

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



Academic Program and Course Description Guide

2024

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Babylon Technical Institute

Scientific Department: Medical laboratory technology

Academic or Professional Program Name: Medical laboratory technology

Final Certificate Name: Technical diploma in medical laboratory technology

Academic System: Semester

Description Preparation Date: 19/2/2024

File Completion Date: 22/2/2024

Signature:



Head of Department Name: Dr. Thikra Jawad

Date:

4/3/2024

Signature:



Scientific Associate Name:

Assis. Pro. Dr. Oras Khudhayer Obayes

Date:

The file is checked by: lecturer. *Khansaa Azeez Obayes*

Department of Quality Assurance and University Performance


Director of the Quality Assurance and University Performance Department:

Date:

Signature:



Prof. Dr.
Eman Mohammed Abdullah
Dean of
Babylon Technical Institute



Approval of the Dean

1. Program Vision

The Medical Laboratories Department is one of the main scientific medical departments. It seeks to expand the base of technical education and its modern applications in its field of specialization, build a close relationship with various sectors of work, activate the role of scientific research in various fields of development, and provide technical services based on the spirit of competition and cooperation in society.

2. Program Mission

The Medical Laboratories Department is committed to disseminating scientific and technical knowledge in the field of medical laboratories to graduate medical personnel with a level of education capable of absorbing modern technologies and supporting the process of scientific and technical development to keep pace with global developments and to fulfill the following:

1. Openness to society in the field of medicine and activating relations with the private sector in medical consultations, training and technical qualification.
2. Develop future plans to develop educational and training curricula and graduate technical cadres in the field of laboratory specializations and all chemical and biological tests.
3. Focus on scientific research between academics in the department and the medical staff in the Ministry of Health to solve various problems between the Ministry of Higher Education and the Ministry of Health and develop curricula and departments in a way that is commensurate with the reality of health and medical specialties in its cadres and develop them for the better.
4. Use of computer and Internet technologies in education and training.

3. Program Objectives

The department aims to graduate technical personnel capable of working in medical laboratories, conducting routine laboratory analyses, general chemical

examinations, examining urine and fluids, and operating and maintaining laboratory equipment.

4. Program Accreditation

The program has not received accreditation

5. Other external influences

The department's graduates serve the community in health institutions and hospitals and through practical application in health centers and hospitals during summer training.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	1	2	1.4	
College Requirements	3	7	5.1	
Department Requirements	26	126	93.3	
Summer Training				Interpolation
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First year/first semester	M.L. T	Medical laboratory techniques	2	4
First year/first semester	Mic.pre	Microbial preparation	2	3
First year/first semester	M.L.I	Medical laboratory instrument	2	2

First year/first semester	His	Histology	2	3
First year/first semester	A.Ch	Analytical Chemistry	2	4
First year/first semester	F. of N.	Fundamentals of Nursing	1	2
First year/first semester	CA	Computer application	1	2
First year/second semester	Q C	Quality control	2	4
First year/second semester	HIT	Histological techniques	2	3
First year/second semester	MB	Molecular biology	2	2
First year/second semester	La.S	Lab. Safety	1	2
First year/second semester	B.T	Blood transfusion	1	2
First year/second semester	Bioche	Biochemistry	2	4
First year/second semester	HRD	Human right and Democratic	2	-
First year/second semester	Eng.	English language	2	-
Second year/first semester	MIC	Microbiology	2	4
Second year/first semester	Hem	Haematology\1	2	4
Second year/first semester	Cl.Ch	Clinical chemistry\1	2	4
Second year/first semester	IM	Immunology	2	4
Second year/first semester	Pro	Protozoa	2	4
Second year/first semester	Vir	Virology	1	2
Second year/first semester	Me.Eth	Medical Ethics	2	-
Second year/first semester		The crimes of the Baath regime in Iraq	2	-

Second year/second semester	Bac.Pat	Bacterial Pathogenicity	2	4
Second year/second semester	Hem	Hematology\2	2	4
Second year/second semester	Cl.ch	Clinical chemistry\2	2	4
Second year/second semester	Cl. Im.	Clinical Immunology	2	4
Second year/second semester	Hel	Helminthes	2	4
Second year/second semester	M.M	Medical Mycology	1	2
Second year/second semester	G.Pro	Graduation project	-	2

8. Expected learning outcomes of the program

Knowledge	
1- Cognitive objectives	<ol style="list-style-type: none"> 1. He performs laboratory work related to isolating, staining, and examining the germs present in clinical samples. 2. He prepares and sterilizes all agricultural media and examines food for food contamination. 3. He performs all blood analyzes and tests. 4. He performs urine and discharge tests and various body fluids (knee fluids, spinal fluids, sputum, semen). 5. He prepares tissue slides for various organs of the body and prepares them for examination. 6. He prepares all laboratory solutions. 7. Operates and maintains medical laboratory equipment used in pathological analysis laboratories. 8. He works in laboratory inquiries, which includes receiving forms, the blood drawing process, directing the patient, and delivering the results, as well as performing warehouse work for medical laboratory stores.
Skills	
Marathi objectives	<ol style="list-style-type: none"> 1. Implementing medical programs such as preparing tissue slides, culture media, and clinical laboratory tests. 2. Skills in programs to control communicable diseases and assist the doctor in diagnosis and treatment. 3. Scientific skill in operating laboratory equipment, caring for it, and how to maintain it.
Ethics	
Emotional goals	<ol style="list-style-type: none"> 1. Investigate and control some diseases by conducting laboratory tests. 2. Conduct laboratory tests for all samples, diagnose pathological cases, and prepare tissue slides. 3. Assisting in treating patients and dispensing medicine to them. 4. The ability to operate laboratory equipment and how to maintain it. 5. Daily, quarterly and annual theoretical and practical tests and daily discussion. 6. Discussing quarterly and annual scientific research, reports, and through scientific seminars.

9. Teaching and Learning Strategies

1. Theoretical lecture method.
2. Practical lecture method.
3. Method of discussion and dialogue

10. Evaluation methods

1. Daily testing.
2. Semester test.
3. Annual testing.
4. Discussing quarterly and annual research

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
professor	biology	biotechnology			√	
lecturer	Veterinary medicine and surgery	Medical parasitology			√	
Lecturer(2)	Medical microbiology	bacteriology			√	
lecturer	Medical microbiology	Virology			√	
lecturer	chemistry	general chemistry			√	
lecturer	Biological resistance	mycology			√	
lecturer	biology	Physiology			√	
lecturer	Veterinary medicine	Physiology			√	
Lecturer (4)	biology	microbiology			√	
assistant lecturer (4)	biology	microbiology			√	
assistant lecturer	biology	mycology			√	

assistant lecturer	microbiology	Medical parasitology			√	
assistant lecturer	Chemistry	analytical chemistry			√	
assistant lecturer	Veterinary medicine and surgery	Medical physiology			√	

Professional Development

Mentoring new faculty members

New members of the department are developed by introducing them to teaching methods courses, conducting a teaching suitability test for them, and holding a training course, seminars, and workshops to train them in the approved work contexts.

Professional development of faculty members

Faculty members are developed by holding training courses, seminars and workshops to train them in approved work contexts.

12. Acceptance Criterion

Central admission to the Ministry of Higher Education and Scientific Research

13. The most important sources of information about the program

- 1- Methodical books
- 2- Supporting sources
- 3- General sources
- 4- The Internet.

14. Program Development Plan

Future plans to develop the department include establishing laboratories (molecular laboratory), as well as developing the curriculum by deleting, adding, and replacing.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First year	M.L.T	Medical Laboratory Techniques	Basic	√	√	√	√	√	√	√	√	√		√	√
	Mic.pre	Microbial preparation	Basic	√	√	√	√	√	√	√	√	√		√	√
	M.L.I	Laboratory Instrument	Basic	√	√	√	√	√	√	√	√	√		√	√
	His	Histology	Basic	√	√	√	√	√	√	√	√	√		√	√
	Ana.Ch	Analytical Chemistry	Basic	√	√	√	√	√	√	√	√	√		√	√
	F. of N.	Fundamentals of Nursing	optional	√	√	√	√	√	√	√	√	√	√	√	√
	CA	Computer application	optional	√	√	√		√	√	√	√		√	√	
	QC	Quality control	Basic	√	√	√	√	√	√	√	√	√		√	√

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

First year	His.&Cyto	Histological & Cytological Techniques	Basic	√	√	√		√		√	√	√		√	√
	M.B	Molecular biology	Basic	√	√	√	√	√	√	√	√	√		√	√
	Lab.S	Lab. Safety	Basic	√	√	√		√		√	√	√		√	√
	B.T	Blood Transfusion	Basic	√	√	√	√	√	√	√	√	√		√	√
	Bioch	Biochemistry	Basic	√	√	√	√	√	√	√	√	√		√	√
	HRD	Human right and Democratic	optional	√	√	√	√	√	√	√	√	√		√	√
	Eng.	English language	optional	√	√	√	√	√	√	√	√	√		√	√
Second year	Mic	Microbiology	Basic	√	√	√	√	√	√			√		√	
	Hem	Haematology\1	Basic	√	√	√	√	√	√		√		√		√
	CL.che	Clinical chemistry\1	Basic	√	√	√	√	√	√			√		√	√
	Im	Immunology	Basic	√	√	√	√	√	√		√		√		√

Second year	Pro	Protozoa	Basic	√	√	√	√	√	√	√	√	√		√	√	
	Vir	Virology	Basic	√	√	√	√	√	√	√	√	√	√			√
	Med. Eth	Medical Ethics	optional	√	√	√		√	√	√	√	√			√	
	Bac. Pat	Bacterial Pathogenicity	optional	√	√	√	√	√	√	√	√	√			√	
		The crimes of the Baath regime in Iraq	Basic	√	√	√		√		√	√	√			√	
	Hem 2	Hematology\2	Basic	√	√	√		√		√	√	√			√	
	Cl.che	Clinical chemistry\2	Basic	√	√	√	√	√	√				√			√
	Cl. Im	Clinical Immunology	Basic	√	√	√		√		√		√	√	√	√	√
	Hel	Helminthes	Basic	√	√	√	√	√	√		√	√		√		√
	M.M	Medical Mycology	Basic	√	√	√	√	√	√				√	√	√	√
Gra.p	Graduation project	optional	√	√	√	√	√	√	√	√	√		√		√	

First year/first semester

Course Description Form

1. Course Name: Medical laboratory techniques					
2. Course Code: M.L.T					
3. Semester / Year: Semester					
4. Description Preparation Date:19/2/2024					
5. Available Attendance Forms: Lectures					
6. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
7. Course administrator's name (mention all, if more than one name) Name: Ali dhaher marhash Email: ali.dhaher@atu.edu.iq					
8. Course Objectives					
Course Objectives			<ul style="list-style-type: none">• Identify laboratory equipment and mater used in experiments.• Learn about the basis of microbiology.• Learn about bacteriology		
9. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none">• Theoretical lecture method.• Practical lecture method.• Method of discussion and dialogue			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3-1	2	Introduction to Medical lab. Techniques includes - Identify the various laboratory glasses and how to deal with laboratory methods.	Medical lab. Techniques	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

		<p>- Sterilization. Identify ways of cleaning, sterilization and disinfectant by physical, chemical and mechanical means. Identify different sterilization equipment and materials used in chemical sterilization. A full review of the basic techniques that use in the diagnosis of bacteria, blood, and clinical chemistry. Laboratory safety and how to avoid accidents and errors that are inadvertently laboratory in a laboratory (first aid, biochemical hazards, and biological hazards), and biological and chemical safety.</p>			
4	2	<p>Samples collection and handling. - Samples collection for different lab. Investigations, samples transport, samples preparation.</p>	Samples collection and handling	<p>Theoretical lecture method Practical lecture method Method of discussion and dialogue</p>	<p>Daily testing. Quarterly test. Discussing quarterly and annual research</p>
5	2	<p>Culturing of microorganism:- types of Culture media, different samples used for culture, bacterial growth curve, MO characterization</p>	Culturing of microorganism	<p>Theoretical lecture Practical lecture Method of discussion and dialogue</p>	<p>Daily testing Quarterly tes Discussing quarterly and annual research</p>

		(chemical tests for MO identification)			
6	2	Urine samples: Urine formation, Properties of urine, chemical and physical investigations, microscopic examination.	Urine samples	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly test Discussing quarterly and annual research
7	2	Stool sample: formation, properties, culture, general examination.	Stool sample	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Seminal Fluid: Formation, organs of reproductive tract, characterization of semen fluid, investigations that used on seminal fluid, seminal fluid examination, fructose test, antisperm antibody (serum and semen). Total sperm count in Neubauer chamber. Types of normal and abnormal of Sperms character with study the way of writing the final report.	Seminal Fluid	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Agglutination techniques	Agglutination techniques	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	-Enzyme-linked immunosorbent assay (ELISA)	Advance techniques	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

		principle, applications		Method of discussion and dialogue	Discussing quarterly and annual research
11	2	Radioimmunoassay (RIA) principle, applications	Radioimmunoassay (RIA)	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Immunofluorescence technique	Immunofluorescence technique	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Polymerase chain reaction (PCR), types principle, applications	PCR	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Real-time PCR	Real-time PCR	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Review		Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

11.Course Evaluation

Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Levensons and applied microbiology
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Main references (sources)	Medical microbiology, sterilization text book
Recommended books and references (scientific journals, reports...)	Diagnostic microbiology , basic medical microbiology
Electronic References, Websites	FUNDAMENTALS of MICROBIOLOGY , ASM microbiology society

Course Description Form

13.Course Name: Microbial preparation					
14.Course Code: Mic.pre					
15.Semester / Year: Semester					
16.Description Preparation Date:19/2/2024					
17.Available Attendance Forms: Lectures					
18.Number of Credit Hours (Total) / Number of Units (Total)					
90 hours/6 units					
19.Course administrator's name (mention all, if more than one name)					
Name :Duaa hassan hadi Email: dua.hadi.iba13@atu.edu.iq					
20.Course Objectives					
Course Objectives				<ul style="list-style-type: none"> Learn how to prepare and prepare slides from different body parts For examination purpose. 	
21.Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> Theoretical lecture method. Practical lecture method. Method of discussion and dialogue 			
22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Definition of some terminology that deals with histology , cytology,... etc.	Definition of some terminology	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
2	2	Sample collection, biopsy, and autopsy.	Samples collection	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
4-3	2	Steps of preparing tissue for study, fixation, fixatives.	Steps of preparing tissue	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
6- 5	2	Routine fixatives and special fixatives.	Routine fixatives and special fixatives.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
7	2	Washing, solution , time .	Washing, solution , time .	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Dehydration , dehydrants .	Dehydration , dehydrant	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Clearing ,clearing agents	Clearing ,clearing agents	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Infiltration ,types of waxes	Infiltration	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

				Method of discussion and dialogue	Discussing quarterly and annual research
11	2	blocking and trimming .	blocking and trimming .	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Microtomes, Sectioning.	Microtomes, Sectioning.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14-13	2	Review		Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2		Final exam	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

23. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Theory and practice of histological technique by Bancroft
Main references (sources)	Relying on sources on the Internet
Recommended books and references (scientific journals, reports...)	Scientific journals, and research in this field
Electronic References, Websites	Google scholar

Course Description Form

25. Course Name: Medical laboratory instrument					
26. Course Code: M.L.I					
27. Semester / Year: Semester					
28. Description Preparation Date: 19/2/2024					
29. Available Attendance Forms: Lectures					
30. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
31. Course administrator's name (mention all, if more than one name) Name: Entesar marzook hussain Email: entesar.hussain@atu.edu.iq					
32. Course Objectives					
Course Objectives				<ul style="list-style-type: none"> • Learn how to use laboratory equipment. • Identify the parts of laboratory equipment. • Learn how to maintain laboratory equipment. 	
33. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
34. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	MICROSCOPES Uses, main parts ,principle of work ,kinds, types of condensers, operation, cleaning, service and maintenance..	MICROSCOPES	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	. BALANCES Uses ,types of balances ,main part ,principle of	BALANCES	Theoretical lecture method	Daily testing. Quarterly test.

		operation ,operation ,service and maintenance .		Practical lecture method Method of discussion and dialogue	Discussing quarterly and annual research
3	2	PHOTOMETRY Introduction, Light and wave length, Beer lamberts Law, types of photometers, main parts, filters, prisms and diffraction gratings, principle of operation, operation and maintenance.	HOTOMETRY	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	FLAME PHOTOMETRY Introduction , Uses ,main parts , types , atomizers ,principle of operation ,operation and maintenance.	FLAME PHOTOMETRY	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
5	2	ATOMIC ABSORPTION SPECTROPHOTOMETRY Introduction ,uses , types, main parts , principle of operation ,operation and maintenance.	Atomic absorption spectrophotometry	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual resear
6	2	CENTRIFUGES Uses , types, main parts , principle of operation ,operation and maintenance.	.CENTRIFUGES	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	AUTOCLAVES Introduction ,uses , types, main parts , principle of operation , sterilization, operation and maintenance	AUTOCLAVES	Theoretical lecture Practical lecture Method of discussion	Daily testing. Quarterly test. Discussing quarterly

				and dialogue	and annual research
8	2	PH METERS Uses , types, main parts ,electrodes , principle of operation ,operation and maintenance	PH METERS	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	MICROTOMES Uses , types, main parts ,sharpeners , principle of operation ,operation and maintenance.	MICROTOMES	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	. ELECTROPHORESIS Uses , types, main parts , principle of operation ,operation and maintenance.	ELECTROPHORESIS	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	HEATING INSTRUMENTS (WATER BATHS ,OVEN & INCUBATION) Uses , types, main parts thermostats, principle of operation ,operation and maintenance.	HEATING INSTRUMENTS (WATER BATHS & INCUBATION) & OVEN	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Water Purification (Distillators & Deaionizers) Distillator ,deionizers, uses, main parts , operation and maintenance	Water Purification	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	AUTOANALYZERS Introduction ,uses , types, main parts , principle of operation ,operation and maintenance	AUTOANALYZERS	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2		Review		

15	2		Final exam	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
35.Course Evaluation					
Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.					
36.Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Laboratory Instrument		
Main references (sources)			book Laboratory Instrument		
Recommended books and references (scientific journals, reports...)			1- book specializing in medical device technology / medical calibration devices, edition 1429 AH / Kingdom of Saudi Arabia. 2- Egyptian General Authority for Standardization and Quality / Measurement and Calibration Department / Medical Device Calibration Laboratory. -3 Research by Professor Nazih Shuja Al-Othmani / Associate Professor, Department of Electrical and Computer Engineering - Biomedical. -4 Book of measurement and calibration for medical devices / author Munther Odeh Al Kaabi, ed.		
Electronic References, Websites			https://www.amazon.com/Medical Laboratory Instrument		

Course Description Form

37.Course Name: Histology
38.Course Code: His
39.Semester / Year: Semester
40.Description Preparation Date:19/2/2024
41.Available Attendance Forms: Lectures
42.Number of Credit Hours (Total) / Number of Units (Total)
75 hours/5 units

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

Name: Sarah Abdulkareem Mukheef
 Email: sarah.mukheef@atu.edu.iq

44. Course Objectives

Course Objectives

- Knowledge of the components and tissues of all organs in the body.
- Knowing the samples through dissecting some of the body's organs.

45. Teaching and Learning Strategies

Strategy

- Theoretical lecture method.
- Practical lecture method.
- Method of discussion and dialogue

46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3-1	2	Shape of cell	Shape of cell	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
4	2	Epithelial tissue – simple epith. T.	Epithelial tissue	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
5	2	Epithelial tissue- Stratified epith. T.	Epithelial tissue-.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Connective tissue – Loose co. t	Connective tissue	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

7	2	Connective tissue – dense connective tissue	Connective tissue	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Connective tissue – the blood	Connective tissue	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Connective tissue – compact bone	Connective tissue	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	External feature of digestive system	digestive system	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Urogenital system of male & female	Urogenital system	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Liver	Liver	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Spleen	Spleen	Theoretical lecture Practical lecture	Daily testing.

				Method discussion of and dialogue	Quarterly test. Discussing quarterly and annual research
14	2	Lymph node	Lymph node	Theoretical lecture Practical lecture Method of and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Circulatory system (Artery)	Circulatory system	Theoretical lecture Practical lecture Method of and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

47.Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam

48.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Atlas of Human Histology
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

47.Course Name: Analytical Chemistry
48.Course Code: A.Ch
49.Semester / Year: Semester
50.Description Preparation Date: 19/2/2024
51.Available Attendance Forms: Lectures
52.Number of Credit Hours (Total) / Number of Units (Total)

90 hours/6 units

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

Name: Rawaa Raheem

Email: rawaaraheem94@gmail.com

54. Course Objectives

Course Objectives

- It gives a general idea about organic compounds and the ability to conduct different chemical experiments and reactions.
- . It is possible to make and prepare different concentrations of solutions.
- The ability to work with different chemical reagents.
- Laboratory equipment can be used.

55. Teaching and Learning Strategies

Strategy

- Theoretical lecture method.
- Practical lecture method.
- Method of discussion and dialogue

56. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3-1	2	Introduction to analytical chemistry Atom, elements, radio isomers pollution with radio isomers, pollution with elements. Relation between atoms, molecules, energy, according to the new theory of atom. (DeBroyle equation). Matter, classification.	analytical chemistry.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
4	2	Chemical bonds, covalent, Ionic, coordination, hydrogen. Methods of analysis. qualitative and quantitative, statistical methods of quantitative analysis, errors in quantitative analysis.	Chemical bonds	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

5	2	Methods of expressing concentration of solution , Molar solution ,normal solution . Preparation of molar solution , dilution ,questions.	Methods of expressing concentration of solution ,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly test Discussing quarterly and annual research
6	2	. Percentage composition, part per million. Chemical equilibrium, ionization, constant of water (PH and POH).	Percentage composition	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly test Discussing quarterly and annual research
7	2	Ionization of weak electrolyte . calculation of PH of weak acids and weak bases. Buffer solutions , classification .	Ionization of weak electrolyte	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Calculation of buffer solutions . Uses of buffer solutions.	Calculation of buffer solutions .	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Volumetric analysis , classification , standard solution , examples . Neutralization reactions .	Volumetric analysis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Oxidation ,reduction reactions . examples. Precipitation reactions.	Oxidation ,reduction reactions .	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Precipitation reactions.	Precipitation reactions.	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

		Theory of indicators , reaction , properties ,examples. Types of indicators. Questions ,homework		Method of discussion and dialogue	Discussing quarterly and annual research
12	2	Principles of colorimetry	Principles of colorimetry	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	. Beer-lambert law .	Beer-lambert law .	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Standard solution/calibration curve..	Standard solution	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Instruments of colorimetry	Instruments colorimetry	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

59.Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam

60.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Fundamentals of Analytical Chemistry
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

57.Course Name: Fundamentals of Nursing					
58.Course Code: F. of N					
59.Semester / Year: Semester					
60.Description Preparation Date:19/2/2024					
61.Available Attendance Forms: Lectures					
62.Number of Credit Hours (Total) / Number of Units (Total)					
45 hours/3 units					
63.Course administrator's name (mention all, if more than one name)					
Name: Salwa Ahmed Hamza					
Email: salwa.al-karadi@atu.edi.iq					
64.Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Learn about the basics of nursing and first aid. • Laboratory and occupational safety in the nursing field. • Ways to interact with the patient through his presence in medical laboratories. 		
65.Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
66. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction to nursing	Introduction to nursing	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	1	Medical examination	Medical examination	Theoretical lecture method Practical lecture method	Daily testing. Quarterly test.

				Method of discussion and dialogue	Discussing quarterly and annual research
3	1	Vital signs, temperature measurement,	Vital signs,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly test Discussing quarterly and annual research
4	1	Pulse, definition, factors that effecting pulse, measurement of pulse	Pulse	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly test Discussing quarterly and annual research
5	1	Respiration, definition, factors that effecting respiration, measurement of respiration	Respiration	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	1	Blood pressure, definition, factor the effecting blood pressure, hyper and hypotension, measurement of blood pressure	Blood pressure	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	1	Health care, definition, factors effecting health care	Health care	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	1	Chemical factors-disease	Chemical factors- disease-	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	1	Psychological factors-diseases	Psychological factors-diseases	Theoretical lecture Practical lecture	Daily testing.

				Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
12-11	1	Biological factors- types-their effects on workers in Lab.- diseases	Biological factors	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14-13	1	First aid- definition, paramedic, fundamental of first aid, wound, .bleeding	First aid	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	1	Burns- types of fracture aid- artificial respiration	Burns	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

67.Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

68.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Basic Clinical Nursing Skills
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

69.Course Name: Computer Applications					
70.Course Code: C.A					
71.Semester / Year: Semester					
72.Description Preparation Date:19/2/2024					
73.Available Attendance Forms: Lectures					
74.Number of Credit Hours (Total) / Number of Units (Total)					
45 hours/3 units					
75.Course administrator's name (mention all, if more than one name)					
Name: Syffi Mohammad Monji					
Email: inb.syffi10@atu.edu.i					
76.Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • The student will be able to interact with the computer. • Be familiar with computer uses. • Understand how to use computer software. 		
77.Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
78. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	An introduction to computers: their generations - their components: hardware and software - (system software and application programs)	Knowledge of computer components	Theoretical lecture method Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	1	MS-DOS operating system: The concept of the operating system - the system signal - disks - directories, their levels and files -	MS-DOS operating system.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

		internal operating system commands - and external commands (the most commonly used commands).			and annual research
3-12	1	Internal operating system commands: Internal commands: Dir – Del – Time – Date – Cls – RD – CD – MD – Echo – Ren – Copy – Vol – Ver – Path	Internal operating system commands	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13-15	1	Windows operating system: The concept of the Windows system - its advantages - its basic requirements - operating the system - components of the main desktop screen - the concept of the icon - the method of dealing with mouse activities - the importance and components of the Task Bar - utilizing Start to enter	Windows	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

79.Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

80.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

81.Course Name: Quality control					
82.Course Code: Q.C					
83.Semester / Year: Semester					
84.Description Preparation Date:19/2/2024					
85.Available Attendance Forms: Lectures					
86.Number of Credit Hours (Total) / Number of Units (Total)					
90 hours/6 units					
87.Course administrator's name (mention all, if more than one name)					
Name: Ali.dhaher@atu.edu.iq					
Email: ali.dhaher@atu.edu.iq					
88.Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Identify laboratory equipment and materials used in experiments. • • Learn about hematology and how to examine urine. • • How to control quality. 		
89.Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
90. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Intoduction to quality control	quality control	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Medical relevent of QA, Standarded units of the international system	Medical relevent of QA	Theoretical lecture method Practical lecture method	Daily testing. Quarterly test. Discussing quarterly

				Method of discussion and dialogue	and annual research
3-4-5	2	Balancing error detection and false rejection	Balancing error detection and false rejection	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
6-7	2	Quality control materials	Quality control materials	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
8	2	QA techniques for quantitative results	QA techniques	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	QA techniques for qualitative results	QA techniques	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	QA techniques for semi-quantitative results	QA techniques	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Troubleshoot based on QA results	Troubleshoot	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
-13-12-14	2		Review	Theoretical lecture Practical lecture	Daily testing.

				Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
15	2		Final exam	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

91. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

92. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Levensons and applied microbiology
Main references (sources)	Medical microbiology, sterilization text book
Recommended books and references (scientific journals, reports...)	Diagnostic microbiology , basic medical microbiology
Electronic References, Websites	FUNDAMENTALS of MICROBIOLOGY, ASM microbiology society

Course Description Form

93. Course Name: Histological techniques
94. Course Code: HIT
95. Semester / Year: Semester
96. Description Preparation Date: 19/2/2024
97. Available Attendance Forms: Lectures
98. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units
99. Course administrator's name (mention all, if more than one name) Name: Duaa Hassan Hadi Email: duaahadi.iba13@atu.edu.iq
100. Course Objectives

Course Objectives	<ul style="list-style-type: none"> • Learn how to prepare and dye slides from different body parts.
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101. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue
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102. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to molecular biology	Mounting , Adhesives	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2-3	2	Staining , classification of stains	Staining	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
4-5	2	Staining section	Staining section	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
6	2	Methods of staining .	Methods of staining .	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
8-7	2	Types of stains , preparation of stain and oxidation of some stains .	Types of stains .	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Stains solvents ,factors affecting staining ,	Stains solvents.	Theoretical lecture	Daily testing.

		storage of stains , how to choose stain .		Practical lecture Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
10	2	Decalcification , bone tissue .	Decalcification	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12-11	2	Examination for second term	Examination for second term	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14-13	2	Tissue slide , Freezing microtome .	Tissue slide	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Final examination		Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

103. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

104. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Theory and practice of histological technique by Bancroft
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

105. Course Name: Histological techniques					
106. Course Code: HIT					
107. Semester / Year: Semester					
108. Description Preparation Date: 19/2/2024					
109. Available Attendance Forms: Lectures					
110. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
111. Course administrator's name (mention all, if more than one name) Name: Duaa Hassan Hadi Email: dua.hadi.iba13@atu.edu.iq					
112. Course Objectives					
Course Objectives				<ul style="list-style-type: none"> • Learn how to prepare and dye slides from different body parts. 	
113. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
114. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to molecular biology	Mounting Adhesives	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2-3	2	Staining classification of stains	Staining	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

4-5	2	Staining section	Staining section	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
6	2	Methods of staining .	Methods of staining .	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
8-7	2	Types of stains , preparation of stain and oxidation of some stains .	Types of stains .	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Stains solvents ,factors affecting staining , storage of stains , how to choose stain .	Stains solvents.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Decalcification , bone tissue .	Decalcification	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12-11	2	Examination for second term	Examination for second term	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14-13	2	Tissue slide , Freezing microtome .	Tissue slide	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
15	2	Final examination		Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

115. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

116. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Theory and practice of histological technique by Bancroft
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

117. Course Name: Molecular biology		
118. Course Code: M.B		
119. Semester / Year: Semester		
120. Description Preparation Date: 19/2/2024		
121. Available Attendance Forms: Lectures		
122. Number of Credit Hours (Total) / Number of Units (Total) 60 hours/4 units		
123. Course administrator's name (mention all, if more than one name) Name: wurood Ali Hathal Email: wurhathal@atu.edu.iq		
124. Course Objectives		
<table border="1"> <tr> <td>Course Objectives</td> <td> <ul style="list-style-type: none"> The student's knowledge of the genetic material found in the cells of living organisms. 2-Structure of DNA and RNA. </td> </tr> </table>	Course Objectives	<ul style="list-style-type: none"> The student's knowledge of the genetic material found in the cells of living organisms. 2-Structure of DNA and RNA.
Course Objectives	<ul style="list-style-type: none"> The student's knowledge of the genetic material found in the cells of living organisms. 2-Structure of DNA and RNA. 	

125. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue
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126. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to molecular biology	Introduction	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Cell cycle	Cell cycle	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	DNA and RNA structure	DNA and RNA structure	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	DNA replication	DNA replication	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	DNA transcription	DNA transcription	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6-7	2	Translation and protein synthesis	Translation and protein synthesis	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test.

					Discussing quarterly and annual research
8	2	Gene expression and regulation	Gene expression and regulation	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10-9	2	Inhibitors of translation and transcription	Inhibitors of translation and transcription	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	DNA repair system.	DNA repair system	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Mutation and chromosomal aberrations	Mutation and chromosomal aberrations	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Chemical and physical agents that cause mutation	Chemical and physical agents	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Recombinant DNA technology (cDNA technique)	Recombinant DNA technology (cDNA technique)	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
15	2	Cloning and application (briefly)	Cloning	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

127. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

128. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Genetic and molecular biology book
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

129. Course Name: Lab. Safety		
130. Course Code: Lab. S		
131. Semester / Year: Semester		
132. Description Preparation Date: 19/2/2024		
133. Available Attendance Forms: Lectures		
134. Number of Credit Hours (Total) / Number of Units (Total) 45 hours/3 units		
135. Course administrator's name (mention all, if more than one name) Name: Entesar marzook hussain Email: entesar.hussain@atu.edu.iq		
136. Course Objectives		
<table border="1"> <tr> <td>Course Objectives</td> <td> <ul style="list-style-type: none"> • Understanding biological and chemical risks. • How to deal with safety and avoid injury in the laboratory. </td> </tr> </table>	Course Objectives	<ul style="list-style-type: none"> • Understanding biological and chemical risks. • How to deal with safety and avoid injury in the laboratory.
Course Objectives	<ul style="list-style-type: none"> • Understanding biological and chemical risks. • How to deal with safety and avoid injury in the laboratory. 	

137. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue
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138. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	1	Introduction to laboratory safety.	Introduction.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	1	General lab. Safety roles	General lab.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
5-4	1	Personal protective equipments	Personal protective equipments	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
8-6-7	1	Biological hazards	Biological hazards	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
10-9	1	Types of biological hazards	Types of biological hazards	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	1	Chemical hazards	Chemical hazards	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test.

					Discussing quarterly and annual research
12	1	Types of chemical hazards	Types of chemical hazards	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	1	Review	Review	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15-14	1	Final exam		Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

139. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

140. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	laboratory safety handbook
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

141. Course Name: Blood transfusion					
142. Course Code: B.T					
143. Semester / Year: Semester					
144. Description Preparation Date: 19/2/2024					
145. Available Attendance Forms: Lectures					
146. Number of Credit Hours (Total) / Number of Units (Total) 45 hours/3 units					
147. Course administrator's name (mention all, if more than one name) Name: Saif Anwar Jaafar Email: saif.nori@atu.edu.iq					
148. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Conduct all blood tests. • Knowing blood types and performing all tests 		
149. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
150. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Information of blood transfusion	blood transfusion	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	1	Blood components, blood collection, choosing the donor, physiological examination, time of collection	Blood components.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

3	1	Complete the second week principles	Complete the second week principles	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly test Discussing quarterly and annual research
4	1	Blood group: ABO system, Rh factor, Lewis system.	Blood group	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly test Discussing quarterly and annual research
5	1	Classification of blood typing (long & short)	Classification of blood typing	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	1	Direct and indirect coomb's test of blood	Direct and indirect coomb's test	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	1	Process of cross matching test, reporting and record the results.	Process of cross matching test,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	1	Roles of blood transfusion , blood disease	Roles of blood transfusion	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	1	Pregnant care , leukemia of infants	Pregnant care	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
10	1	Complete the principles above	Complete the principles above	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	1	Separation of blood contents, methods of separation.	Separation of blood contents	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	1	Complete the principle above	Complete the principle above	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	1	Component of blood after storage, anticoagulants.	Component of blood after storage,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	1	Blood transfusion disadvantage.	Blood transfusion disadvantage.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	1	Quality control , Tools ,Persons , Method	Quality control	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

151. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

152. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Blood Transfusion
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

153. Course Name: Biochemistry

154. Course Code: Bioche

155. Semester / Year: Semester

156. Description Preparation Date: 19/2/2024

157. Available Attendance Forms: Lectures

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

90 hours/6 units

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

Name: Rawaa raheem

Email: rawaaraheem94@gamil.com

160. Course Objectives

Course Objectives

- It gives a general idea of biochemistry and enables one to identify the biochemical reactions that occur in human tissues.
- It is possible to make and prepare different concentrations of solutions.
- Diagnosing the body's life compounds using tools and chemicals.
- Laboratory equipment can be used.

161. Teaching and Learning Strategies

Strategy

- Theoretical lecture method.
- Practical lecture method.

- Method of discussion and dialogue

162. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Biochemistry Biochemistry compounds, cell	Biochemistry	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Carbohydrates, classification, its presence, its importance, General properties of monosaccharide's.	Carbohydrates,	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	Important monosaccharide's. Derivatives of monosaccharide's, reducing sugars. Its presence in human body, its reactions Disaccharides and polysaccharides properties, reactions occurrence.	Important monosaccharide's.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Lipids ,classification ,properties. Fatty acids ,properties , reactions .	Lipids ,classification ,properties.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	Essential fatty acids and unessential fatty acids. properties, reactions. Unsaturated fatty acids , properties its importance,	Essential fatty acids and unessential fatty acids.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Compound lipids ,derived lipids cholesterol, its existence.	Compound lipids	Theoretical lecture method Practical lecture method Method of	Daily testing. Quarterly test.

				discussion and dialogue	Discussing quarterly and annual research
7	2	Proteins, general properties, peptide bond. Amino acids , properties , occurrence.	Proteins	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Amino acid ,classification ,reactions. Classification of proteins ,chemical properties of proteins.	Amino acid	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Separation of organic compounds by chromatography.	Separation of organic compounds by chromatography.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Separation of amino acids. Examination	Separation of amino acids.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Nucleic acids, nucleoprotein, analysis of nucleoprotein.	Nucleic acids.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Enzymes ,nomenclature, classification. Enzymes, properties , factors in fleecing the rate of enzymatic	Enzymes	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

		reactions. Enzyme ,inhibitions.			and annual research
13	2	Hormones , properties. , Classification of hormones. Protein hormones , non protein hormones	Hormones	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Vitamins ,water soluble vitamins, classification, occurrence, deficiency. Fat soluble vitamins , classification, occurrence, deficiency Complete of vitamins.	Vitamins	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Creatine and creatinine	Creatine	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

163. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

164. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Fundamentals of Biochemistry
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

165.	Course Name: Human right and Democratic
166.	Course Code: HRD
167.	Semester / Year:Semester
168.	Description Preparation Date:19/2/2024

169. Available Attendance Forms: Lectures

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

30 hours/2 units

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

Name: Zaid khudhur

Email: zaid.bermany@atu.edu.iq

172. Course Objectives

Course Objectives

At the end of the course the student will be able to:

- Know about human rights.
- In addition, the student will be able to deal with different Theories of human right

173. Teaching and Learning Strategies

Strategy

- Theoretical lecture method.
- Practical lecture method.
- Method of discussion and dialogue

174. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 st week	2	Understanding the rights and duties and know how to deal well with people in society	Introduction	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2 nd week	2	Understanding the rights and duties and know how to deal well with people in society	Explain the term of human rights	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3 rd week	2	Understanding the rights and duties and know how to deal well with people in society	The historical of human rights	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research

4 th week	2	Understanding the rights and duties and know how to deal well with people in society	Development of human rights	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5 th week	2	Understanding the rights and duties and know how to deal well with people in society	Development of human rights	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6 th week	2	Understanding the rights and duties and know how to deal well with people in society	Development of human rights	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7 th week	2	Understanding the rights and duties and know how to deal well with people in society	Human rights and Sumerian civilization	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8 th week	2	Understanding the rights and duties and know how to deal well with people in society	Human rights in Roman civilization	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9 th week	2	Understanding the rights and duties and know how to deal well with people in society	Human rights in the Nile Valley civilization	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10 th week	2	Understanding the rights and duties and know how to deal well with people in society	Introduction to heavenly religions.	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

				Method of discussion and dialogue	Discussing quarterly and annual research
11 th week	2	Understanding the rights and duties and know how to deal well with people in society	Human rights in Judaism	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12 th week	2	Understanding the rights and duties and know how to deal well with people in society	Human rights in the Christian religion	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13 th week	2	Understanding the rights and duties and know how to deal well with people in society	Human rights in the Islamic religion	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14 th week	2	Understanding the rights and duties and know how to deal well with people in society	Human rights in the Islamic religion	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15 th week	2	Understanding the rights and duties and know how to deal well with people in society	Final Exam	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

175. 30% for the annual endeavor and 70% for the final exam

176. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Human Rights book
Main references (sources)	The organization of human rights magazine

Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Second year/first semester Number of units for the second semester = 35

Course Description Form

177. Course Name: Microbiology					
178. Course Code: MB					
179. Semester / Year: Semester					
180. Description Preparation Date: 19/2/2024					
181. Available Attendance Forms: Lectures					
182. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours/6 units					
183. Course administrator's name (mention all, if more than one name)					
Name: Dr. bareq A. Allateef					
Email: bareq.as86@gmail.com ,, barq10@atu.edu.iq					
184. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> Assistance in laboratory investigation of the examined samples by implantation. Assistance in how to isolate and diagnose ailments. Assisting the doctor in diagnostic and therapeutic procedures during the isolation procedure. 		
185. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> Theoretical lecture method. Practical lecture method. Method of discussion and dialogue 			
186. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Introduction to medical microbiology, Microorganism, instruction with the host, microbial virulence, historical significance	Introduction to medical microbiology,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	classes of pathogenic microorganisms Viruses, bacteria, fungi, parasites	classes of pathogenic microorganisms	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	Classification and Scientific nomenclature of the bacteria. Normal Flora	Classification and Scientific	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Bacterial Structure	Bacterial Structure	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	Bacterial division and growth	Bacterial division and growth	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Bacterial Genetics, DNA transfer between bacteria	Bacterial Genetics	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Pathogenicity of bacteria	Pathogenicity of bacteria	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
8	2	TOXIGENESIS (bacterial toxin).	TOXIGENESIS	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Classes of antibacterial agents	Classes of antibacterial agents	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	General characteristic and classification of virus	General characteristic and classification of virus	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Viral genetics, a mutation, instruction between viruses, the role of genetic variation in evolution of viruses.	Viral genetics	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Pathogenicity of viruses	Pathogenicity of viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Classes of antiviral agents	Classes of antiviral agents	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

14	2	Characteristic and of classification of medical fungi.	Characteristic and of classification of medical fungi.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Morphology and structure of fungi, Classes of antifungal agents	Morphology and structure of fungi	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

187. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

188. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical microbiology
Main references (sources)	BASIC BACTERIOLOGY
Recommended books and references (scientific journals, reports...)	Warren Levinson, MD, PhD San Francisco, California January 2014
Electronic References, Websites	https://www.amazon.com/Medical-Microbiology-Immunology-Eleventh-Science/dp/0071700285

Course Description Form

189.	Course Name: Haematology\1
190.	Course Code: Hem
191.	Semester / Year: Semester
192.	Description Preparation Date: 19/2/2024
193.	Available Attendance Forms: Lectures
194.	Number of Credit Hours (Total) / Number of Units (Total)
	90 hours/6 units

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

Name: Ali Mougged fadell
 Email: aldhmoshyali@gmail.com

196. Course Objectives

Course Objectives	<ul style="list-style-type: none"> • Knowledge of the medical system, laboratory tests, and diagnosis of disease. • Knowing blood types and performing all laboratory tests. • Knowledge of blood types, RBCs, Hb, anemia.
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197. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue
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198. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction importance of hematology. Study the blood contains	Introduction importance of hematology.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	The haemoto poiesis in fetus, children and adult.	The haemoto poiesis.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	The normal red blood cells, importance, Structure, erythropoiesis and Function	The normal red blood cells.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Polycythemia, causes, Clinical Signs and Laboratory diagnosis	Polycythemia,	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research

5	2	Study the red cell morphology in health and disease. Abnormality of R.B.C in size.	red cell morphology	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Abnormality of R.B.C in in shape	Abnormality of R.B.C.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Abnormality of R.B.C in colour.	Abnormality of R.B.C.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	The normal Hb. Of the blood, contain and importance.	The normal Hb. Of the blood, contain and importance.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Study the types of normal Hb. Types	types of normal Hb.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Common Hb. Variant	Common Hb.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Anemia. Definition, classification and types	Anemia.	Theoretical lecture Practical lecture	Daily testing.

				Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
12	2	Anemia. Causes .clinical signs and laboratory Finding.	Anemia.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Megaloblastic anemia and Pernicious anemia.	Megaloblastic anemia	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Aplastic anemia and hemolytic anemia	Aplastic anemia and hemolytic anemia	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Sickle Cell an. And acquired and autoimmune hemolytic anemia.	Sickle Cell an.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

199. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

200. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Clinical hematology in medical practice
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

201. Course Name: Clinical chemistry\1					
202. Course Code: Cl.Ch					
203. Semester / Year: Semester					
204. Description Preparation Date:19/2/2024					
205. Available Attendance Forms: Lectures					
206. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
207. Course administrator's name (mention all, if more than one name) Name: Thikra Jawad Email: thikra.jawad@atu.edu.iq					
208. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Students learned the basic information of clinical chemistry and were able to develop their skills in clinical chemistry analyses • Knowing how to conduct laboratory tests, identifying diseases, and comparing them to nature. 		
209. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
210. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to clinical chemistry Disciplinary of clinical chemistry Introduction of metabolism, types of metabolism (anabolism and catabolism) collection and handing of blood samples , anticoagulant , urine	Introduction to clinical chemistry	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

		compassion ,urine collection methods urine preservative			
2	2	Acid-base balance	Acid-base balance	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3-4	2	Electrolytes (Na ⁺ , K ⁺ , Cl ⁻ , Ca ²⁺ , Mg, ect....) Diseases related to increase and decrease of electrolytes	Electrolytes	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Trace element [Cu ²⁺ , Ceruloplasmin, Zn, Mn], disease appeared in abnormal metabolism of these metals.	Trace element	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	Trace element [Cu ²⁺ , Ceruloplasmin, Zn, Mn], disease appeared in abnormal metabolism of these metals	Trace element	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6-7	2	Glucose digestion and absorption (glucose metabolism) Glucose uptake by cells Glycolysis and hormones that regulate glycolysis	Glucose digestion and absorption	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Exam	Exam	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Tricyclic acid (TCA, Krebs' cycle) 1- Reactions of TCA	Tricyclic acid	Theoretical lecture Practical lecture	Daily testing.

		2- Energy production of TCA 3- Function and regulation of TCA 4- dysfunction of TCA		Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
10	2	Glycogen metabolism -Regulation of synthesis -disorders of glycogen metabolism	Glycogen metabolism	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Gluconeogenesis Precursors (such as Pyruvate, lactate, alanine, ect...)	Gluconeogenesis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12-14	2	Diabetes Mellitus 1- blood glucose and regulation of blood glucose (role of insulin and glucagon hormones in glucose regulation) 2- Hyperglycemia (types of DM) 3- Hypoglycemia	Diabetes Mellitus	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2		Review for final exam	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

211. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

212. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Biochemistry
Main references (sources)	cholesterol clinical practice guidelines
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field

Course Description Form

213. Course Name: Immunology					
214. Course Code: IM					
215. Semester / Year: Semester					
216. Description Preparation Date: 19/2/2024					
217. Available Attendance Forms: Lectures					
218. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
219. Course administrator's name (mention all, if more than one name) Name: muna Sabbar jebar Email: munajebar@gmail.com					
220. Course Objectives					
Course Objectives	<ul style="list-style-type: none"> Identify the most important parts of the immune system related to disease resistance. Preparing some antibodies and antigens. Learn how to detect fever, AIDS, and some bacterial diseases. 				
221. Teaching and Learning Strategies					
Strategy	<ul style="list-style-type: none"> Theoretical lecture method. Practical lecture method. Method of discussion and dialogue 				
222. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge of immunology: definition and classification of the sections of immunity, natural	Immunology	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

		and acquired immunity, factors and defenses Natural immunity			and annual research
2	2	Knowledge of the immune system, lymphoid tissues and cells, their origin, recipients and stages of maturation, primary and secondary lymphoid organs.	immune system	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	Phagocytosis: macrophages, mononuclear cells, inflammation, and phagocytosis Antigen presenting cells: origin, maturity, receptors, types	Phagocytosis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Antigen and antigenic determination Its definition, characteristics, types of antigens (exogenous and endogenous antigens)	Antigen and antigenic	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	Definition of antibodies, composition, types, properties, manufacturing and editing	antibodies	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Immune response: primary and secondary, their characteristics and	Immune response	Theoretical lecture Practical lecture Method of	Daily testing. Quarterly test.

		differences, regulation of the immune response		discussion and dialogue	Discussing quarterly and annual research
7	2	Major histocompatibility complex (MHC) Its definition, types, role in antigen presentation	Major histocompatibility	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Complements Definition of complement, its activation, methods of activation, inhibitors, diseases associated with complement deficiency	Complements	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Cytokines	Cytokines	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Immunity against germs and toxins How the immune system works in defense against germs	Immunity against germs and toxins	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Immunity against viruses, immunity against parasites, immunity against fungi	Immunity against viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Anti-tumor immunity	Anti-tumor immunity	Theoretical lecture Practical lecture	Daily testing.

		Definition of tumor, antigens related to the tumor, their types, their relationship to different tumors, methods Escaping the body's immunity		Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
13	2	Hypersensitivity Its definition, different patterns, and diseases resulting from it	Hypersensitivity	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Natural and acquired immune deficiency Types and theories	Natural and acquired immune deficiency	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Vaccination, types of vaccines	Vaccination,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

223. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

224. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Basic Immunology
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

225. Course Name: Protozoa					
226. Course Code: Pro					
227. Semester / Year: Semester					
228. Description Preparation Date: 19/2/2024					
229. Available Attendance Forms: Lectures					
230. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
231. Course administrator's name (mention all, if more than one name) Name: Haider Hussein Obaid Email: haider.alseady.dw@atu.edu.iq					
232. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Identify the form, life cycle, and laboratory diagnosis of most types of pathogenic parasites. • Identify the epidemiology and diseases that occur as a result of parasitic infection and the methods of transmission. 		
233. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Defines the parasites ,parasitology types of parasites Types of host, Classification of parasites, Protozoa + metazoan Metazoa [helminthes and arthropoda	Defines the parasites,	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Introduction generally in characteristic feature of protozoa	Introduction generally	Theoretical lecture method	Daily testing.

		and classification:- Rhizopoda ,Mastigophora ,Cilophora (ciliate) ,Telospora		Practical lecture method Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
3	2	Class Rhizopoda Pathogenic amoeba, Entamoeba histolytica, Morphology ,life cycle ,Pathogenicity ,Lab.diagnosis	Class Rhizopoda	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Few of morphology ,pathogenicity ,diagnosis of :- Entamoeba gingivalis, A canthamoeba ,Naegleria	Few of morphology	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	Nonpathogenic amoeba Different between Entamoeba coli and E. histolytica. morphology , Lab, diagnosis of Iodamoebabutschlii , Endolimax nana ,E. dispar ,Dientamoeba fragilis	Nonpathogenic amoeba	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Class Mastigophor or Flagellates generally introduction in characteristic feature and classification in (intestinal flagellate, blood and tissue flagellates, genital flagellates). Intestinal Flagellate: - Giardia lamblia ,Chilomastix mesnili ,Trichomonashominis ,Morphology ,life cycle ,pathogenicity ,and lab. Diagnosis.	Class Mastigophor or Flagellates	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Genital flagellate Trichomonas vaginales, Oral flagellates,	Genital flagellate	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

		Trichomonas tenax. Morphology, pathogenicity and lab. diagnosis		Method of discussion and dialogue	Discussing quarterly and annual research
8	2	Tissue and blood flagellate Haemoflagellates forms. Lishmania donovani Lishmania tropica Lishmania brazeliencis Morphology ,life cycle ,pathogenicity, Lab. Diagnosis	Tissue and blood flagellate Haemoflagellates forms.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Trypanosoma cruzi Trypanosoma brucei Morphology ,life cycle ,pathogenicity, Lab. Diagnosis Sample of Tse-tse fly and Reduviid bug.	Trypanosoma cruzi Trypanosoma brucei Morphology.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Class Ciliophra (cilata) Blantidium coli Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Class Ciliophra (cilata) Blantidium coli Morphology	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2		Review	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Class Sporozoa Generally introduction of characteristic features of sporozoa. Life cycle in generally of Plasmodium spp. In man and insects.	Class Sporozoa Generally introduction of characteristic features of sporozoa.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Plasmodium vivax Plasmodium ovale pathogenicity, Lab. Diagnosis	Plasmodium vivax	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

		Plasmodium malariae Plasmodium falciparum Pathogenicity, Lab. diagnosis and short notes of parasites Babesia spp. The differences in lab. diagnosis with Plasmodium spp.		Method of discussion and dialogue	Discussing quarterly and annual research
14	2	Isosporia belli , Toxoplasma gondii Morphology ,life cycle ,pathogenicity, Lab. diagnosis Cryptosporidium spp. Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Isosporia belli	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2		Review and examination	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

235. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

236. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical Parasitology
Main references (sources)	medical helminthology protozoa
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

237. Course Name: Virology					
238. Course Code: Vir					
239. Semester / Year: Semester					
240. Description Preparation Date: 19/2/2024					
241. Available Attendance Forms: Lectures					
242. Number of Credit Hours (Total) / Number of Units (Total) 45 hours/3 units					
243. Course administrator's name (mention all, if more than one name) Name: Ruqa Yaya Email: ruqayaya89@gmail.com					
244. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Identify viruses. • Knowing the types of diseases caused by viruses. • . Know how to diagnose viruses and how to treat them. 		
245. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
246. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction, General properties of virus, structure, classification of DNA & RNA viruses.	General properties of virus	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	1	Replication of DNA and RNA virus	Replication	Theoretical lecture method Practical lecture method	Daily testing. Quarterly test. Discussing quarterly

				Method of discussion and dialogue	and annual research
3	1	Virus isolation & cultivation.	Virus isolation	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	1	Chemotherapy, antiviral agent & vaccines.	Chemotherapy,	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	1	Influenza viruses	Influenza viruses	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	1	Paramyxo & Robella viruses	Paramyxo	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	1	Enteric viruses, Rhinovirus group.	Enteric viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	1	Pathogenesis of viruses and Genetic of viruses	Pathogenesis of viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	1	Herpes viruses	Herpes viruses	Theoretical lecture Practical lecture	Daily testing.

				Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
10	1	Oncogenic viruses	Oncogenic viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	1	Hepatitis viruses	Hepatitis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	1	Rubies & other neurotropic viruses Arbo viruses & viral haemorrhagic viruses	Rubies & other neurotropic viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	1	Arbo viruses & viral haemorrhagic viruses	Arbo viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	1	Adeno, pox & parvo viruses	Adeno, pox & parvo viruses	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	1	Retro & Adis	Retro & Adis	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

				Method of discussion and dialogue	Discussing quarterly and annual research
247. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.					
248. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			levinson		
Recommended books and references (scientific journals, reports...)			jawitz		
Electronic References, Websites			Google scholar		

Course Description Form

249. Course Name: Medical Ethics	
250. Course Code: Med. Eth	
251. Semester / Year: Semester	
252. Description Preparation Date: 19/2/2024	
253. Available Attendance Forms: Lectures	
254. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours/2units	
255. Course administrator's name (mention all, if more than one name)	
Name: Wisam Faris Abd Al-Amir Email: wisam.jasem@atu.edu.iq Name: Mona Qafel Abed Email: mona.hussein@atu.edu.iq	
256. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Introducing the basic principles of professional ethics of medical workers. • Qualifying graduates for the essential ethics in their interaction with their profession. • Achieving harmony within themselves and professional environment.

257. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Theoretic lectures strategy. • Conversation and discussion strategy. • Regular testing strategy.
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258. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	<ul style="list-style-type: none"> • The principles of medical ethics in different early civilizations. • The principles of medical professions in the Arabic Islamic civilization. The manners of dealing with patients since then until now 	The principles medical ethics	<ul style="list-style-type: none"> • Theoretic lectures strategy. • Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
second	2	Medical ethics: definition – concept - applications – the relationship between the workers.	Medical ethics: definition and concept	<ul style="list-style-type: none"> • Theoretic lectures strategy. • Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
Third	2	The basic manners of the profession: <ul style="list-style-type: none"> • The characteristics of a medical worker, commitment, appearance, manners. • The legal rights of patients. Dealing with the patients and their families 	The basic manners of the profession	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
Fourth	2	Connection methods: lingual and non-lingual. <ul style="list-style-type: none"> • Definition, types, effects, producing successful methods. • How such methods effects manners, listening and how students practice them with practical examples. 	Connection methods	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.

Fifth	2	Behavioral tendencies: Definition, types, influencing factors, measuring methods	Behavioral tendencies	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
sixth	2	Values, habits and traditions: <ul style="list-style-type: none"> • Definition, types, influencing factors, measuring methods 	Values, habits and traditions	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
seventh	2	Personality types and how to deal with them: <ul style="list-style-type: none"> • Definition, types, relation to the medical profession. • The personality of the technicians and their manifestation 	Personality type	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
eighth	2	Mental health improvement: Definition, influencing factors, the role of mental health in the profession	Mental health improvement	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
ninth	2	The ethics and the manner of dealing with patients: <ul style="list-style-type: none"> • Patients reception, dealing with them, earning their trust, and maintain privacy. • Scheduling needed procedures. • Preserving the patients belongings 	The ethics and manner of dealing with patients	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.

tenth	2	The ethics and manners of dealing with medical equipments and machines: <ul style="list-style-type: none"> • Preparing the essential equipments before work. • Maintaining, sustaining and preserving the machines, tools, solutions and different equipments of the laboratory. 	The ethics and manner of dealing with medical equipments and machines	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.
Eleventh	2	Applications of medical ethics	Applications of medical ethics	<ul style="list-style-type: none"> • Theoretic lectures strategy. Conversation and discussion strategy. 	<ul style="list-style-type: none"> • Daily quizzes • Quarterly testing. • Annual examination.

259. Course Evaluation

30% for the annual endeavor and 70% for the final exam.

260. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical Ethics For the Authority of Technical Institutes Students
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field

Course Description Form

261. Course Name:	The crimes of the Baath regime in Iraq
262. Course Code:	
263. Semester / Year:	Semester
264. Description Preparation Date:	19/2/2024
265. Available Attendance Forms:	Lectures

266. Number of Credit Hours (Total) / Number of Units (Total)					
30 hours/2 units					
267. Course administrator's name (mention all, if more than one name)					
Name: zaid khudhur Email:zaid.bermany@atu.edu.iq					
268. Course Objectives					
Course Objectives				At the end of the course the student will be able to: The student gets to know the concept of crimes. <input type="checkbox"/> Learn about the dictatorship of the former regime	
269. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
270. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding the dictatorial regime and avoid it in future	Introduction to the concept of crimes	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Understanding the dictatorial regime and avoid it in future	History of crime committed by the authority	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	Understanding the dictatorial regime and avoid it in future	Crime departments	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Understanding the dictatorial regime and avoid it in future	Crime departments.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research

5	2	Understanding the dictatorial regime and avoid it in future	Types of international crimes	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Understanding the dictatorial regime and avoid it in future	Types of international crimes.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Understanding the dictatorial regime and avoid it in future	Human rights in Roman civilization.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Understanding the dictatorial regime and avoid it in future	Decisions issued by the Supreme Court.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Understanding the dictatorial regime and avoid it in future	Decisions issued by the Supreme Court.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Understanding the dictatorial regime and avoid it in future	Decisions issued by the Supreme Court.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Understanding the dictatorial regime	Psychological crimes.	Theoretical lecture Practical lecture	Daily testing.

		and avoid it in future		Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
12	2	Understanding the dictatorial regime and avoid it in future	Mechanisms of psychological crimes.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Understanding the dictatorial regime and avoid it in future	Psychological effects of crimes.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Understanding the dictatorial regime and avoid it in future	Baath crimes against religion	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Understanding the dictatorial regime and avoid it in future	Baath crimes against religion.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

271. 30% for the annual endeavor and 70% for the final exam.

272. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The main book supply by the ministry of higher education
Main references (sources)	Al baath crime's
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

273. Course Name: Bacterial pathogenicity					
274. Course Code: Bac.Pat					
275. Semester / Year: Semester					
276. Description Preparation Date:19/2/2024					
277. Available Attendance Forms: Lectures					
278. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
279. Course administrator's name (mention all, if more than one name) Name: Dr. bareq A. Allateef Email: bareq.as86@gmail.com ,, barq10@atu.edu.iq					
280. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Assistance in laboratory investigation of the examined samples by implantation . • Assistance in how to isolate and diagnose ailments . • Assisting the doctor in diagnostic and therapeutic procedures during the isolation procedure and different genus of pathogenic bacteria study. 		
281. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
282. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Systemic bacteriology, Genus Staphylococcus, General characters , toxin production , enzyme , immunity, Sensitivity test.	Systemic bacteriology	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
2	2	Genus Streptococcus General characters. Bio chemical test, Antigenic characters , M protein Streptococcus group A, diseases, toxin, and immunity.	Genus Streptococcus General characters. .	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	Streptococcus group B, C, D. Biochemical reaction, immunity, diseases. Streptococcus pneumonia and Streptococcus variance disease, antigenic structure.	Streptococcus group B, C, D.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Gram positive bacilli – Corynebacterium diphtheria. Shape of bacteria, virulence, toxin, immunity, shick test. Antitoxin, skin test.	Gram positive bacilli .	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	Genus Mycobacterium , general characters, Classification of bacteria , growth , antigenic structure , Disease, immunity.	Genus Mycobacterium , general characters	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Genus Bacillus, Bacillus anthraces. General characters, biochemical reaction, antigenic structure, toxin, immunity	Genus Bacillus, Bacillus anthraces.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Anaerobic bacteria – Clostridium, general characters. Clostridium perifringens , general characters .	Anaerobic bacteria – Clostridium	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

		Antigen structure, biochemical reaction, virulence, toxin. Clostridium tetani , disease , immunity, antigenic structure			
8	2	Genus Neisseria, general characters, biochemical reaction. Neisseria gonorrhoea, antigenic structure, virulence. Neisseria meningitidis, immunity, sensitivity test. Antigenic structure , virulence , immunity	Genus Neisseria,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Genus Haemophilus, general characters , growth factors , Virulence, immunity. Genus Bordetella, general characters, disease.	Genus Haemophilus.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10-11	2	Family Enterobacteriaceae , General characters , classification , biochemical reaction , Antigenic characters, sugar fermentation, sensitivity test. Genus Escherichia coli, Klebsiella, diseases, virulence, Immunity.	Genus Vibrio,.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Genus Vibrio, history of disease, general characters, Antigenic structure, virulence, immunity, treatment. Classical Vibrio EL-TOR biotype. Vibrio parahaemolyticus. Campylobacter jejuni.	Genus Vibrio,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Genus Brucella , general characters , diseases , species , Zoonosis.	Genus Brucella	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

		Yersinia pestis , general characters , virulence , diseases		Method of discussion and dialogue	Discussing quarterly and annual research
14	2	Francisella , general characters , transmission diseases , Virulence, syphilis, VDRL. Nocardia , general characters , stain-direct smear . Mycoplasma, shape, virulence, Lab.dignosis	Francisella general characters	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Chlamydia , general characters , shape , biochemical test , Virulence, immunity	Chlamydia	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

283. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

284. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical microbiology
Main references (sources)	BASIC BACTERIOLOGY
Recommended books and references (scientific journals, reports...)	Warren Levinson, MD, PhD San Francisco, California January 2014
Electronic References, Websites	https://www.amazon.com/Medical-Microbiology-Immunology-Eleventh-Science/dp/0071700285

Course Description Form

285. Course Name: Hematology\2
286. Course Code: Hem
287. Semester / Year: Semester
288. Description Preparation Date:19/2/2024

289. Available Attendance Forms: Lectures					
290. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours/6 units					
291. Course administrator's name (mention all, if more than one name)					
Name: Ali Mougged fadell Email: aldhmoshyali@gmail.com					
292. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Knowledge of the medical system, laboratory tests, and diagnosis of medical conditions. • Knowing blood types, performing all laboratory tests, and diagnosing disease cases. • Knowledge of W.B.C, clotting factors, acute and chronic leukemia 		
293. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
294. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Haemostasis , definition and types .The role of blood Vessels and Platelet in Haemostasis.	Haemostasis	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Coagulation factors, name and figures	Coagulation factors	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	Coagulative Processes.	Coagulative Processes.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Haemostasis disorder types. Haemostasis	Haemostasis disorder types.	Theoretical lecture method	Daily testing Quarterly tes

		due to blood vessels disorder		Practical lecture method Method of discussion and dialogue	Discussing quarterly and annual research
5	2	Haemostasis due to blood platelet disorder	Haemostasis	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Haemostasis due to Coagulative disorder.	Haemostasis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	The White blood Cells, types.	White blood Cells	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	The maturation of W.B.C.	maturation of W.B.C.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	The function of W.B.C.	function of W.B.C.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Leukocytosis.	Leukocytosis.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
11	2	Leukopenia.	Leukopenia.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Leukemia, definition and classification.	Leukemia	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Chronic and acute myeloid. L	Chronic and acute myeloid. L.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Chronic and acute myeloid. L.	Chronic and acute myeloid. L.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Chronic and acute Monocytic .L	Chronic and acute Monocytic .L	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

295. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

295. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Clinical hematology in medical practice
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field

Course Description Form

296. Course Name: Clinical chemistry\2					
297. Course Code: Cl.ch					
298. Semester / Year: Semester					
299. Description Preparation Date:19/2/2024					
300. Available Attendance Forms: Lectures					
301. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours/6 units					
302. Course administrator's name (mention all, if more than one name)					
Name: Thikra jawad					
Email: thikra.jawad@atu.edu.iq					
303. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> Conducting all chemical tests on the blood. Knowing how to conduct laboratory tests, identify diseases, and compare them to nature. Knowing all the components of carbohydrates, fats, enzymes, proteins, etc. 		
304. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> Theoretical lecture method. Practical lecture method. Method of discussion and dialogue 			
305. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3-1	2	Protein metabolism and renal function 1- Serum Protein (components),	Protein metabolism and renal function	Theoretical lecture method Practical lecture method	Daily testing. Quarterly test. Discussing quarterly

		2- Amino acid metabolism, 3- fate of ammonia, 4- Urea cycle, urea metabolism and renal function tests		Method of discussion and dialogue	and annual research
6-4	2	Lipid metabolism 1- fatty acids oxidation 2- ketone bodies Lipid profile and disorder in lipid profile (cholesterol, triglycerides, lipoproteins)	Lipid metabolism	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Disorders of purine and pyrimidine Uric acid metabolism (synthesis and hyperuricemia)	Disorders of purine and pyrimidine	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
8	2	Exam	Exam	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
9	2	Introduction to enzyme (definition of enzymology) Creatin kinase CK (isoenzymes) Lactate dehydrogenase LDH (isoenzymes)	Introduction to enzyme (definition of enzymology)	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10-11	2	Liver function tests Bilirubin metabolism Jaundice (adult and neonatal jaundice) Hepatitis and liver function tests	Liver function tests	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Tumor markers	Tumor markers	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly

					and annual research
13-15	2	Hormones 1- Thyroid hormones (Thyroid function tests, parathyroid hormones) Fertility hormones (testosterone, luteinizing hormone, prolactin, follicular stimulating hormone)	Hormones	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

306. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam

307. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Biochemistry
Main references (sources)	CHOLESTEROL CLINICAL PRACTICE GUIDELINES
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

308. Course Name: Clinical Immunology	
309. Course Code: Cl .IM	
310. Semester / Year: Semester	
311. Description Preparation Date: 19/2/2024	
312. Available Attendance Forms: Lectures	
313. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units	
314. Course administrator's name (mention all, if more than one name) Name: Muna sabbar jebar Email: munajebar@gmail.com	
315. Course Objectives	
Course Objectives	Identify the most important immune and rheumatic diseases.

	<ul style="list-style-type: none"> • Identify diseases of the digestive system and liver. • Learn how to detect autoimmune hepatitis and some other diseases
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316. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue
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317. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Rheumatic diseases and Rheumatoid arthritis	Rheumatic diseases and Rheumatoid arthritis	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Systemic lupus erythromatous and Psoriatic arthritis	Systemic lupus erythromatous and Psoriatic arthritis	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	2	Ankylosing Spondylitis and Sjogren's syndrome	Ankylosing Spondylitis and Sjogren's syndrome	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Behcet's disease	Behcet's disease	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	1-Gluten sensitive entero-pathy 2-Ulcerative colitis 3-Crohn's disease	Gluten sensitive entero-pathy	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

6	2	Pernicious anemia	Pernicious anemia	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Diabetes Mellitus Type I	Diabetes Mellitus Type I	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Review	Review	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	2	Knowledge of autoimmune hepatitis diseases	Autoimmune hepatitis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	Primary biliary cirrhosis and primary sclerosing cholangitis	Primary biliary cirrhosis and primary sclerosing cholangitis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Renal diseases -Circulating immune complex -In situ immune complex formation -Antineutrophil cytoplasmic autoantibodies and associated diseases	Renal diseases	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Respiratory disease	Respiratory disease	Theoretical lecture	Daily testing.

		1- Drug-induced respiratory disease 2- Eosinophilic pneumonia 3- Asthma		Practical lecture Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
13	2	Immunological thyroid disease and Immunological infertility	Immunological thyroid	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Tumor and Tumor markers	Tumor	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	2	Graft versus host rejection and transplantation	Graft versus host rejection and transplantation	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

318. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

319. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Clinical Immunology
Recommended books and references (scientific journals, reports...)	Scientific journals and research in the field
Electronic References, Websites	Google scholar

Course Description Form

320. Course Name: Helminthes					
321. Course Code: Hel					
322. Semester / Year: Semester					
323. Description Preparation Date: 19/2/2024					
324. Available Attendance Forms: Lectures					
325. Number of Credit Hours (Total) / Number of Units (Total) 90 hours/6 units					
326. Course administrator's name (mention all, if more than one name) Name: Haider Hussein Obaid Email: haider.alseady.dw@atu.edu.iq					
327. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> • Knowing the types of parasitic worms and how to diagnose them. • Knowledge of various parasitological analyzes to diagnose the types of parasites. • . Knowledge of all diseases through cultivation of slides. 		
328. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue 			
329. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	In generally introduction of characteristic features of metazoa Helminthes (cestoda ,trematoda and nematoda)	introduction of characteristic features of metazoa Helminthes (nematoda)	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	2	Class Cestoda Taenia saginata Taenia solium	Class Cestoda	Theoretical lecture method Practical lecture method	Daily testing. Quarterly test.

		Morphology ,life cycle ,pathogenicity, Lab. diagnosis		Method of discussion and dialogue	Discussing quarterly and annual research
3	2	Hymenolepis nana Hymenolepis diminuta Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Hymenolepis nana	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	2	Echinococcus granulosus Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Echinococcus granulosus Morphology	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	2	Class Trematoda In general life cycle of Schistosoma spp. Schistosoma haematobium Schistosoma mansoni Schistosoma japonicum Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Class Trematoda	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	2	Short notes of (liver flukes) Fasciola hepatica (Lung flukes) Fasciola buski (intestinal flukes) Heterophyes heterophes Lab. diagnosis	Short notes of (liver flukes)	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
7	2	Class Nematode Ascaris lumbricoides Trichuris trichura Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Class Nematode	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	2	Enterobius vermicularis Ancylostoma duodenale Necator americanus	Enterobius vermicularis	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

		Morphology ,life cycle ,pathogenicity, Lab. diagnosis		Method of discussion and dialogue	Discussing quarterly and annual research
9	2	Larva migrans in human -cutaneous larva migrans Ancylostoma caninum Schistosoma sp.	Larva migrans in human	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	2	subcutaneous larva migrans (scrow worm)(Myiasis) -visceral larva migrans Toxocara spp. pathogenicity, Lab. diagnosis	subcutaneous larva migrans (scrow worm)(Myiasis)	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	2	Filaria Wuchereria bancrofti Loa loa Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Filaria Wuchereria bancrofti Loa loa Morphology	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	2	Short notes of class Annelida Hirudo medicinalis in human morphology and lab. Diagnosis. And from metazoan Class Arthropoda	Short notes of class Annelida	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
13	2	Short notes of morphology and lab. diagnosis , some pathogenicity of 1-insect (Anopheline ,Sand fly ,Tse – tse fly ,Reduviid bug ,Culex , lice ,Fleas , Cimex) 2-Arachnids Mites , tick	Short notes of morphology and lab.	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	2	Review		Theoretical lecture Practical lecture	Daily testing. Quarterly test.

				Method of discussion and dialogue	Discussing quarterly and annual research
15	2	Examination (Final)		Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

330. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

331. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Medical Parasitology
Recommended books and references (scientific journals, reports...)	medical helminthology protozoa
Electronic References, Websites	Google scholar

Course Description Form

332. Course Name: Medical Mycology		
333. Course Code: M.M		
334. Semester / Year: Semester		
335. Description Preparation Date: 19/2/2024		
336. Available Attendance Forms: Lectures		
337. Number of Credit Hours (Total) / Number of Units (Total) 45 hours/3 units		
338. Course administrator's name (mention all, if more than one name) Name: Ruqa Yaya Email: ruqayaya89@gmail.com		
339. Course Objectives		
<table border="1"> <tr> <td>Course Objectives</td> <td> <ul style="list-style-type: none"> . Study on medicinal mushrooms. • Knowing the types of diseases they cause. </td> </tr> </table>	Course Objectives	<ul style="list-style-type: none"> . Study on medicinal mushrooms. • Knowing the types of diseases they cause.
Course Objectives	<ul style="list-style-type: none"> . Study on medicinal mushrooms. • Knowing the types of diseases they cause. 	

- . Knowing how to diagnose diseases and how to treat them.

340. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Theoretical lecture method. • Practical lecture method. • Method of discussion and dialogue
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341. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction of medical Fungi	medical Fungi	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
2	1	Structure, reproduction and classification.	Structure, reproduction and classification.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
3	1	Cultural characteristics, type of mycosis	Cultural characteristics	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
4	1	General principle in treatment.	General principle in treatment.	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing Quarterly tes Discussing quarterly and annual research
5	1	Actinomyces, Nocardia, Mycetoma	Actinomyces,	Theoretical lecture method Practical lecture method Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
6	1	Dermatophytes	Dermatophytes	Theoretical lecture	Daily testing.

				Practical lecture Method of discussion and dialogue	Quarterly test. Discussing quarterly and annual research
7	1	Candidiasis	Candidiasis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
8	1	Cytococcosis	Cytococcosis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
9	1	Cryptococcosis	Cryptococcosis	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
10	1	Histoplasmosis, sporotrichosis	Histoplasmosis,	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
11	1	Micellanaus fungi ,Aspergillosis, mucor	Micellanaus fungi	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
12	1	Rhizopus & penicillium	Rhizopus & penicillium	Theoretical lecture Practical lecture	Daily testing. Quarterly test.

				Method of discussion and dialogue	Discussing quarterly and annual research
13	1	Anti-fungal agents , antibiotic produced by fungi	Anti-fungal agents	Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
14	1			Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research
15	1			Theoretical lecture Practical lecture Method of discussion and dialogue	Daily testing. Quarterly test. Discussing quarterly and annual research

342. Course Evaluation: the evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam to extract the annual effort from 40%. As for the final exam, it is 25% for the practical exam and 35% for the theoretical exam.

343. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Levinson, jawitz
Recommended books and references (scientific journals, reports...)	Scientific journals, periodicals and research in the field of medical mycology.
Electronic References, Websites	Google scholar