combining different teaching methods**	Examinations
6	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	megaloblastic anemia (2)	**Combining different teaching methods**	Examinations
7	**2 theoretical + 2 practical**	Definition, classification, causes	Hemolytic anemia (1)	**Combining different teaching methods**	Examinations
8	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Hemolytic anemia (2)	**Combining different teaching methods**	Examinations
9	**2 theoretical + 2 practical**	Definition, classification, causes	Inherited hemolytic anemia (1)	**Combining different teaching methods**	Examinations
10	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Inherited hemolytic anemia (2)	**Combining different teaching methods**	Examinations
11	**2 theoretical + 2 practical**	Definition, classification, causes	Hb .pathies(1)	**Combining different teaching methods**	Examinations

12	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Hb .pathies(2)	**Combining different teaching methods**	Examinations
13	**2 theoretical + 2 practical**	Definition, classification, causes	Acquired hemolytic anemia (1)	**Combining different teaching methods**	Examinations
14	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Acquired hemolytic anemia (2)	**Combining different teaching methods**	Examinations
15	**2 theoretical + 2 practical**	Definition, classification, causes	Polycythemia	**Combining different teaching methods**	Examinations
16	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Normal haemostasis	**Combining different teaching methods**	Examinations
17	**2 theoretical + 2 practical**	Definition, classification, causes	Disorders of platelets	**Combining different teaching methods**	Examinations
18	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Inherited coagulation defect(1)	**Combining different teaching methods**	Examinations
19	**2 theoretical + 2 practical**	Definition, classification, causes	Inherited coagulation defect(2)	**Combining different teaching methods**	Examinations
20	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Acute leukemia(1)	**Combining different teaching methods**	Examinations
21	**2 theoretical + 2 practical**	Definition, classification, causes	Acute leukemia(2)	**Combining different teaching methods**	Examinations
22	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Chronic leukemia(1)	**Combining different teaching methods**	Examinations

23	**2 theoretical + 2 practical**	Definition, classification, causes	Chronic leukemia(2)	**Combining different teaching methods**	Examinations
24	**2 theoretical + 2 practical**	Lab. Diagnosis, clinical features, and treatment	Multiple myelomas	**Combining different teaching methods**	Examinations
25	**2 theoretical + 2 practical**	Definition, classification, causes, Lab. Diagnosis, clinical features, and treatment	Hodgkin's lymphoma	**Combining different teaching methods**	Examinations
26	**2 theoretical + 2 practical**	Explain: Storage of blood	Storage of blood	**Combining different teaching methods**	Examinations
27	**2 theoretical + 2 practical**	Explain: Complication of blood transfusion	Complication of blood transfusion	**Combining different teaching methods**	Examinations
28	**2 theoretical + 2 practical**	Explain about types of anticoagulants tubes and uses of these tubes	Anticoagulants in haematology	**Combining different teaching methods**	Examinations

11. Course Evaluation			
40 coursework - 60 final			
12. Learning and Teaching Resources			
1- Required textbooks (curricular books, if any)	**Prescribed curricular textbooks** **Practical and Medical haematology**		

2- Main references (sources)	**1. Dacie and Lewis practical haematology / eleventh edition.** **2. Essential haematology A.V. Hoffbrand / P.A.H. Moss, sixth edition.** **3. Haematology in practice Betty Ciesla / 2007**		
A- Recommended books and references (scientific journals, reports...)	**Scientific journals in the medical specialties** **Web medical , haematology, practical haematology**		
B - Electronic References, Websites:	**Medlineplus.gov** **Healthline.com** **Pub med** **Web med**		

Fourth Stage

Course Description Form

1. Course Name: Laboratory Management
2. Course Code ML408
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
Theoretical hours (15 hours) – two units
7. Course administrator's name (mention all, if more than one name)
Name: Assistant Lecturer Omar Ahmed
8. Course Objectives: Introducing the student to the specific methods of proper laboratory management

Course Objectives	• **General objectives: Introducing the student to types of laboratories and the duties of the laboratory supervisor.** • **Behavioral objectives: the student's ability to use laboratory tools and instruments.**

9. Teaching and Learning Strategies

Strategy	Scientific experiments, smart board, the Internet Self-directed learning, skill mastery, and problem-based learning The brainstorming method, combining different strategies, and the problem-solving method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**One theoretical hour**	**Understanding and comprehension**	Laboratory premises General design objective - Laboratory type and classification -	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
2	**One theoretical hour**	**Understanding and comprehension**	The role of the laboratory in the diagnosis and control of infection	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

3	**One theoretical hour**	**Understanding and comprehension**	Laboratory management Definition - - Who are the manager in the health laboratory - Level of management Planning , organization , director leadership , Controlling-	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
4	**One theoretical hour**	**Understanding and comprehension**	Mission of health laboratory services Laboratory contribute to patient care and community health- - Laboratory contribute to public health services in the community	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
5	**One theoretical hour**	**Understanding and comprehension**	Planning - Definition - The planning function - strategic planning - Determining priorities - Approaches to setting the goal and objective	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
6	**One theoretical hour**	**Understanding and comprehension**	Organization - Definition	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

			- Structural organization - The organizer process - Organization of supervision - Organization charts		
7	**One theoretical hour**	**Understanding and comprehension**	Directing - Definition - Directing and people - Motivation of staff - Practical approach to enhance motivation in health laboratory in the Eastren Mediterranean Region	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
8	**One theoretical hour**	**Understanding and comprehension**	Leadership - Definition - Leadership style - Useful characteristics for effective leadership	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
9-10	**One theoretical hour**	**Understanding and comprehension**	Controlling - Definition - Pre analytical control	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

			- Biological sources of variation in specimens collection , transport and storage		
11	**One theoretical hour**	**Understanding and comprehension**	Laboratory communication with the administration - communication with disease surveillance program - Laboratory communication with clinicians	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
12		**Understanding and comprehension**	Data handling and data processing - Personal data of patient - Record keeping - Outlier test	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
13	**One theoretical hour**	**Understanding and comprehension**	Use of computer for control of laboratory performance	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
14	**One theoretical hour**	**Understanding and comprehension**	Laboratory equipment preventive maintenance programme - Purpose - Advantage	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
15	**One theoretical hour**	**Understanding and comprehension**	Inventory control system for laboratory supplies - Work analysis chart	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

			- Items identification per laboratory section - Establishment of laboratory requisitioning procedure		

11. Course Evaluation
Coursework: 40 + Final Exam: 60

12. Learning and Teaching Resources	
Main references (sources)	1- The Professional Conduct Handbook for Physicians by Dr. Raji Al-Tikriti **2 - Laboratory Safety Manual** / October 2017 / University of Washington
Recommended books and references (scientific journals, reports...)	All books on laboratory management
Electronic References, Websites	**1-www.acs.org/content/acs/en/careers/college-to-career/chemistry-careers/lab-management.html** www.asbmb.org/asbmbtoday/asbmbtoday_article.aspx?id=4897

Course Description Form

1. Course Name: Diagnostic Bacteriology 1&2

2. Course Code: ML402
3. Semester / Year: Semesters 1+2, 2025-2026
Formative / Ministerial
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
6 hours per week, theoretical and practical (180 hours); 8 units
7. Course administrator's name (mention all, if more than one name)
Name: Lect. Dr. Bashar Qusay Kadhim + Asst. Lect. Rusul Hisham
8. Course Objectives

Course Objectives	**General objectives: By the end of this course, the student should be able to ide bacteria to an acceptable standard and be capable of managing bacteriologica laboratories.** **Specific Objectives: Diagnosis of microorganisms using all available methods the World Health Organization (WHO) manuals**

9. Teaching and Learning Strategies

Strategy	Scientific experiments, smart board, the Internet Self-directed learning, skill mastery, and problem-based learning The brainstorming method, combining different strategies, and the problem-solving method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
	2 theoretical + 4 practical	**Understanding and comprehension**	Methods of lab diagnosis bacteria	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Safety	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Daily quizzes (oral and written) and monthly examinations**

	2 theoretical + 4 practical	**Understanding and comprehension**	Cultural	**Brainstorming method**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Standing	**Problem-solving method**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	type of agars	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Fixation	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Single enzyme test	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Oxidation test	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Antibiotic mode	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Disk diffusion	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Amino acid degradation	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Satepto and staph cocci	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Respiratory tract	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

	2 theoretical + 4 practical	**Understanding and comprehension**	UTI and genital tract	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	GI	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Eyes , ear , sinuse	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Skin infection	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Wound disease	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Sterile body fluid	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Diagnosis lab method	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Parasite diagnosis	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Basic mycology	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Basic virology	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
	2 theoretical + 4 practical	**Understanding and comprehension**	Nucleic acid based method	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

11. Course Evaluation
Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60 **Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, and written exams, reports, etc.** **(40 marks for annual coursework, divided into 25 marks theoretical + 15 marks practical) (60 marks for the final exam, divided into 35 marks theoretical + 25 marks practical).**

12. Learning and Teaching Resources	
Main references (sources)	**Jawetz, Melnick, & Adelberg's.(2019):Medical Microbiology.Twenty-Eighth Edition1-** **. 2. Connie R. Mahon, Donald C. Lehman (2019): Textbook of Diagnostic Microbiology, Sixth Edition.**
Recommended books and references (journals and research papers)	**Prof.Dr.Mohammed Shammkhi Jeber.(2019):Notes of Diagnosis Microbiology**
Electronic References, Websites	

Course Description Form

1. Course Name: Professional Ethics
2. Course Code: ML409
3. Semester / Year: Semester-based, 2025-2026

4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms: In-person, weekly, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total)

Theoretical hours (15 hours) – two units

7. Course administrator's name (mention all, if more than one name)

Lecturer Dr. Mohammed Anwar Abboud

8. Course Objectives: Introducing students to professional ethics and equipping them with the professional ethical principles that strengthen their commitment to them in their expected field of work after graduation.

Course Objectives	• **General Objectives: Understanding comprehending the concepts of professional ethics.** • **Instilling and assimilating the ethica standards of the profession** • **Behavioral objectives: The student's ability to beha ethically when dealing with patients**	

9. Teaching and Learning Strategies

Strategy	Scientific experiments, smart board, the Internet Self-directed learning, skill mastery, and problem-based learning And combining different strategies with the problem-solving method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1+2	**One theoretical hour**	**Understanding and comprehension**	**Ethics: its concept, general rules, sources, and importance for the individual and society**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
3	**One theoretical hour**	**Understanding and comprehension**	Work and profession	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
4	**One theoretical hour**	**Understanding and comprehension**	**– Values and professional ethics**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
5+6	**One theoretical hour**	**Understanding and comprehension**	**Values and professional ethics**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
7+8	**One theoretical hour**	**Understanding and comprehension**	**Patterns of unethical behavior in the profession**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
9+10	**One theoretical hour**	**Understanding and comprehension**	**Means and methods of instilling the values of professional ethics**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

11+12	**One theoretical hour**	**Understanding and comprehension**	**Characteristics and duties of the medical technician** • **The qualities that a medical technician must possess.** • **The duties of the medical technician toward his profession.** • **The duties of the medical technician toward the patient.** **Duties of the medical technician toward society**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
13	**One theoretical hour**	**Understanding and comprehension**	**The medical technologist's relationship with society and their responsibility toward the environment and public safety**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
14	**One theoretical hour**	**Understanding and comprehension**	**Professional relationships: the medical technician's relationship with colleagues in the healthcare institution**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**
15	**One theoretical hour**	**Understanding and comprehension**	**Ethics of teaching and learning on patients**	**Combining various strategies**	**Daily quizzes (oral and written) and monthly examinations**

11. Course Evaluation
Coursework: 40 + Final Exam: 60
12. Learning and Teaching Resources

Main references (sources)	1- Professional ethics for the medical specialties 2- Lessons in Professional Ethics, Dr. Mohammed Al-Siddiq 3- Laboratory Safety - University of Washington
Recommended books and references (journals and research)	All books on medical professional ethics
Electronic References, Websites	www.noor-book.com www.isbniroq.org

Course Description Form

1. Course Name: Clinical Immunology 1&2 - Fourth Stage
2. Course Code: ML 401
3. Semester / Year: Semester-based, 2025-2026
Formative / Ministerial
4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms: In-person, weekly, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total)

180 hours, 8 units

7. Course administrator's name (mention all, if more than one name)

Name: Lect. Dr. Sanan Thaer Abdulwahab + Lect. Dr. Dhurgham Mohammed + Asst. Lect. Sahar Samir

8. Course Objectives

Course Objectives	• **Teaching the Clinical Immunology course aims to instill a set of theoretical and practical concepts that ultimately lead to General objectives: Introducing the student to clinical immunology and its scientific classification, and to the most important commo rare immune diseases** • **The student also understands the pathological mechanism underlying the occurrence of diseases and becomes familiar with the overa clinical symptoms of immunological diseases** • **The student is provided with a package of pathological diagnoses for each disease and a diagnostic ladder for reaching the results Behavioral Objectives:** • **The student's ability to apply the most important immunological techniques in diagnosing these immune diseases and reporting the r** • **Hands-on practical application on the relevant instruments, with assessment of the degree of benefit** • **Becomes familiar with differential diagnostic methods, as well as the follow-up of patients' test results and some treatment methods**

9. Teaching and Learning Strategies

Strategy	Scientific experiments, smart board, the Internet Self-directed learning, skill mastery, and problem-based learning

10. Course Structure

10. Course Structure:

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**2 theoretical + 4 practical**	Rheumatic Diseases	1. Rheumatoid Arthritis	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Daily quizzes (oral and written) and monthly examinations**
2	**2 theoretical + 4 practical**		2. Systemic Lupus Erythmatosus	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Daily quizzes (oral and written) and monthly examinations**
3	**2 theoretical + 4 practical**		3. Ankylosing Spondylitis	**Theoretical + Practical**	Examinations
4	**2 theoretical + 4 practical**		4. Sjogren's Syndrome	**Theoretical + Practical**	Examinations
5	**2 theoretical + 4 practical**		5. Behcet's Disease	**Theoretical + Practical**	Examinations
6	**2 theoretical + 4 practical**		6.Psoriatic arthritis	**Theoretical + Practical**	Examinations
7	**2 theoretical + 4 practical**	Gastrointestinal and liver diseases:	**1)** Gluten sensitive entero-pathy	**Theoretical + Practical**	Examinations
8	**2 theoretical + 4 practical**		**2)** Pernicious Anemia	**Theoretical + Practical**	Examinations

9	**2 theoretical + 4 practical**		**3)** Ulcerative Colitis	**Theoretical + Practical**	Examinations
10	**2 theoretical + 4 practical**		**4)** Crohn's Disease	**Theoretical + Practical**	Examinations
11	**2 theoretical + 4 practical**		**5)** Chronic inflammatory bowel disease / or Villous Atrophy not due to Gluten sensitivity (type A)	**Theoretical + Practical**	Examinations
12	**2 theoretical + 4 practical**		**6)** *Helicobacter pylori* Mucosa-associated lymphoid tissue lymphoma and *Helicobacter pylori* associated chronic gastritis (type B)	**Theoretical + Practical**	Examinations
13	**2 theoretical + 4 practical**		**7)** Autoimmune Chronic Active hepatitis	**Theoretical + Practical**	Examinations
14	**2 theoretical + 4 practical**		**8)** Primary Biliary Cirrhosis	**Theoretical + Practical**	Examinations
15	**2 theoretical + 4 practical**		**9)** Primary Sclerosing Cholangitis	**Theoretical + Practical**	Examinations
16	**2 theoretical + 4 practical**		**Mid exam 2**	**Theoretical + Practical**	Examinations
17	**2 theoretical + 4 practical**		**Half – Year break**	**Theoretical + Practical**	Examinations
18	**2 theoretical + 4 practical**	Kidney disease:	(a) Immunological mechanisms of renal infection: 1. Circulating immune Complex	**Theoretical + Practical**	Examinations
19	**2 theoretical + 4 practical**		2. In situ immune complex Formation	**Theoretical + Practical**	Examinations

20	**2 theoretical + 4 practical**		(b) ANCA) :Antineutrophil Cytoplasmic Autoantibodies	**Theoretical + Practical**	Examinations
21	**2 theoretical + 4 practical**		(c) T Lymphocyte mediated Renal Injury	**Theoretical + Practical**	Examinations
22	**2 theoretical + 4 practical**		(d) Secondary Mediators in Acute inflammation	**Theoretical + Practical**	Examinations
23	**2 theoretical + 4 practical**		Some kidney diseases: a) Primary glomerulonephritis 1. Memberanous glomerlulonephritis (Nephrotic Syndrome)	**Theoretical + Practical**	Examinations
24	**2 theoretical + 4 practical**		2. Postinfection Glomerulo-nephritis	**Theoretical + Practical**	Examinations
25	**2 theoretical + 4 practical**		3. IgA Nephropathy	**Theoretical + Practical**	Examinations
26	**2 theoretical + 4 practical**		b)1. Lupus Nephritis 2. Henoch-Schonlein Purpura	**Theoretical + Practical**	Examinations
27	**2 theoretical + 4 practical**		C) Vasculitis-Associated Glomerular Lesion: 1. Anti-Glomerular Basement Membrane Disease	**Theoretical + Practical**	Examinations
28-30	**2 theoretical + 4 practical**		2. Antineutrophil Cytoplasmic Autoantibodies- Associated Disease	**Theoretical + Practical**	Examinations

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources	
Main references (the Internet)	
Recommended books and references (journals and research)	Clinical Immunology pricinples and practice book-fifth edition-2019
Electronic References, Websites	

Course Description Form

1. Course Name: Advanced Clinical Chemistry 1&2
2. Course Code: ML 403
3. Semester / Year: Semesters 1+2, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms
In-person, weekly, theoretical and practical
6. Number of Credit Hours (Total) / Number of Units (Total)

Number of hours: 180 hours (theoretical and practical) / Number of units: 8

7. Course administrator's name (mention all, if more than one name)

Name: Lect. Dr. Saleh Ali + Asst. Lect. Kawan Mutaab

8. Course Objectives

Course Objectives	**Behavioral objectives: The ability to use laboratory instruments and to apply laboratory methods in performing analyses.** **General Objectives: Introducing the student to the fundamental principles of pathological analyses in relation to cli chemistry**

9. Teaching and Learning Strategies

Strategy	Using modern teaching methods (electronic whiteboard and display screens) Using discussion methods, daily examinations, homework assignments, and reports, as well as Motivational questions.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1&2	**2 theoretical + 4 practical**	**Familiarity with occupationa safety methods in chemical laboratories**	**Chemical safety.** **Biosafety.** **Fire safety and control of**	Lecture + practical	**Daily + monthly ex**

3&4	**2 theoretical + 4 practical**	Teaching the student how to handle all types of specimens and the methods of collecting and preserving them	**A- Collecting samples (urine, blood, stool, cerebrospinal fluid, and other body specim** **Fluids; other hazards.**	Lecture + practical	**Daily + monthly exams**
5,6,7	**2 theoretical + 4 practical**	The student's understanding of quality control tests	**Quality management: fundamentals of qua management**	Lecture + practical	**Daily + monthly exams**

8,9,10,11,12	**2 theoretical + 4 practical**	Teaching the student the types of variables and how to handle them	**Fundamentals of total quality managemen** **The total testing process.** **Control of pre-analytical variables.**	Lecture + practical	**Daily + monthly exams**
13,14	**2 theoretical + 4 practical**	Teaching the student how to use the computer to tabulate laboratory test data	**Use of the computer in clinical chemistry**	Lecture + practical	**Daily + monthly exams**
15,16,17,18	**2 theoretical + 4 practical**	Teaching the student the most important laboratory tests for newborns	**Pediatric clinical chemistry**	Lecture + practical	**Daily + monthly exams**
19,20,21	**2 theoretical + 4 practical**	Teaching the student the most important clinical chemistry tests for the diagnosis of various diseases	**Functional tests in clinical chemistry and diagnostic test investigations**	Lecture + practical	**Daily + monthly exams**

22 and 23	**2 theoretical + 4 practical**	Teaching the student methods of measuring and calculating results and of solving problems they may encounter	**Problems in biochemical calculations and case studies**	Lecture + practical	**Daily + monthly exams**
24-30	**2 theoretical + 4 practical**	Study of various clinical cases	case studies in clinical chemistry and their tests	Lecture + practical	**Daily + monthly exams**

11. Course Evaluation

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

(40 marks for annual coursework, divided into 25 marks theoretical + 15 marks practical) (60 marks for the final exam, divided into 35 marks theoretical + 25 marks practical).

12. Learning and Teaching Resources

Main references (sources)	
Recommended books and references (scientific journals, reports...)	lehninger principles of biochemistry
Electronic References, Websites	Biochemistry for Advanced Biology

Course Description Form

1. Course Name: Blood Transfusion - First Semester - Fourth Stage

2. Course Code: ML 405

3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: Compulsory attendance
In-person, weekly, theoretical and practical
6. Number of Credit Hours (Total) / Number of Units (Total)
180 hours, 8 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ali Khalil
8. Course Objectives

Course Objectives	General objectives: 1- For the student to become acquainted with the mos important blood diseases 2- For the student to become familiar with blood groups 3- To learn some of the laboratory tests related to the blood transfusion process 4- To understand how to compare the results obtained with normal values Behavioral Objectives: 1- The student's ability to draw blood 2- The student's mastery of how to perform blood transfusion.

9. Teaching and Learning Strategies

Strategy	Experiments, smart board, whiteboard, the Internet

10. Course Structure:

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**2 theoretical + 4 practical**	Collection &handling of blood	Historical review	**Theoretical + Practical**	Examinations
2	**2 theoretical + 4 practical**	Antiglobulin test	Donor screening	**Theoretical + Practical**	Examinations
3	**2 theoretical + 4 practical**	Indirect antiglobulin test	Storage of whole blood	**Theoretical + Practical**	Examinations
4	**2 theoretical + 4 practical**	Antibodies titration	Preparation &storage of blood components	**Theoretical + Practical**	Examinations
5	**2 theoretical + 4 practical**	Examination	Examination	**Theoretical + Practical**	Examinations
6	**2 theoretical + 4 practical**	Reading results of red cells agglutination	Blood group antigens	**Theoretical + Practical**	Examinations
7	**2 theoretical + 4 practical**	Blood group antigen-antibody reaction tests	Laboratory tests on blood donations	**Theoretical + Practical**	Examinations
8	**2 theoretical + 4 practical**	Compatibility testing	Hazards of allogeneic blood transfusion	**Theoretical + Practical**	Examinations

9	**2 theoretical + 4 practical**	Antibody screening	Red blood cell antigens	**Theoretical + Practical**	Examinations
10	**2 theoretical + 4 practical**	Antibody identification	Antibodies of the ABO system	**Theoretical + Practical**	Examinations
11	**2 theoretical + 4 practical**	First semester examination	First semester examination	**Theoretical + Practical**	Examinations
12	**2 theoretical + 4 practical**			**Theoretical + Practical**	Examinations
13	**2 theoretical + 4 practical**	Laboratory tests for the recipent	Rh system	**Theoretical + Practical**	Examinations
14	**2 theoretical + 4 practical**	ABO & D grouping	Acquired hemolytic anemia	**Theoretical + Practical**	Examinations
15	**2 theoretical + 4 practical**	Cold antibody	Kell system	**Theoretical + Practical**	Examinations
16	**2 theoretical + 4 practical**				
17	**2 theoretical + 4 practical**	Examination	Examination	**Theoretical + Practical**	Examinations
18	**2 theoretical + 4 practical**	Red cell reagent	Lewis system	**Theoretical + Practical**	Examinations
19	**2 theoretical + 4 practical**	Selection cells for transfusion	Emergency blood issue	**Theoretical + Practical**	Examinations
20	**2 theoretical + 4 practical**	Hemostasis	Autologus donation	**Theoretical + Practical**	Examinations
21	**2 theoretical + 4 practical**	PT&PTT	Aphresis	**Theoretical + Practical**	Examinations

22	**2 theoretical + 4 practical**	Selection cells for transfusion	Emergency blood issue	**Theoretical + Practical**	Examinations
23	**2 theoretical + 4 practical**	Factor assay	Types of transfusion reactions	**Theoretical + Practical**	Examinations
24	**2 theoretical + 4 practical**	Second semester examination	Second semester examination	**Theoretical + Practical**	Examinations
25-29	**2 theoretical + 4 practical**	Drawbacks of blood transfusion services in Iraq	Order of clinical importance of antibodies	**Theoretical + Practical**	Examinations

11. Course Evaluation	
40 coursework - 60 final	
12. Learning and Teaching Resources	
Main references	Hematology international journal
Recommended supporting books and references (websites of reputable local and international universities)	Modern blood banking &transfusion practices, Hoffbrand-Postgradu Haematology, **Dacie and Lewis: practical haematology.**
Electronic References, Websites	

Course Description Form

1. Course Name: Histopathology - Fourth Stage

2. Course Code: ML406
3. Semester / Year: Semester-based, 2025-2026
4. Description Preparation Date: 15-8-2025
5. Available Attendance Forms: In-person, weekly, theoretical/practical
6. Number of Credit Hours (Total) / Number of Units (Total)
6 hours per week, theoretical and practical (180 hours); 7 units
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Lect. Sally Mutlak Kasoob
8. Course Objectives

Course Objectives	• **Behavioral objectives: The ability to use laborato instruments and to apply laboratory methods to perform analyses** • **General Objectives: To introduce the student to t basic principles of pathological analyses pertainin histopathological diseases.**

9. Teaching and Learning Strategies

Strategy	Scientific experiments, smart board, the Internet Self-directed learning, skill mastery, and problem-based learning The brainstorming method, combining different strategies, and the proble solving method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	**6 hours, theoretical and practical**	**Understanding and comprehension**	Lung (atelectasias, acute lung injury)	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Daily quizzes (oral and written) and monthly examinations**
2	**6 hours, theoretical and practical**	**Understanding and comprehension**	Lung (chronic bronchitis pulmonary embolism)	**Lecture method with the presentation of illustrative pictures and short films via display screens**	**Daily quizzes (oral and written) and monthly examinations**
3	**6 hours, theoretical and practical**	**Understanding and comprehension**	Lung tumors	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
4	**6 hours, theoretical and practical**	**Understanding and comprehension**	Kidney (glomercular disease)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
5	**6 hours, theoretical and practical**	**Understanding and comprehension**	Kidney (nephrotic syndrome, IgA nephropathy (Berger disease)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
6	**6 hours, theoretical and practical**	**Understanding and comprehension**	Kidney tumors	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
7	**6 hours, theoretical and practical**	**Understanding and comprehension**	Cancer of the oral cavity and tongue	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**

8	**6 hours, theoretical and practical**	**Understanding and comprehension**	Esophagus (lacivation, varices, esophageal carcinoma)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
9	**6 hours, theoretical and practical**	**Understanding and comprehension**	Stomach (gastritis, ulcer, carcinoma)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
10	**6 hours, theoretical and practical**	**Understanding and comprehension**	Large intestines (hemorrhoids, malabsorption syndrome)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
11	**6 hours, theoretical and practical**	**Understanding and comprehension**	Crohn disease	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
12	**6 hours, theoretical and practical**	**Understanding and comprehension**	Large intestines tumors	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
13	**6 hours, theoretical and practical**	**Understanding and comprehension**	Liver (hepatic infection, failure, cirrhosis)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
14	**6 hours, theoretical and practical**	**Understanding and comprehension**	Hepatic tumors	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
15	**6 hours, theoretical and practical**	**Understanding and comprehension**	Gall bladder (cholecystitis, tumors)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
16	**6 hours, theoretical and practical**	**Understanding and comprehension**	Pancreas (pancreatitis)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
17	**6 hours, theoretical and practical**	**Understanding and comprehension**	Pancreatic neoplasma	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**

18	**6 hours, theoretical and practical**	**Understanding and comprehension**	Male genital system (testicular atrophy, lesions, neoplasma)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
19	**6 hours, theoretical and practical**	**Understanding and comprehension**	Male genital system (prostatis, tumors)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
20	**6 hours, theoretical and practical**	**Understanding and comprehension**	Female genital system (cervicitis, tumor of the cervix)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
21	**6 hours, theoretical and practical**	**Understanding and comprehension**	Uterus (endometritis, endometriosis , tumor of the uterus)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
22	**6 hours, theoretical and practical**	**Understanding and comprehension**	Breast (fibrocystic changes, tumors of the breast)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
23	**6 hours, theoretical and practical**	**Understanding and comprehension**	Endocrine system (hyperpituitarism and pituitary adenoma)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
24	**6 hours, theoretical and practical**	**Understanding and comprehension**	Thyroid (thyroiditis, thyroid neoplasma)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
25	**6 hours, theoretical and practical**	**Understanding and comprehension**	Bone tumors	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
26	**6 hours, theoretical and practical**	**Understanding and comprehension**	Skin (acute eczematous dermatitis, psoriasis)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
27	**6 hours, theoretical and practical**	**Understanding and comprehension**	Skin tumors	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**

28	**6 hours, theoretical and practical**	**Understanding and comprehension**	Nervous system (brain tumor)	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**
29+30	**6 hours, theoretical and practical**	**Understanding and comprehension** **Problem-solving method**	Nervous system (diseases of the peripheral nervous system)+Review	**Lecture and discussion**	**Daily quizzes (oral and written) and monthly examinations**

11. Course Evaluation
Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources	
Main references (sources)	Fundamentals of pathology
Recommended books and references (scientific journals, reports...)	Robbins basic pathology Manson's Tropical Diseases + World Health Organization publications
Electronic References, Websites	Pathology outlines

Course Description Form

1. Course Name: Diagnostic Parasitology 1&2 - Fourth Stage
2. Course Code: ML404

3. Semester / Year: Semesters 1+2, 2025-2026

4. Description Preparation Date: 15-8-2025

5. Available Attendance Forms: In-person, weekly, theoretical/practical

6. Number of Credit Hours (Total) / Number of Units (Total)

(2*30 theoretical) + (4*30 practical) weekly (180 hours); 8 units

7. Course administrator's name (mention all, if more than one name)

Name: Lect. Dr. Haroon Hussein + Asst. Lect. Ali Hassan

8. Course Objectives

Course Objectives	**General objectives: Studying the principles of parasitolog** *** Studying the types of parasites** *** Studying the methods of diagnosing parasites** *** Behavioral Objectives: The student's ability to diagnose parasitic infections**

9. Teaching and Learning Strategies	
Strategy	• Modeling-based learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project-based strategy • Problem-solving strategy, or problem-based learning • Mastery learning strategy Combining various strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Teaching method	Evaluation method
1	2 theoretical + 4 practical	Understanding and comprehension	Principles of parasitolog	Lecture method with the presentation of illustrative pict and short films via display scre	Oral and written examination
2	2 theoretical + 4 practical	Understanding and comprehension	Amoeba	Lecture and discussion	Oral and written examination
3	2 theoretical + 4 practical	Understanding and comprehension	Amoeba	Lecture and discussion	Oral and written examination
4	2 theoretical + 4 practical	Understanding and comprehension	Giarida lamblia	Lecture and discussion	Oral and written examination
5	2 theoretical + 4 practical	Understanding and comprehension	Examination	Problem solving	Oral and written examination
6	2 theoretical + 4 practical	Understanding and comprehension	Trichomanas species	Lecture and discussion	Oral and written examination
7	2 theoretical + 4 practical	Understanding and comprehension	Trichomonas vaginalis	Lecture and discussion	Oral and written examination
8	2 theoretical + 4 practical	Understanding and comprehension	Naegleria fowleri	Lecture and discussion	Oral and written examination
9	2 theoretical + 4 practical	Understanding and comprehension	Naegleria fowleri	Lecture and discussion	Oral and written examination
10	2 theoretical + 4 practical	Understanding and comprehension	Examination	Problem solving	Oral and written examination
11	2 theoretical + 4 practical	Understanding and comprehension	Acanthamoeba	Lecture and discussion	Oral and written examination
12	2 theoretical + 4 practical	Understanding and comprehension	Acanthamoeba	Lecture and discussion	Oral and written examination
13	2 theoretical + 4 practical	Understanding and comprehension	Leishmania	Lecture and discussion	Oral and written examination
14	2 theoretical + 4 practical	Understanding and comprehension	Leishmania	Lecture and discussion	Oral and written examination
15	2 theoretical + 4 practical	Understanding and comprehension	Trypanosoma	Lecture and discussion	Oral and written examination

16	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Trypanosoma**	**Lecture and discussion**	**Oral and written examination**
17	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Examination**	**Problem solving**	**Oral and written examination**
18	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Malaria**	**Lecture and discussion**	**Oral and written examination**
19	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Malaria**	**Lecture and discussion**	**Oral and written examination**
20	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Malaria**	**Lecture and discussion**	**Oral and written examination**
21	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Shistosoma**	**Lecture and discussion**	**Oral and written examination**
22	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Shistosoma**	**Lecture and discussion**	**Oral and written examination**
23	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Examination**	**Problem solving**	**Oral and written examination**
24	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Ascariasis**	**Lecture and discussion**	**Oral and written examination**
25	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Ascariasis**	**Lecture and discussion**	**Oral and written examination**
26	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Echinococcosis**	**Lecture and discussion**	**Oral and written examination**
27	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Echinococcosis**	**Lecture and discussion**	**Oral and written examination**
28	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Tapeworm**	**Lecture and discussion**	**Oral and written examination**
29	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Tapeworm**	**Lecture and discussion**	**Oral and written examination**
30	**2 theoretical + 4 practical**	**Understanding and comprehension**	**Examination**	**Problem solving**	**Oral and written examination**

11. Course Evaluation

Coursework grade of 40, divided into (25 theoretical + 15 practical); final exam 60

12. Learning and Teaching Resources

Main references (sources)	
Recommended books and references (journals and research)	
Electronic References, Websites	for Center of disease control and prevention - parasite diseases