



**Ministry of Higher Education and Scientific Research**

# **Academic program and course**

**2024**

## Introduction

The educational program is considered a coordinated and organized package of academic courses that includes procedures and experiences organized in the form of academic vocabulary, the main purpose of which is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market. It is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program.

The description of the academic program provides a brief summary of the main features of the program and its courses, indicating the skills that students are working to acquire based on the objectives of the academic program. The importance of this description is evident because it represents the cornerstone of obtaining program accreditation, and the teaching staff participates in writing it under the supervision of the scientific committees in the scientific departments.

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

In this area, we can only emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth conduct of the educational process.

### **Concepts and terminology:**

**Description of the academic program:** 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:**It provides a necessary summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he has 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 an advanced, inspiring, motivating, realistic and applicable program.

**Program message:**It briefly explains the objectives and activities necessary to achieve them, and also identifies the program's development paths and directions.

**Program Goals:**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/study subjects included in the academic program according to the approved learning system (semester, annual, Bologna track), whether it is a requirement (ministry, university, college, or scientific department), along with the number of study units.

**Learning Outcomes:** A compatible set of knowledge, skills, and values that the student has acquired after successfully completing the academic program. The learning outcomes for each course must be determined in a way that achieves the program objectives.

**Teaching and learning strategies:** They are the strategies used by the faculty member to develop the student's teaching and learning, and they are plans that are followed to reach the learning goals. That is, it describes all curricular and extracurricular activities to achieve the learning outcomes of the program.

Academic program description form

University: Al-Furat Al-Awsat Technical University:

Institute: Kufa Institute

Department: Medical Laboratory Techniques

The academic program: Diploma

Final certificate: Technical Diploma

Program: Semester

The description was prepared on 30/4/2024

File filling date: 30/4/2024

Signature:

Dr. Ahmed Fadhel AlShawi

Head of Department:

Date: 30.04.2024

Signature:

Assist. Prof. Nadia Abdul Hadi

Assistant Dean 9/15/2024

Date:

File has been checked by

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance

Division:

Date 9/15/2024

Signature

Signature of the Dean

### See the program.1

Providing graduates with the necessary knowledge and experience in the fields of work in medical laboratories, which include isolating and diagnosing bacteria present in various clinical samples, preparing tissue slides for various organs of the body and preparing them for examination. Thus, the graduate is qualified and acquires scientific and practical skills and has a positive impact on the development of the governmental and private health sector and spreading awareness in Areas of public health in society

### Program message.2

Achieving excellence in teaching and learning, acquiring scientific skills, and implementing educational and training programs and research activities, which leads to enhancing the high capacity in diagnosing various diseases and developing preventive and curative health services so that they are accessible to all members of society.

### Program Goals.3

**The department aims to**

1- Graduated highly skilled technical person capable to work in medical laboratories, conducting routine laboratory analysis, general chemical examinations,

and examining various body fluids such as serum, cerebrospinal fluid, sputum, and semen.

2- Graduate students conduct various researches and contribute to raise the level of health education and cooperation with various organizations.

#### Program accreditation.4

Does the program have program accreditation? From which side?

**No**

#### Other external influences.5

Is there a sponsor for the program?

**No**

#### Program structure.6

comments *	percentage	Study unit	Number of courses	Program structure
	<b>%8.1</b>	<b>11</b>	<b>6</b>	<b>Enterprise requirements</b>
	<b>5.9%</b>	<b>8</b>	<b>3</b>	<b>College requirements</b>
	<b>85.9%</b>	<b>116</b>	<b>22</b>	<b>Department requirements</b>
	<b>–</b>	<b>–</b>	<b>2 months</b>	<b>summer training</b>
				<b>Other</b>

\* Notes may include whether the course is core or elective.

<b>Program description .7</b>				
<b>Credit hours</b>		<b>Name of the course or course</b>	<b>Course or course code</b>	<b>Year/level</b>
<b>practical</b>	<b>theoretical</b>			<b>The first stage/first semester</b>
4	2	Laboratory techniques		
3	2	Slides preparations		
2	2	Laboratory Instruments		
3	2	Histology		
4	2	Analytical chemistry		
2	1	Fundamental of Nursing		
2	1	Computer applications		
0	2	Human Right and Democracy		

4	2	Quality control		<b>First stage/second semester</b>
3	2	Histological techniques		
2	2	Molecular biology		
2	1	Laboratory safety		
2	1	Blood Transfusion		
4	2	Biochemistry		
-	2	English		

4	2	Microbiology		<b>The second stage/first semester</b>
4	2	Hematology 1		
4	2	Clinical Chemistry1		
4	2	Immunology		
4	2	Protozoa		
2	1	Virology		
-	2	Medical Ethics behavior		
-	2	Baath crimes		



4	2	Bacterial Pathogenicity		<b>The second stage/second semester</b>
4	2	Hematology 2		
4	2	Clinical Chemistry 2		
4	2	Clinical immunology		
4	2	Helminthes		
2	1	Medical Mycology		
-	2	Graduation Project		

## 8 – Expected learning outcomes of the program

### Knowledge

Statement of learning outcomes1

Learning Outcomes1  
 Knowledge and understanding  
 1- Clarification  
 Concepts the basic for work in Laboratories Medical  
 a2-Acquisition The skill in to treat Problems And obstacles that Facing a job Laboratories  
 a3- Acquisition Skills the basic for work in Analytics Pathogenesis  
 a4- How writing Reports Medical

### Skills

Statement of learning outcomes2

Learning Outcomes2  
 B 1-Preparing culture media to diagnose microorganisms  
 B 2-Writing results Report  
 B 3 - Capacity on Diagnosis causes of the disease

Statement of learning outcomes3

Learning Outcomes3

### Value

- Quizzes
- Mid-term and final exams
- Group discussion during lectures
- Reports
- Graduation project
- Summer training

### **9–Teaching and learning strategies**

Teaching and learning strategies and methods adopted in implementing the program in general.

**Theoretical and practical lectures and conducting scientific experiments to teach these skills over two years.**

**Summer training at Teaching Hospitals**

### **10–Evaluation methods**

**Implementing it in all stages of the program in general.**

**Evaluating the student inside the classroom through daily attendance, the student’s interaction with the lecture and class discussions, the student’s self-behavior, quiz, semester and final exams.**

**- Homework assignments.**

## 11-The teaching staff

### Faculty members

Preparing the teaching staff		Special requirements/s kills (if any)		Specialization		Scientific rank
lecturer	Staff			Specialty	general	
	✓			Mycology	Biology	Prof. Fadhil Sami-Zhgair
	✓			Microbiology	Biology	Assit. Prof. Dr. Noor Ismail Nasser
	✓			Organic chemistry	Chemistry	Assit. Prof. Dr. Mahmoud Mohy Fahd
	✓				Biology	Assit. Prof. Maysoon Khudair Abdel Abbas
	✓			Clinical and biochemistry	Pathological analyses	Dr. Ahmed Fadhil Alshawi
		✓		Molecular biology	Biology	Lect. Taif Razzaq Majeed
	✓			Parasites	Biology	Lect. Abbas Nasser Hussein
	✓			Physiology	Biology	Assit. Prof. Dr. Rusal Arif Abdel Ali
				Parasites	Biology	Dr. Mona Adel Ismail
				Microbiology	Biology	Lect. Fatima Hamza Sahib
				Histology	Biology	Lect. Noor Ibrahim Abdel Zahra

				Immunity	Biology	Lect. Sarah Hassan Kazem
				Immunology	Pathological analysis	Assit. Lect. Karar Qais Abdel Jalil
					Pathological analysis	Inaam Radi Ahmed
					Pathological analysis	Salma Amer Salem
				Physical chemistry	Chemistry	Lect. Etemad Abdul Ali Abdul Rahman
					Pathological analyses	Ali Abdel Amir Githum
					Biology	Inaam Hashem Gafla
					Biology	Iqbal Yusuf Abdul
					Pathological analysis	Ali Kazem is tired

### **Professional development**

#### **Orienting new faculty members**

Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels.

#### **By holding introductory and skills courses for new staff**

#### **Professional development for faculty members**

Briefly describe the academic and professional development plan and arrangements for faculty members such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

Enroll **the staff in advance courses such as courses on teaching, learning, and skills development**

**Acceptance standard.1**

(Developing regulations related to admission to the college or institute, whether central admission or others mentioned)

**The instructions of Ministry of Higher Education and Scientific Research.**

**The most important sources of information about the program.2**

**Books, Lectures, Researches, Internet, The central library, Experiences Universities Arabic And global.**

**Program development plan .3**

Adding global scientific developments and keeping pace with modern developments in the field of medical laboratories by involving teaching staff in advanced specialized courses.

**Program skills chart**

**Outputs Learning required from the program**

Value				Skills				Knowledge				Essenti al or optiona l?	name The decisi on	Code The decisi on	the year / the level
C4	C3	C2	C1	B 4	B 3	B 2	B 1	a 4	a 3	a2	a 1				


**Please situation Signal in Squares the interview For outputs Learning Individuality from the program Submissive For evaluation**

### Curriculum skills chart

Please check the boxes corresponding to the individual learning outcomes from the programs being evaluated

#### Learning outcomes required from the program

Transferable general and qualifying skills (other skills related to employability and personal development)				Emotional goals And value				Skills objectives of the program				Cognitive goals				Semester /basic	Course Name	Course Code	Year/level
Dr4	Dr3	Dr2	Dr1	C4	C3	C2	C1	B4	B3	B2	B1	a4	a3	a2	a1				
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Laboratory techniques	1	first year/first course
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Slides preparation	2	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Laboratory instruments	3	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Histology	4	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Analytical Chemistry	5	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Assist	Fundamentals of nursing	6	
						*	*							*		Assist	Democracy and human rights	7	
						*	*							*		Assist	Computer Applications	8	



### Curriculum skills chart

Please check the boxes corresponding to the individual learning outcomes from the programs being evaluated

#### Learning outcomes required from the program

Transferable general and qualifying skills (other skills related to employability and personal development)				Emotional goals And value				Skills objectives of the program				Cognitive goals				Sem ester /basic	Course Name	Course Code	
Dr 4	Dr 3	D r2	D r1	C 4	C 3	C 2	C 1	B 4	B 3	B 2	B1	a4	a3	a2	a 1				
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundam ental	Quality Control	1	first year/Second course
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundam ental	Histological techniques	2	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundam ental	Molecular biology	3	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundam ental	Laboratory safety	4	
*	*			*	*	*	*									Fundam ental	Blood transfusion	5	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundam ental	Biochemistr y	6	
					*											Assi st	English Language	7	

### Curriculum skills chart

Please check the boxes corresponding to the individual learning outcomes from the programs being evaluated

#### Learning outcomes required from the programme

Transferable general and qualifying skills (other skills related to employability and personal development)				Emotional goals And value				Skills objectives of the program				Cognitive goals				Sem ester /basic	Course Name	Co urses Code	Yea r/level
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fun dam enta l	Microbi ology	1	Second year/ First Course
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fun dam enta l	Heamatolog y 1	2	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fun dam enta l	Clinical Chemistry 1	3	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fun dam enta l	Immunolog y	4	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fun dam enta l	Protozoa	5	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fun dam enta l	Virology	6	
						*	*									Assist	Medical Ethics	7	

### Curriculum skills chart

Please check the boxes corresponding to the individual learning outcomes from the programs being evaluated

#### Learning outcomes required from the programme

Transferable general and qualifying skills (other skills related to employability and personal development)				Emotional goals And value				Skills objectives of the program				Cognitive goals				Semester /basic	Course Name	Course Code	Year/level
D r4	Dr 3	D r 2	D r 1	C 4	C 3	C 2	C 1	B 4	B 3	B 2	B 1	a 4	a3	a 2	a 1				
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Bacterial pathogenicity	1
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Heamatology 2	2
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Clinical Chemistry 2	3
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Clinical Immunology	4
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Helminthes	5
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Fundamental	Mycology	6

Second Year/ Second Course

## Course description form

1- Clinical Chemistry 1 and 2	
2- Code	
Course/ Year 2 <sup>nd</sup>	
date Preparation this the description 2/18/2024	
Attendance	
In-person	
Total hours/week = 6, Credit = 6/course	
15 weeks each Course 1 <sup>st</sup> course contains L1-15 (90 hr/ 6 credits) 2 <sup>nd</sup> course contains L16-30 (90h/ 6credits)	
Principal Investigator	
Dr. Ahmed Alshawi Email : <a href="mailto:ah_alshawi@atu.edu.iq">ah_alshawi@atu.edu.iq</a>	
Course objectives	
<b>At the end of this course students will be familiar with the most metabolic diseases and methods of laboratory diagnosis</b>	<b>Objectives of the study subject</b>
Teaching and learning strategies	
- Lectures (theory and practical), and group discussion - PowerPoints - Self-education	<b>strategy</b>
Course evaluation .1	
Students are assessed according their activity, experiments attendance, quiz, mid-term exam and final exam.	
Learning and teaching resources .2	
	Required textbooks (methodology, if any)

Clinical Chemistry and metabolism			Main references (sources)		
			Recommended supporting books and references (scientific journals, reports....)		
AK Lecture			Electronic references, Internet sites		
Evaluation Methods	Education Methods	name Unit /or the topic	Outputs Learning required	hours	the week
Quiz, mid and final exam	Theory and Practical Lecture	Introduction, collection and handing of blood samples, anti-coagulant protein receipt ant kinds, urine compassion, urine collection methods urine preservative		2 Theoretical	1
Quiz, mid and final exam	Theory and Practical Lecture	Electrolyte (NA <sup>+</sup> , K <sup>+</sup> , ph-3 , Fe <sup>+3,4</sup> )		2 Theoretical	2
Quiz, mid and final exam	Theory and Practical Lecture	Trace element [cu, co, zn, mg] ,disease appeared in abnormal metabolism of these metals		2 Theoretical	3
Quiz, mid and final exam	Theory and Practical Lecture	Acid base balance in disease appeared in disturbance of acidity and alkaline of blood, types of buffer system.		2 Theoretical	4
Quiz, mid and final exam	Theory and Practical Lecture	Carbohydrate.		2 Theoretical	5

Quiz, mid and final exam	Theory and Practical Lecture	Digestion, absorption in normal condition and abnormal condition		2 Theoretical	6
Quiz, mid and final exam	Theory and Practical Lecture	Glucose Tolerance test in normal condition and in DM		2 Theoretical	7
Quiz, mid and final exam	Theory and Practical Lecture	Glucose metabolism, No. of hormones reside glucose level, hormone decrease blood glucose level		2 Theoretical	8
Quiz, mid and final exam	Theory and Practical Lecture	Types of DM, ketosis, glycosuria.		2 Theoretical	9
Quiz, mid and final exam	Theory and Practical Lecture	Proteins		2 Theoretical	10
Quiz, mid and final exam	Theory and Practical Lecture	Digestion and absorption of proteins in normal and abnormal conditions.		2 Theoretical	11
Quiz, mid and final exam	Theory and Practical Lecture	Abnormal protein types and the disease appeared with these proteins		2 Theoretical	12

Quiz, mid and final exam	Theory and Practical Lecture	Protein metabolism, types of metabolism, protein function		2 Theoretical	13
Quiz, mid and final exam	Theory and Practical Lecture	Electrophoresis of plasma protein, types of blood protein, disease accompanied by these proteins		2 Theoretical	14
Quiz, mid and final exam	Theory and Practical Lecture	Proteinuria, causes, disease accompanied by it.		2 Theoretical	15
Quiz, mid and final exam	Theory and Practical Lecture	Protein determination methods		2 Theoretical	16
Quiz, mid and final exam	Theory and Practical Lecture	Lipid, type of lipids, function classification.		2 Theoretical	17
Quiz, mid and final exam	Theory and Practical Lecture	Digestion, absorption of lipids.		2 Theoretical	18
Quiz, mid and final exam	Theory and Practical Lecture	Metabolism of lipid, disease appeared with abnormal condition		2 Theoretical	19

Quiz, mid and final exam	Theory and Practical Lecture	Cholesterol, triglyceride, free fatty acid.		2 Theoretical	20
Quiz, mid and final exam	Theory and Practical Lecture	Lipoproteins, types, disease accompanied by abnormal condition		2 Theoretical	21
Quiz, mid and final exam	Theory and Practical Lecture	Hyperlipidemia		2 Theoretical	22
Quiz, mid and final exam	Theory and Practical Lecture	Enzyme, important in the body.		2 Theoretical	23
Quiz, mid and final exam	Theory and Practical Lecture	Classification and function of enzymes		2 Theoretical	24
Quiz, mid and final exam	Theory and Practical Lecture	Factors effect on enzyme activity.		2 Theoretical	25
Quiz, mid and final exam	Theory and Practical Lecture	Changes in enzyme activity and the disease accompanied by that change		2 Theoretical	26



Quiz, mid and final exam	Theory and Practical Lecture	liver function test.		2 Theoretical	27
Quiz, mid and final exam	Theory and Practical Lecture	Hormones, types, properties, functions.		2 Theoretical	28
Quiz, mid and final exam	Theory and Practical Lecture	Hormones mechanism, disease accompanied by abnormal secretion		2 Theoretical	29
Quiz, mid and final exam	Theory and Practical Lecture	Tests and comprehensive		2 Theoretical	30

Subject	
Microbiology / bacterial pathogenicity	
Code	
Year	
2023/2024	
date Preparation this the description	
2/18/2024	
Attendance	
In-person	
Total hours/week = 6, Credit = 6/course	
15 weeks each Course	
1 <sup>st</sup> course contains L1-15 (90 hr/ 6 credits)	
2 <sup>nd</sup> course contains L16-30 (90h/ 6credits)	
18	
Principal investigator	
Assi. Prof. Dr. Noor Ismael Naser Email : <a href="mailto:nomasser1984@gmail.com">nomasser1984@gmail.com</a>	
Course objectives	
Students will be familiar with the most fundamental issues of bacteriology	<b>Objectives of the study subject</b>
Teaching and learning strategies .1	
- Lectures (theory and practical), and group discussion - PowerPoints - Self-education	<b>strategy</b>
Course evaluation .2	
Students are assessed according their activity, experiments attendance, quiz, mid-term exam, and final exam.	
Learning and teaching resources .3	
	quired textbooks (methodology, if any)
Medical bacteriology Medical microbiology 3 <sup>rd</sup> edition	in references (sources)
<a href="https://www.ncbi.nlm.nih.gov/pubmed/">https://www.ncbi.nlm.nih.gov/pubmed/</a>	ctronic references, Internet sites

<b>Evaluation methods</b>	<b>Education methods</b>	<b>name Unit \or the topic</b>	<b>Outputs Learning required</b>	<b>hours</b>	<b>the week</b>
Exams Oral And practical	Lectures And Practical	Behavior inside lab	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	1
Exams Oral And practical	Lectures And Practical	Bacterial cell shape aggregation make a smear simple stain.	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	2
Exams Oral And practical	Lectures And Practical	Differential stain, gram stain, acid fast stain, special stain, capsule stain, spore stain, spirochetes stain.	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	3
Exams Oral And practical	Lectures And Practical	Weight composition of media agar classification of media, solidity, function	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	4
Exams Oral And practical	Lectures And Practical	Sterilization and disinfection type of sterilization and disinfection	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	5
Exams Oral And practical	Lectures And Practical	Growth requirement, preparation of media	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	6
Exams Oral And practical	Lectures And Practical	Techniques on media, streaking, stabbing, inoculation, purring.	to understand Subjectivity And portability on application Experiments In a way	6	7

			correct And blogging Results		
Exams Oral And practical	Lectures And Practical	Staphylococcus, character characteristics, lab diagnosis	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	8
Exams Oral And practical	Lectures And Practical	Streptococcus, character characteristics, lab diagnosis	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	9
Exams Oral And practical	Lectures And Practical	Pneumococcus character characteristics, lab diagnosis,	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	10
Exams Oral And practical	Lectures And Practical	Corynebacterium character characteristics, lab diagnosis	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	11
Exams Oral And practical	Lectures And Practical	Mycobacterium character characteristics, lab diagnosis	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	12
Exams Oral And practical	Lectures And Practical	Bacillus general characters, lab diagnosis	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	13
Exams Oral And practical	Lectures And Practical	Clostridium, general characters, lab diagnosis	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	14

Exams Oral And practical	Lectures And Practical	Neisseriae general characters, lab diagnosis	to understand Subjectivity And portability on application Experiments In a way correct And blogging Results	6	15
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<b>Evaluati on method</b>	<b>Teaching method</b>	<b>Name of the unit/topic</b>	<b>Required learning outcomes</b>	<b>hours</b>	<b>the week</b>
Oral and practical exams	Lectures and practical	Haemophilus, general characteristic, laboratory diagnosis	Understand the subject and be able to apply experiments correctly and write down the results	6	16
Oral and practical exams	Lectures and practical	Enterobacteriaceae, general characteristic, lab diagnosis	Understand the subject and be able to apply experiments correctly and write down the results	6	17
Oral and practical exams	Lectures and practical	E.coli, general characteristic, laboratory diagnosis.	Understand the subject and be able to apply experiments correctly and write down the results	6	18
Oral and practical exams	Lectures and practical	klebsiella general characteristic, lab diagnosis	Understand the subject and be able to apply experiments correctly and write down the results	6	19
Oral and practical exams	Lectures and practical	proteus general characteristic, lab diagnosis	Understand the subject and be able to apply experiments correctly and write down the results	6	20
Oral and practical exams	Lectures and practical	Salmonella and shigella general characteristic, lab diagnosis	Understand the subject and be able to apply experiments correctly and write down the results	6	21
Oral and practical exams	Lectures and practical	pseudomonas general characteristic, lab diagnosis	Understand the subject and be able to apply experiments correctly and write down the results	6	22
Oral and practical exams	Lectures and practical	vibrio general characteristic, lab diagnosis	Understand the subject and be able to apply	6	23

			experiments correctly and write down the results		
Oral and practical exams	Lectures and practical	Sensitivity test and introduction to antibiotic	Understand the subject and be able to apply experiments correctly and write down the results	6	24
Oral and practical exams	Lectures and practical	Collection of clinical urine samples	Understand the subject and be able to apply experiments correctly and write down the results	6	25
Oral and practical exams	Lectures and practical	Collection of clinical samples stool. stool	Understand the subject and be able to apply experiments correctly and write down the results	6	26
Oral and practical exams	Lectures and practical	Collection of clinical samples sputum	Understand the subject and be able to apply experiments correctly and write down the results	6	27
Oral and practical exams	Lectures and practical	Collection of clinical samples Body fluid	Understand the subject and be able to apply experiments correctly and write down the results	6	28
Oral and practical exams	Lectures and practical	Collection of clinical samples blood. blood	Understand the subject and be able to apply experiments correctly and write down the results	6	29
Oral and practical exams	Lectures and practical	review	Understand the subject and be able to apply experiments correctly and write down the results	6	30

Subject	
Protozoa / Helminthes	
Code	
year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
In-person	
Number of study hours (total)/number of units (total)	
(180) hours	
Name of the course administrator (if more than one name is mentioned)	
Name: M.D. Mona Adil Ismael Email :	
Course objectives	
<p>Definition and introduction to the most important medical parasitology  Identifying the most important diseases and the most common diseases in laboratories, understanding the mechanism of parasite development, understanding the factors that lead to infection with parasitic diseases, classifying parasites, analyzing the results that students reach and comparing them with standard samples.</p>	
Teaching and learning strategies .1	
<ul style="list-style-type: none"> <li>- Lectures (theory and practical), and group discussion</li> <li>- PowerPoints</li> <li>- Self-education</li> </ul>	<b>strategy</b>
Course evaluation .2	

distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc

Learning and teaching resources .3

Text book of Medical Parasitology/Educational bag	quired textbooks (methodology, if any)
Sources for each subject	in references (sources)
Scientific journals in the field List of publications in parasitology	Recommended supporting books and references (scientific journals, reports....)
Internet	ctronic references, Internet sites

Syllabus

Evaluation	education	name Unit /or the topic	Outputs Learning required	hours	the week
Quiz +Presence	theoretical	Defines the parasites, parasitology types of parasites, Types of host Classification of parasites Protozoa + metazoan Metazoa [helminthes and arthropoda]	He recognize s requester on	2 Theoretical	the first
Quiz +Presence	theoretical	Introduction generally in characteristic feature of protozoa and classification:- Rhizopoda, Mastigophora, Cilophora (ciliate), Telospora	Understands requester the topic	2 Theoretical	the second
Quiz +Presence	theoretical	Class Rhizopoda Pathogenic amoeba <u>Entamoebahistolytica</u> Morphology, life cycle, pathogenicity, Lab.diagnosis	Understands requester the topic	2 Theoretical	the third
Quiz +Presence	theoretical	Few of morphology, pathogenicity, diagnosis of:- Entamoeba gingivalis, A canthomoeba, Naegleria	Understands requester the topic	2 Theoretical	the fourth
Quiz +Presence	theoretical	Different between Entamoeba coli and E. histolytica. and morphology, Lab, diagnosis of Iodamoeba butschlii, Endolimax nana, E. Dispar, Dientamoeba fragilis	Understands requester the topic	2 Theoretical	Fifth
Quiz +Presence	theoretical	Class Mastigophor or Flagellates generally introduction in characteristic feature and classification in (intestinal flagellates, blood and tissue flagellates, genital flagellates). Intestinal Flagellate:-	Understands requester the topic	2 Theoretical	VI



		<u>Giardialamblia</u> , <u>Chilomastix mesnili</u> , <u>Trichomonas hominis</u> , Morphology, life cycle, pathogenicity, and lab. Diagnosis			
Quiz +Presence	theoretical	Genital flagellate <u>Trichomonasvaginales</u> Oral flagellates <u>Trichomonastenax</u> Morphology, pathogenicity and lab. diagnosis	Understands requester the topic	2 Theoretical	Seventh
Quiz +Presence	theoretical	Tissue and blood flagellate Haemoflagellate forms. <u>Lishmaniadonovani</u> <u>Lishmaniatropica</u> <u>Lishmaniabrazeliencis</u> Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	VIII
Quiz +Presence	theoretical	<u>Trypanosomacruzi</u> <u>Trypanosomabrucei</u> Morphology, life cycle, pathogenicity, Lab. Diagnosis Sample of Tse-tse fly and Reduviid bug.	Understands requester the topic	2 Theoretical	Ninth
Quiz +Presence	theoretical	Class Ciliophra (cilata) <u>Plantidiumcoli</u> Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	The tenth
		Review	review For the material Previous	2 Theoretical	the tenth
Quiz +Presence	theoretical	Class Sporozoa General introduction of characteristic features of sporozoa. Life cycle in general of Plasmodium spp. In man and insects.	Understands requester the topic	2 Theoretical	the second ten
Quiz +Presence	theoretical	<u>Plasmodiumvivax</u> <u>Plasmodiumovale</u> pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	the third ten
Quiz +Presence	theoretical	<u>Plasmodiummalariae</u> <u>Plasmodiumfalciparum</u> pathogenicity, Lab. Diagnosis and short notes of parasites Babesia spp. The differences in lab. diagnosis with Plasmodium spp.	Understands requester the topic	2 Theoretical	the fourth ten

Quiz +Presence	theoretical	<u>Isosporiabelli</u> , <u>Toxoplasma gondii</u> Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	Fifth ten
Quiz +Presence	theoretical	<u>Cryptosporidium</u> spp. Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	VI ten
Quiz +Presence	theoretical	Review and examination (First one)	Understands requester the topic	2 Theoretical	Seventh ten
Quiz +Presence	theoretical	In general introduction of characteristic features of metazoa Helminthes (cestoda, trematoda and nematoda)	Understands requester the topic	2 Theoretical	VIII ten
Quiz +Presence	theoretical	Class Cestoda <u>Taeniasaginata</u> <u>Taeniasolium</u> Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	Ninth ten
Quiz +Presence	theoretical	<u>Hymenolepis</u> nana <u>Hymenolepis</u> diminuta Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	The twentieth h
Quiz +Presence	theoretical	<u>Echinococcus</u> granulosis Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	atheistic And the twenty
Quiz +Presence	theoretical	Class Trematoda In general life cycle of <u>Schistosoma</u> spp. <u>Schistosoma</u> haematobium <u>Schistosoma</u> mansonii <u>Schistosoma</u> japonicum Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands requester the topic	2 Theoretical	the second And the twenty
Quiz +Presence	theoretical	Short notes of (liver flukes) <u>Fasciola</u> hepatica (Lung flukes) <u>Fasciola</u> buski	Understands requester the topic	2 Theoretical	the third

		(intestinal flukes) Heterophyes heterophes Lab. diagnosis	er the topic		And the twenty
Quiz +Presence	theoretical	Class Nematode <u>Ascarislumbricoides</u> <u>Trichuristrichura</u> Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands request er the topic	2 Theoretical	the fourth And the twenty
Quiz +Presence	theoretical	<u>Enterobiusvermicularis</u> <u>Ancylostomadudenale</u> <u>Necatoramericanus</u> Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands request er the topic	2 Theoretical	Fifth And the twenty
Quiz +Presence	theoretical	Larvae migrans in humans 1-cutaneous larvae migrans <u>Ancylostomacanicum</u> <u>Schistosomasp.</u> 2-subcutaneous larva migrans (scrow worm)(Myiasis) 3-visceral larva migrans <u>Toxocaraspp.</u> pathogenicity, Lab. diagnosis	Understands request er the topic	2 Theoretical	VI And the twenty
Quiz +Presence	theoretical	Filaria <u>Wuchereriabancrofti</u> Loa loa Morphology, life cycle, pathogenicity, Lab. diagnosis	Understands request er the topic	2 Theoretical	Seventh And the twenty
Quiz +Presence	theoretical	Short notes of class Annelida Hirudo medicinalis in human morphology and laboratory. Diagnosis. And from metazoan Class Arthropoda Short notes of morphology and lab. diagnosis, some pathogenicity of 1-insect (Anopheline, Sand fly, Tsetse fly, Reduviid bug, Culex, lice, Fleas, Cimex) 2-Arachnids Mites, tick	Understands request er the topic	2 Theoretical	VIII And the twenty
		Review	review For the material Previous		Ninth And the twenty
		Examination (one second) And final examination			thirty

Subject	
Mycology and Virology	
Code	
year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
In-person	
Number of study hours (total)/number of units (total)	
Name of the course administrator (if more than one name is mentioned)	
Name: Lect. Fatima Hamza Sahib Email :	
Course objectives	
<p><b>Providing the student with the necessary information to know the types of fungi that cause the infection and ways to prevent it, as well as knowing the types of fungi</b></p>	
Teaching and learning strategies .1	
<ul style="list-style-type: none"> <li>- the explanation And clarification on road Lectures</li> <li>- road an offer Materials Scientific With devices the offer Data what And a screen the offer .</li> <li>- education Self on road Preparation Reports in Laboratories Cases Pathogenesis</li> <li>- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems</li> <li>-Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals</li> <li>-Visit of practical laboratories by academic staff</li> </ul>	strategy

Course evaluation .2

distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc

Learning and teaching resources .3

<b>Educational bags</b>	quired textbooks (methodology, if any)
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<b>Jawetz medical microbiology</b>	in references (sources)
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<b>Practical microbiology</b>	Recommended supporting books and references (scientific journals, reports....)
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	ctronic references, Internet sites
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Medical Mycology					
Evaluation	education	name Unit /or the topic	Outputs Learning required	hours	the week
Exams Oral And practical	Lectures And Practical	Introduction of medical fungi	to understand the introduction the basic on Fungi	3	1
Exams Oral And practical	Lectures And Practical	Structure, reproduction and classification	Did you get me? Fungi And its installation And knock Its reproduction	3	2
Exams Oral And practical	Lectures And Practical	Cultural characteristics, type of mycosis	to understand Properties And types Mycosis	3	3&4
Exams Oral And practical	Lectures And Practical	General principles in treatments	Identify on basics Methods treatment	3	5
Exams Oral And practical	Lectures And Practical	Actinomyces, Novartis, Myeloma	Identify on Species Fungal	3	6&7
Exams Oral And practical	Lectures And Practical	Dermatophytes	Identify on Its types Her recipes the basic	3	8
Exams Oral And practical	Lectures And Practical	Candidiasis	knowledge Candida Her recipes	3	9
Exams Oral And practical	Lectures And Practical	Cytococcosis	to understand the topic	3	10
Exams Oral And practical	Lectures And Practical	Cryptococcosis	to understand the topic	3	11
Exams Oral And practical	Lectures And Practical	Histoplasmosis, sporotrichosis	to understand the topic	3	12

Exams Oral And practical	Lectures And Practical	Miscellaneous fungi, Aspergillosis, mucor	study What is related? By types mentioned	3	13
Exams Oral And practical	Lectures And Practical	Rhizomes, penicillium	to understand the topic	3	14
Exams Oral And practical	Lectures And Practical	Antifungal agent, antibiotic produced by Fungi	to understand the topic And knowledge pharmaceutical Extracted from Fungi	3	15

Subject	
<b>Laboratory Techniques / Quality Control</b>	
Code	
year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
In-person	
Number of study hours (total)/number of units (total)	
<b>180 hours (60 theoretical hours + 120 practical hours)</b>	
Principal Investigator	
Name: Haider Ali Mohammed Alnaji Email :	
Course objectives	
<b>1- At the end of the study stage, the student will have mastered the foundations of laboratory techniques, serums, tests, methods of performing them, and high technology in order to reach the most accurate results. At the end of the study</b>	

<p>stage, the student will also learn about the parts of the immune system, its function, and how diseases are resisted in the body. The student will be familiar with the operation of laboratory tools and how to deal with laboratory models that come to the serology or serum science laboratory.</p> <p>2- The student's knowledge of sterilization methods and their importance in staying away from pollutants and diseases</p> <p>3-Learning about microbiology and methods for preparing agricultural media, cultivating microorganisms, and destroying them through sterilization.</p> <p>3-Knowing the URN test and its importance in diagnosing kidney and body diseases</p> <p>4-Learn about the exit test and its importance in detecting digestive system diseases and parasites</p>	
Teaching and learning strategies .1	
<ul style="list-style-type: none"> <li>- the explanation And clarification on road Lectures</li> <li>- road an offer Materials Scientific With devices the offer Data what And a screen the offer .</li> <li>- education Self on road Preparation Reports in Laboratories Cases Pathogenesis</li> <li>- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems</li> <li>-Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals</li> <li>-Visit of practical laboratories by academic staff</li> </ul>	strategy
Course evaluation .2	
distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc	
Learning and teaching resources .3	
<b>Immunity and serum book</b>	quired textbooks (methodology, if any)
<b>Basic Immunology: Functions And Disorders Of The Immune System byAbul K. Abbas</b>	in references (sources)



<b>1- Beat auto immune</b> <b>2- Janeway's</b> <b>3-Kuby</b> <b>4- Fundamental</b> <b>-Pubmed5</b> <b>6-Lippincott</b>	Recommended supporting books and references (scientific journals, reports....)
<b>Pubmed(NCBI data base)</b> <b>Science direct</b> <b>Google scholar</b>	Electronic references, Internet sites

<b>Course structure Laboratory techniques and quality control</b>					
Evaluation method	Teaching method	Name of the unit/topic	Required learning outcomes	hours	the week
Questioning or testing students as needed	a lecture		Introduction to quality control	Two hours theoretical and four hours practical	The first week
Questioning or testing students as needed	a lecture		Medical relief of QA, Standardized units of the international system	Two hours theoretical and four hours practical	the second
Questioning or testing students as needed	a lecture	Exit test	Balancing error detection and false rejection	Two hours theoretical and four hours practical	3-4-5
Questioning or testing students as needed	a lecture	n	Quality control materials	Two hours theoretical and four hours practical	Sixth and seventh

Questioning or testing students as needed	a lecture		QA techniques for quantitative results	Two hours theoretical and four hours practical	VIII
	a lecture		QA techniques for qualitative results	Two hours theoretical and four hours practical	Ninth
	a lecture		QA techniques for semi-quantitative results	Two hours theoretical and four hours practical	The tenth
Questioning or testing students as needed	a lecture		Troubleshoot based on QA results	Two hours theoretical and four hours practical	eleven
Questioning or testing students as needed	a lecture		review.	Two hours theoretical and four hours practical	12-13-14-15

name The decision	
<b>Slides Preparation</b>	
Code	
Year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
In-Person	
Number of study hours (total)/number of units (total)	
<b>2 theoretical + 3 practical</b> <b>Total60 theoretical hours and 90 practical hours annually</b>	
Name of the course administrator (if more than one name is mentioned)	
Assi. Prof. Dr. Sahira <b>Aid Abdul Sahib</b> Email :	
Course objectives	
Qualifying Students And their numbers for work in area search Scientific and more Their ambition And encourage them To complete Studies Primary And Supreme in area Preparations Microscopic Being from Domains that to attest development scientific marked . to encourage search Scientific and gain Students Skills the basic that Qualifies them for work in Laboratories Preparations Histological.	
Teaching and learning strategies .1	
- the explanation And clarification on road Lectures - road an offer Materials Scientific With devices the offer Data what And a screen the offer . - education Self on road Preparation Reports in Laboratories Cases Pathogenesis	strategy

<ul style="list-style-type: none"> <li>- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems</li> <li>-Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals</li> <li>-Visit of practical laboratories by academic staff</li> </ul>	
<p>Course evaluation .2</p>	
<p>distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc</p>	
<p>Learning and teaching resources .3</p>	
	<p>quired textbooks (methodology, if any)</p>
<p><b>book Optical microscopic preparations - theory and application</b></p>	<p>in references (sources)</p>
<p><b>Bancroft, J. and Stevens, A. Theory and Practice of Histological Techniques. Churchill Livingstone, London. 2002.</b></p>	<p>Recommended supporting books and references (scientific journals, reports....)</p>
<p><b>Multi</b></p>	<p>ctronic references, Internet sites</p>

structure The decision.10					
Evaluation	education	name Unit /or the topic	Outputs Learning required	hours	the week
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	identification Terminology Histological	Definition of some terminology that deals with histology, cytology,...etc.	Two hours theoretical +3 hours practical	the first
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	plural Models The snake And samples Post death	Sample collection, biopsy, and autopsy.	Two hours theoretical +3 hours practical	the second
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	steps to prepare Weaving, installation And stabilizers	Steps of preparing tissue for study, fixation, fixatives.	Two hours theoretical +3 hours practical	the third And the fourth
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	Installation Routine And installation private	Routine fixatives and special fixatives.	Two hours theoretical +3 hours practical	Fifth And the sixth
Exams And	a lecture theory	Solutions And time Washing	Washing, solution, time.	Two hours	Seventh

short, And Quarterly, And the final	using program powerpoint			theoretical +3 hours practical	
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	Drying And stabilizers	Dehydration, dehydrants.	Two hours theoretical +3 hours practical	VIII
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	Entertainment And types Al-Murrawaqat	Clearing, clearing agents	Two hours theoretical +3 hours practical	Ninth
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	Saturation, types Wax	Infiltration, types of waxes.	Two hours theoretical +3 hours practical	The tenth
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	Casting And pruning	blocking and trimming.	Two hours theoretical +3 hours practical	atheistic ten
Exams And short, And Quarterly, And the final	a lecture theory using program powerpoint	device Cutting, cutting	Microtomes, Sectioning.	Two hours theoretical +3 hours practical	the second ten
Exams And short,	a lecture theory using		Review	Two hours theoretical	the third ten

And Quarterly, And the final	program powerpoi nt			cal +3 hours practical	And the fourth ten
			Final exam		Fifth ten

Subject	
<b>Laboratory Instrument</b>	
Code	
Year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
In-Person	
Number of study hours (total)/number of units (total)	
<b>60 hours (30 theoretical hours + 30 practical hours)</b>	
Name of the course administrator (if more than one name is mentioned)	
the name : Email :	
Course objectives	
<b>1-Empowerment the students from to understand Tools Medical Main.</b>	

<b>2-Empowerment the students from to set any Importance For this Tools using Experiments Analytical Laboratory</b>	
Teaching and learning strategies .1	
<ul style="list-style-type: none"> <li>- the explanation And clarification on road Lectures</li> <li>- road an offer Materials Scientific With devices the offer Data what And a screen the offer .</li> <li>- education Self on road Preparation Reports in Laboratories Cases Pathogenesis</li> <li>- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems</li> <li>-Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals</li> <li>-Visit of practical laboratories by academic staff</li> </ul>	<b>strategy</b>
Course evaluation .2	
distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc	
Learning and teaching resources .3	
<b>Pathological analysis book</b>	quired textbooks (methodology, if any)
<b>Book Introduction to Medical Laboratory Technology By FJ Baker and RE Silverton Butter worths. 2. Binding practical Practical Medical Technology By MDA 1986</b>	in references (sources)
<b>Ashour Al Nuaimi Pathological analyses Al-Wajeez in Pathological Analysis.</b>	Recommended supporting books and references (scientific journals, reports....)
<b>Pubmed(NCBI data base) Science direct Google scholar</b>	ctronic references, Internet sites



Course structure					
Evaluation method	Teaching method	Name of the unit/topic	Required learning outcomes	hours	the week
Questioning or testing students as needed	a lecture	Definition of the microscope, its types, parts, and operating principle	<b>MICROSCOPES</b> Uses, main parts, principles of work, types, types of condensers, operation, cleaning, service and maintenance.	Two hours of theory and two hours of practical	the first
Questioning or testing students as needed	a lecture	Definition of the scale, its types, parts, and its working principle	<b>BALANCES</b> Uses, types of balances, main part, principle of operation, operation, service and maintenance.	Two hours of theory and two hours of practical	the second
Questioning or testing students as needed	a lecture	Definition of the spectrophotometer, its types, parts, and operating principle	<b>PHOTOMETRY</b> Introduction, Light and wave length, Beer lamberts Law, types of photometers, main parts, filters, prisms and diffraction gratings, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	the third
Questioning or testing students as needed	a lecture	Definition of the flame spectrometer, its types, parts, and operating principle	<b>FLAME PHOTOMETRY</b> Introduction, Uses, main parts, types, atomizers, principles of operation, operation and maintenance.	Two hours of theory and two hours of practical	the fourth

Questioning or testing students as needed	a lecture	Definition of the atomic spectrometer, its types, parts, and operating principle	<b>ATOMIC ABSORPTION SPECTROPHOTOMETRY</b> Introduction, uses, types, main parts, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	Fifth
Questioning or testing students as needed	a lecture	Definition of the centrifuge, its types, parts, and operating principle	<b>CENTRIFUGES</b> Uses, types, main parts, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	VI
Questioning or testing students as needed	a lecture	Definition of the sterilization device, its types, parts, and working principle	<b>AUTOCLAVES</b> Introduction, uses, types, main parts, principle of operation, sterilization, operation and maintenance	Two hours of theory and two hours of practical	Seventh
Questioning or testing students as needed	a lecture	Definition of the acidity measuring device, its types, parts, and operating principle	<b>PH METERS</b> Uses, types, main parts, electrodes, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	VIII
Questioning or testing students as needed	a lecture	Definition of the slide cutter, its types, parts, and its working principle	<b>MICROTOMS</b> Uses, types, main parts, sharpeners, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	Ninth

Questioning or testing students as needed	a lecture	Definition of the electrical relay device, its types, parts, and operating principle	<b>ELECTROPHORESIS</b> Uses, types, main parts, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	The tenth
Questioning or testing students as needed	a lecture	Definition of the water bath and oven, the types of each of them, their parts, and their working principle	<b>HEATING INSTRUMENTS (WATER BATHS, OVEN &amp; INCUBATION)</b> Uses, types, main parts, thermostats, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	eleventh
Questioning or testing students as needed	a lecture	Distillation device, its types, parts, and method of operation	<b>WATER PURIFICATION (DISTILLATORS &amp; DEIONIZERS)</b> Distillator, deionizers, uses, main parts, operation and maintenance.	Two hours of theory and two hours of practical	twelfth
Questioning or testing students as needed	a lecture	The self-analysis device, its types, uses, and working principle	<b>AUTOANALYZERS</b> Introduction, uses, types, main parts, principle of operation, operation and maintenance.	Two hours of theory and two hours of practical	Thirteenth
Questioning or testing students as needed	a lecture	A review of all the past	<b>Review</b>	Two hours of theory and two hours of practical	fourteenth
Written exam	final exam	An examination	<b>Final exam</b>	Two hours of theory and two	Fifteenth

		ion of all previous lectures		hours of practical	
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Subject	
<b>Histology</b>	
Code The decision	
the chapter / the year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
My presence	
Number of study hours (total)/number of units (total)	
<b>60 hours (30 theoretical hours + 30 practical hours)</b>	
Name of the course administrator (if more than one name is mentioned)	
Noor Ibrahim Email :	
Course objectives	
Qualifying Students To find out science Tissue And examinations Histological All'- solution the problems Medical And scientific that Belonging to area Tissue Pathogenicity' Aim to to Graduating Angels Technique able on the job in Laboratories Medical Governmental And eligibility	
Teaching and learning strategies .1	
- the explanation And clarification on road Lectures - road an offer Materials Scientific With devices the offer Data what And a screen the offer . - education Self on road Preparation Reports in Laboratories Cases Pathogenesis - Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems -Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals -Visit of practical laboratories by academic staff	strategy

Course evaluation .2

distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc

Learning and teaching resources .3

<b>Basic histology Atlas and text of histology</b>	quired textbooks (methodology, if any)
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<b>TEXT book of HISTOLOGY Atlas of histology</b>	in references (sources)
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<b>Practical histology Junqueiras basic histology</b>	Recommended supporting books and references (scientific journals, reports....)
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<b>locationHISTOLOGY GUIDE HISTOLOGY WORLD</b>	ctronic references, Internet sites
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structure The decision.10					
road Evaluation	road education	name Unit /or the topic	Outputs Learning required	hours	the week
Quiz +Presence	theoretical	Shape of cell		2 Theoretical	the first
Quiz +Presence	theoretical	Epithelial tissue – simple epithelium. T.		2 Theoretical	the second
Quiz +Presence	theoretical	Epithelial tissue- Stratified epithelium. T.		2 Theoretical	the third
Quiz +Presence	theoretical	Connective tissue – Loose co. t.		2 Theoretical	the fourth
Quiz +Presence	theoretical	Connective tissue-dense co. t.		2 Theoretical	Fifth
Quiz +Presence	theoretical	Connective tissue -the blood		2 Theoretical	VI
Quiz +Presence	theoretical	Connective tissue -compact bone		2 Theoretical	Seventh
Quiz +Presence	theoretical	External feature of digestive system		2 Theoretical	VIII
Quiz +Presence	theoretical	Urogenital system of male &female		2 Theoretical	Ninth
Quiz +Presence	theoretical	Live		2 Theoretical	The tenth
		Spleen		2 Theoretical	the tenth
Quiz +Presence	theoretical	Lymph node		2 Theoretical	the second ten

Quiz +Presence	theoretical	Circulatory system (Artery)		2 Theoreti cal	the third ten
	theoretical	Circulatory system (vein)		2 Theoreti cal	the fourth ten
	theoretical	Final exam		2 Theoreti cal	Fifth ten



Subject	
<b>Molecular biology</b>	
Code	
Year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
In-Person	
Number of study hours (total)/number of units (total)	
<b>(60) hours</b>	
Name of the course administrator (if more than one name is mentioned)	
Taif Razaq Majed Email :	
Course objectives	
<p>Training the student in the necessary skills to deal with biological models used in analysis. Providing the student with theoretical information and practical lessons in various specializations related to his profession. Training the student to use the techniques used in medical laboratories.</p>	
Teaching and learning strategies .1	
<ul style="list-style-type: none"> <li>- the explanation And clarification on road Lectures</li> <li>- road an offer Materials Scientific With devices the offer Data what And a screen the offer .</li> <li>- education Self on road Preparation Reports in Laboratories Cases Pathogenesis</li> <li>- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems</li> </ul>	<b>strategy</b>

-Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals -Visit of practical laboratories by academic staff	
Course evaluation .2	
distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc	
Learning and teaching resources .3	
<b>Text book ofMolecular Biology</b>	quired textbooks (methodology, if any)
<b>Sources for each subject Study Book and assist book</b>	in references (sources)
<b>Scientific journals in the field Lippincott Illustrated Reviews: Cell and Molecular Biology</b>	Recommended supporting books and references (scientific journals, reports....)
<b>Internet</b>	ctronic references, Internet sites

Evaluation	education	name Unit /or the topic	Outputs Learning required	hours	the week
Quiz +Presence	theoretical	Introduction to molecular biology		2 Theoretical	the first
Quiz +Presence	theoretical	Cell cycle		2 Theoretical	the second
Quiz +Presence	theoretical	DNA and RNA structure		2 Theoretical	the third
Quiz +Presence	theoretical	DNA replication		2 Theoretical	the fourth
Quiz +Presence	theoretical	DNA transcription		2 Theoretical	Fifth
Quiz +Presence	theoretical	Translation and protein synthesis		2 Theoretical	VI And Seventh
Quiz +Presence	theoretical	Gene expression and regulation		2 Theoretical	VIII
Quiz +Presence	theoretical	Inhibitors of translation and transcription		2 Theoretical	Ninth And The tenth
Quiz +Presence	theoretical	<u>DNA repair system</u>		2 Theoretical	the tenth
Quiz +Presence	theoretical	Mutation and chromosomal aberrations		2 Theoretical	the second ten
Quiz +Presence	theoretical	Chemical and physical agents that cause mutation		2 Theoretical	the third ten
Quiz +Presence	theoretical	Recombinant DNA technology (cDNA technique)		2 Theoretical	the fourth ten

Quiz +Presence	theoret ical	Cloning and application (briefly)		2 Theore tical	Fifth ter
Subject					
<b>Biochemistry</b>					
Code					
year					
2023/2024					
date Preparation this the description					
2/18/2024					
Available attendance forms					
In-Person					
Number of study hours (total)/number of units (total)					
<b>30 hours theoretical +60 hours =90 hours</b>					
Name of the course administrator (if more than one name is mentioned)					
Assi. Prof. Dr. Mahmoud Muhya Fahad Email :					
Course objectives					
<p>At the end of the second semester, the student will have benefited from the biochemistry subject in knowing the structure of the cell and the basic biochemical components, knowing their types, distinguishing between compounds, and calculating energy.</p> <p>The student benefited from qualitative and quantitative diagnosis methods for carbohydrates, amino acids, enzymes, and the mechanism of detecting them using reagents.</p> <p>He benefited from biochemistry in knowing the tools, chemical</p>					

devices, and reagents available in the laboratory.	
Teaching and learning strategies .1	
<ul style="list-style-type: none"> <li>- the explanation And clarification on road Lectures</li> <li>- road an offer Materials Scientific With devices the offer Data what And a screen the offer .</li> <li>- education Self on road Preparation Reports in Laboratories Cases Pathogenesis</li> <li>- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems</li> <li>-Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals</li> <li>-Visit of practical laboratories by academic staff</li> </ul>	strategy
Course evaluation .2	
distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc	
Learning and teaching resources .3	
<b>Lippincotts biochemistry</b>	quired textbooks (methodology, if any)
<p>*-Jacob Anthikad, Nutrition and Biochemistry for Nurses, 1st Ed., 2009.</p> <p>Reference Books</p> <p>1- Jaroslav Racek and Daniel Rajdl, Clinical Biochemistry, first ed, 2016</p> <p>2- Herbert Fromm and Mark Hargrove, Essentials of Biochemistry, 2012</p> <p>3- Vijay Kumar Kiran Dip Gill, Basic Concepts in Clinical Biochemistry: A Practical Guide, 2018</p> <p>4- Uma Bhardwaj &amp; Ravindra Bhardwa, Biochemistry for Nurses, 2012</p> <p>5-DM Vasudevan, Sreekumari S &amp; Kannan Vaidyanathan, Textbook of Biochemistry for Medical Students, 2013</p>	in references (sources)

Scientific journals, periodicals and research in the field	Recommended supporting books and references (scientific journals, reports....)
Science direct Google scholar	Electronic references, Internet sites

Evaluation	education	name Unit /or the topic	Outputs Learning required	hours	the week
a test after lecture	a lecture	introduction on Chemistry life And components cell	Biochemistry Biochemistry compounds, cell.		the first
Questions quiz. quiz	a lecture	Species Carbohydrates And its classification	Carbohydrates, classification, its presence, its importance, General properties of monosaccharide's.		the second
	a lecture	Importance Sugars Unilateralism And dualism And multiple And mechanisms To reduce it in inside Human	Important monosaccharide's. Derivatives of monosaccharide's, reducing sugars. Its presence in human body, its reactions Disaccharides and polysaccharides properties, reactions occurrence		the third

	a lecture	Fats And its classification And its characteristics	Lipids, classification, properties. Fatty acids, properties, reactions		the fourth
Questions quiz. quiz	a lecture	Acids The fat the basic	Essential fatty acids and essential fatty acids. properties, reactions. Unsaturated fatty acids, properties its importance,		Fifth
	a lecture	Fats Derived And cholesterol	Compound lipids, derived lipids cholesterol, its existence		VI
	a lecture	Proteins And acids The honest one	Proteins, general properties, peptide bond. Amino acids, properties, occurrence.		Seventh
Questions quiz. quiz	a lecture	classification Acids The honest one And proteins	Amino acid, classification, reactions. Classification of proteins, chemical properties of proteins		VIII
	a lecture	Methods Season Vehicles by Chromatography	Separation of organic compounds by chromatography.		Ninth
	a lecture	Season Acids The honest one	Separation of amino acids. Examination		The tenth
Questions quiz. quiz	a lecture	Sour Al-Nawawi	Nucleic acids, nucleoprotein, analysis of nucleoprotein.		athestic ten
	a lecture	Enzymes	Enzymes, nomenclature, classification. Enzymes, properties, factors in fleeing the rate of enzymatic reactions. Enzyme, inhibitions.		the second ten
Questions quiz. quiz	a lecture	Hormones And its classification	Hormones, properties. Classification of hormones. Protein hormones, non protein hormones		the third ten

		n And the difference on Enzymes		
		Vitamins	Vitamins, water soluble vitamins, classification, occurrence, deficiency.	the fourth ten
		Vitamina Lupus in water And melted in Fats	Fat soluble vitamins, classification, occurrence, complete deficiency of vitamins.	Fifth ten

Subject
<b>Chemistry Analytical</b>



Code	
the chapter / the year	
2023/2024	
date Preparation this the description	
2/18/2024	
Available attendance forms	
In-Person	
Number of study hours (total)/number of units (total)	
<b>30 hours theoretical +60 hours =90 hours</b>	
Name of the course administrator (if more than one name is mentioned)	
the name : Email :	
Course objectives	
<p>At the end of the first semester, the student will have benefited from the analytical chemistry course in knowing the atom and its components, knowing matter and its types, and the law of conservation of matter and energy. The student benefited from qualitative diagnostic methods, delamination methods, measuring weight, pH level, types of sediments, and preparing solutions.</p> <p>He benefited from analytical chemistry in knowing the chemical tools and equipment available in the laboratory.</p>	
Teaching and learning strategies .1	
<ul style="list-style-type: none"> <li>- the explanation And clarification on road Lectures</li> <li>- road an offer Materials Scientific With devices the offer Data what And a screen the offer .</li> <li>- education Self on road Preparation Reports in Laboratories Cases Pathogenesis</li> </ul>	strategy

<ul style="list-style-type: none"> <li>- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems</li> <li>-Applying the topics studied theoretically at the practical level in various laboratories affiliated with teaching hospitals</li> <li>- Visiting practical laboratories by academic staff</li> </ul>	
<p>Course evaluation .2</p>	
<p>distribution Class from 100 on according to mission Assigned With it requester like Preparation Daily And exams Daily And oral And monthly And editorial And reports ....etc</p>	
<p>Learning and teaching resources .3</p>	
<p><b>Analytical chemistry book</b></p>	<p>quired textbooks (methodology, if any)</p>
<p><b>Skoog analytical chemistry</b> <b>Gary analytical chemistry</b></p>	<p>in references (sources)</p>
<p><b>Analytical chemistry journal</b> <b>Analytical Methods</b></p>	<p>Recommended supporting books and references (scientific journals, reports....)</p>
<p><b>Science direct</b> <b>Google scholar</b></p>	<p>ctronic references, Internet sites</p>

Evaluation	education	name Unit /or the topic	Outputs Learning required	hours	the week
a test after lecture	a lecture	introduction on Chemistry Analytical	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.(Debroley equation). Matter, classification.		the first
Questions quiz. quiz	a lecture	Species The bonds – Methods Analysis Qualitative And quantitative	Chemical bonds, covalent, ionic, coordination, hydrogen. Methods of analysis. qualitative and quantitative, statistical Methods of quantitative analysis, errors in quantitative analysis		the second
	a lecture	Methods Expression on the focus – Solutions	Methods of expressing concentration of solution, Molar solution ,normal solution Preparation of molar solution, dilution, questions		the third
	a lecture	Balance Chemist	Percentage composition, part per million. Chemical equilibrium, ionization, constant of water (PH and POH).		the fourth

Questions quiz. quiz	a lecture	ionize Electrolyte The weak	Ionization of weak electrolyte. Calculation of PH of weak acids and weak bases. Buffer solutions, classification		Fifth
	a lecture	Solutions Pvr	Calculation of buffer solutions Uses of buffer solutions.		VI
	a lecture	classification Analysis Volumetric	Volumetric analysis, classification, standard solution, examples Neutralization reactions.		Seventh
Questions quiz. quiz	a lecture	Interactions Oxidative stress And shorthand	Oxidation and reduction reactions. examples Precipitation reactions.		VIII
	a lecture	Guide – His theory – Properties - Interactions	Theory of indicators, reaction, properties, examples , reaction , properties , examples. Types of indicators		Ninth
	a lecture	principle Chromaticity	Principles of colorimetry.		The tenth
Questions quiz. quiz	a lecture	Law Bert Lambert	Beer-lambert law.		atheistic ten
	a lecture	Solutions standard	Standard solution/calibratio n curve.		the second ten
Questions quiz. quiz	a lecture	Devices Measurements Chromaticity	Instruments of colorimetry.		the third ten
	Exam		Examination		the fourth ten
	Exam		Examination		Fifth ten



