

**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:... Wasit

Faculty/Institute:... College of Sciences

Scientific Department:... Pathological Analysis

Academic or Professional ProgramName: Bachelor's degree. Pathological Analysis .

Final Certificate Name: Bachelor's degree in... Pathological Analysis .

Academic System: Quarterly

Description Preparation Date

1/9/2024

Completion Date: ٠١/٤/2024

Signature:



Head of Department Name:

Prof. Dr. Mohammed R. S. Al-Attabi

Date:

Signature:



Faiq Jameel Hassan

Scientific Associate Name

:Date:

The file is checked by:

Department of Quality Assuranceand University Performance

DirectoroftheQualityAssuranceandUniversityPerformanceDepartment:Date:

Signature:



Approval of the Dean

1. Program Vision

Department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field.

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the medical bacteria in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of bacteria so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College Requirements				

Department Requirements				Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Second		Medical bacteria	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education)

10. Evaluation methods
Exam marks, Research, reports and tests, attendance.

11. faculty				
Faculty members				
Number of the teaching staff		Special Requirements/Skills (if applicable)	Specialization	Academic Rank
Lecturer	Staff			
	yes		Animal Physiology	Mohammed Raji Shibil
	yes		Virology	Hussein Ali Al-Bayati
	yes		Biotechnology	Ahmed Darwish Jabbar
	yes		Genetic Engineering and Biotechnology	Mahdi Saber Laibi
	yes		Histology and Anatomy	Ali Mahdi Mutlaq
	yes		Parasitology	Majda Abdul Khaleq
	yes		Animal Physiology	Mutasir Jadu Juhail
	yes		Zoonotic diseases	Zaina Shaker Shallal
	yes		Immunity	Noor Habeeb Humaidan
	yes		Genetics	Jinan Tumah Sabah
	yes		Analytical Chemistry	Qasim Mazban Saleh
	yes		Animal Physiology	Akdas Mohammed Safih
	yes		Cellular Genetics	Lena Musa Kadhum
	yes		Animal Physiology	Zahraa Alwan Jasim
	yes		Nano -Biotechnology	Nasser Nafi Ibrahim
	yes		Animal Physiology	Nada Hameed Ajam
	yes		Animal Physiology	Hanan Sajjad Ahmed
	yes		Parasitology	Ali Shaker Kamel
	yes		Zoology	Hala Fawzi Hassan
	yes		Cellular Genetics	Aya Hatem Karim
	yes		Animal Physiology	Iman Hamza Khudir
	yes		Parasitology	Rosol Fares Kadhum
	yes		Parasitology	Aya Adheeb Mohammed
	yes		Microbiology	Reham Naima Akkar
	yes		Microbiology	Anfal Abdul Salam
	yes		Animal Tissues	Rafal Firas Jaber
	yes		Microbiology	Mohsen Abbas Sahib
	yes		Microbiology	Ihab Majid Abbas
	yes		Biological Techniques	Raghad Saad Jameel
	yes		Animal Physiology	Samaa Ali Fadel

	yes		Microbiology	Durar Jabbar Ibrahim
	yes		Histology	Raghad Ali Hussein
	yes		Parasites	Duaa Abdul Khaleq Zghair
	yes		Computers	Naba Ali Abdul Ridha
	yes		Microbiology	Ansam Majid Hassan
	yes		Law	Zahraa Jameel Obeid
	yes		Histology	Zahraa Kareem Jaber
	yes		Biology	Nora Abbas Farhan
	yes		Biology	Karar Ali Tawfiq
yes			Biology - Ministerial Decree	Naba Ali Abdul Ridha

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study.

13. The most important sources of information about the program
Microbiology, Lippincotts, Jawetz Menlnick and Adelbergs. Medical microbiology. Foundation of microbiology and Basic principle.

14. Program Development Plan

Seminar by students

Educational subjects for medical laboratory technique department

Second Stage

First semester

N.	Name of subject	Theoretical hours	Practical hours	N. of Units
١	Human histology	٢	٢	٣
٢	Medical bacteriology	٢	٢	٣
٣	Medical virology	٢	٢	٣
٤	Principles of physiology	٢	٢	٣
٥	Parasitic Protozoa	٢	٢	٣
٦	Computer application	٢	٢	٣
Total				١٨

Second semester

N.	Name of subject	Theoretical hours	Practical hours	N. of Units
١	Tissue culture	٢	٢	٣
٢	Medical mycology	٢	٢	٣
٣	Principles of immunity	٢	٢	٣
٤	Medical physiology	٢	٢	٣
٥	Parasitic helminths	٢	٢	٣
٦	Biochemistry	٢	٢	٣
total				١٨

Total units: 36

Third Stage

First semester

N.	Name of subject	Theoretical hours	Practical hours	N. of units
١	Infectious diseases	٢	٢	٣
٢	Clinical immunology	٢	٢	٣
٣	Medical molecular biology	٢	٢	٣
٤	Pathological analysis	٢	٢	٣
٥	Microbial diagnosis	٢	٢	٣
٦	Hematology	٢	٢	٣
Total				١٨

Second semester

N.	Name of subject	Theoretical hours	Practical hours	N. of Units
١	Food and water polluted bacteria	٢	٢	٣
٢	Clinical chemistry	٢	٢	٣
٣	Medical genetics	٢	٢	٣
٤	Embryology	٢	٢	٣
٥	Antibiotics	٢	٢	٣
٦	Medical biotechnology	٢	٢	٣
Total				١٨

Total units: 36

Fourth Stage

First semester

N.	Name of subject	Theoretical hours	Practical hours	N. of Units
١	Blood diseases	٢	٢	٣
٢	Serology and vaccine	٢	٢	٣
٣	Forensic science	٢	٢	٣
٤	Bioinformatics	٢	٢	٣
٥	Graduation project	١	١	١
٦	Genetic engineering	٢	٢	٣
Total				١٦

Second semester

N.	Name of subject	Theoretical hours	Practical hours	N. of Units
١	Endocrinology	٢	٢	٣
٢	Pathology	٢	٢	٣
٣	Toxicology	٢	٢	٣
٤	Epidemiology	٢	٢	٣
٥	Graduation project	١	١	٣
Total				١٣

Total units: 29

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
Second		Medical bacteria	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of Thin al Scientific	Reception request And it For the materi ific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions and their use	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific	

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

Course Description Form

1. Course Name: Medical Bacteria	
2. Course Code:	
3. Semester/Year: Second Semester	
4. DescriptionPreparationDate: 2024	
5.Available Attendance Forms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) = 2theoretical and 2 practical	
7.Course administrator's name (mentionall,if morethanone name)	
Name: Assistt. Dr. Ali Shakir Kamil Al-Suraifi Assist. Lec. Zahraa Karem Jaber Biology Karar Ali 	
8. Course Objectives	
Course Objectives Providing the student with information that enables him to understand the importance of pursuing this science and its relationship to the methods and use of pathogenic bacteria and the study of their diseases, their harmful factors and their capabilities for active activity. The student's activity has sufficient information and knowledge of the largest types of bacteria that infect the various body systems, in addition to teaching the student the basic beginnings and innovative methods for removing bacteria. Diagnosis of bacteria in the laboratory.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours ٤		General Introduction	Data show	
2	hours ٤		Innate Immunity	Data show	Quizzes and monthly exam.
3	hours ٤		Cells of the immune system	Data show	Quizzes and monthly exam.
4	hours ٤		Adeptive immunity	Data show	Quizzes and monthly exam.
5	hours ٤		Lymphatic organs	Data show	Quizzes and monthly exam.
6	hours ٤		The effectiveness of the immune system and the immune response	Data show	Quizzes and monthly exam.
7	hours ٤		Antigens and Immunogen	Data show	Quizzes and monthly exam.
8	hours ٤		Antibodies	Data show	Quizzes and monthly exam.
9	hours ٤		Antigen-Antibody Reaction	Data show	Quizzes and monthly exam.
10	hours ٤		Complement System	Data show	Quizzes and monthly exam.
11	hours ٤		Autoimmune diseases	Data show	Quizzes and monthly exam.
12	hours ٤		Immunologic Tolerance	Data show	Quizzes and monthly exam.
13	hours ٤		Immunodeficiency	Data show	Quizzes and monthly exam.
14	hours ٤		Relationship between tumor and immunity	Data show	Quizzes and monthly exam.
15	hours ٤	Exam	Exam	Data show	Quizzes and monthly exam.

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11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Second		Histological techniques	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning the principles of histological technology. Learning the materials and their properties used in histological techniques Learning the fixatives the preparation Teaching the stains used in histology, preparation and advantages. Teaching the difference between the normal and abnormal tissues.

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Professor	Veterinary medicine	PH.D. Histology and Embryology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures.
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study.

13. The most important sources of information about the program
Bancroft's THEORY and PRACTICE of HISTOLOGICAL TECHNIQUES. eight edition, S. Kim Suvarna , Christopher Layton , John D. Bancroft

14. Program Development Plan

Seminar by students

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
Third	Path-223	General immunology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of Thin al Scient ific	Reception require And it For the materi al Scient ific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions and their use	Testing a group of information retrieval techniques and	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: Histological Techniques	
2. CourseCode:	
3. Semester/Year: semester	
4. Description Preparation Date: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assist. prof .Dr Ali Mahdi Mutlag	
8. Course Objectives	
Course Objectives	• Giving the student the ability to understand the functions and physiology of his body's various systems • Providing the student with the ability to know the histological structures and functionals histology of body organs • Providing the student with the ability to dissect laboratory animals • Giving the student the ability to evaluate an individual's health through his ability to read various tests.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Definition of histological preparation, general steps	Introduction of histological techniques	Data show	
2	hours	Definition , function, location, properties, types , simple and stratified	Tissue preparation and sample selection	Data show	Quizzes and monthly exam.
3	hours	Introduction , purposes of methods, type and timing of dehydrants and clearant	Tissue Processing	Data show	Quizzes and monthly exam.
4	hours	Introduction, methods of embedding media, types , advantages , preparations	Embedding and Infiltration	Data show	Quizzes and monthly exam.
5	hours	Introduction , microtomy , sectioning procedure , adhering media	Tissue blocking and sectioning	Data show	Quizzes and monthly exam.
6	hours	Introduction, procedure , preparation, uses, types of freezing microtomy	Frozen section	Data show	Quizzes and monthly exam.
7	hours	Types of hematoxylin and eosin stains , preparation , procedure, pathological uses	Hematoxylin and Eosin	Data show	Quizzes and monthly exam.
8	hours	Introduction , Advantages, methods , special stains of carbohydrate, types of carbohydrate	Carbohydrate Histochemistry	Data show	Quizzes and monthly exam.
9	hours	Introduction , Advantages, methods , special stains of lipids, types of lipids	Lipid Histochemistry	Data show	Quizzes and monthly exam.

10	hours	Definition, Purposes in pathology, advantages, methods, materials of IHC	Immunohistochemistry	Data show	Quizzes and monthly exam.
11	hours	Definition, stains, advantages , procedure, preparation, results	Stains of connective tissue	Data show	Quizzes and monthly exam.
12	hours	Introduction , bone tissue process, stains of bone	Bone	Data show	Quizzes and monthly exam.
13	hours	General muscle , processing, stains, advantages	Muscle biopsy and stains	Data show	Quizzes and monthly exam.
14	hours	Definition, processing of nervous tissue , stains , components of nervous tissue	Neuropathology	Data show	Quizzes and monthly exam.
15	hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Second		General Histology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 3	Learning Outcomes Statement 3
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning the general aspects and topics of the histology. Learning the histological structure of the different systems and their organs Learning the principles of histology and primary tissue Teaching the functional histology of organs. Teaching the distinguishing between the normal and abnormal features

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Professor	Veterinary medicine	PH.D. Histology and Embryology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures.
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study.

13. The most important sources of information about the program
- Junqueira's Basic Histology Text and Atlas, 16e Anthony L. Mescher - Wheater's Functional Histology: A Text and Colour Atlas (FUNCTIONAL HISTOLOGY (WHEATER'S)) 6th Edition

14. Program Development Plan

Seminar by students

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
Third	Path-223	General immunology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of Thin al Scient ific	Reception require And it For the materi ific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions and their use	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: General Histology	
2. CourseCode:	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assist. prof .Dr Ali Mahdi Mutlag	
8. Course Objectives	
Course Objectives	• Giving the student the ability to understand the functions and physiology of his body's various systems • Providing the student with the ability to know the histological structures and functionals histology of body organs • Providing the student with the ability to dissect laboratory animals • Giving the student the ability to evaluate an individual's health through his ability to read various tests.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Definition of histology , medical important, types if histology , types of tissues	Introduction to Histology & Its Methods of Study	Data show	
2	hours	Definition , function, location, properties, types , simple and stratified	Epithelial tissue	Data show	Quizzes and monthly exam.
3	hours	Introduction , classification , development , histological structure	Glandular epithelium	Data show	Quizzes and monthly exam.
4	hours	Introduction, composition , types of fibers , uses, classification of CT	Connective tissue	Data show	Quizzes and monthly exam.
5	hours	Introduction , muscle fiber , muscle orientation , classification of muscle	Muscular tissue	Data show	Quizzes and monthly exam.
6	hours	Introduction, cartilage cells , matrix , classification of cartilage	Cartilage	Data show	Quizzes and monthly exam.
7	hours	bone cells , types of bones , matrix , functions ,	bone	Data show	Quizzes and monthly exam.
8	hours	Introduction , properties, composition , nerve cell , supporting cells , nervous system	Nervous tissue and nervous system	Data show	Quizzes and monthly exam.
9	hours	Introduction, composition , histological structure of organs , function ,	Circulatory system	Data show	Quizzes and monthly exam.
10	hours	Definition, composition, blood	Blood	Data show	Quizzes and monthly exam.

		cells, blood, plasma, function			
11	hours	Definition of immunity , organs of lymphatic system, histological structure , function	The Immune System & Lymphoid Organs	Data show	Quizzes and monthly exam.
12	hours	Organs of digestive tract , histological structure of organs, functions, location	Digestive Tract	Data show	Quizzes and monthly exam.
13	hours	Glands of digestive system , histology , function , secretion , location	Organs Associated with the Digestive Tract	Data show	Quizzes and monthly exam.
14	hours	Definition , function , organs , histological structure, location , clinical application	The Respiratory System	Data show	Quizzes and monthly exam.
15	hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

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4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
second		Biochemistry	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 3	Learning Outcomes Statement 3
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty

Faculty Members

Academic Rank	Specialization		Special		Number of the teaching staff	
			Requirements/Skills			
			(if applicable)			
	General	Special			Staff	Lecturer
lecture	biology	Nanobiotech nology			staff	

Professional Development

Mentoring new faculty members

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

Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion

Central student admission, special expenses, and evening study .

13. The most important sources of information about the program

- أساسيات الكيمياء الحياتية للأستاذ الدكتور سامي المظفر
 - مدخل الى الكيمياء الحياتية تأليف أ.د. خوله ال فليح
 - الكيمياء الحيوية النظري تأليف أ.د. عيسى عبد السعداوي
 - الوجيز في الكيمياء الحياتية البرت لنينجر وترجمة د. عبد القادر الجلي
 - Biochemistry (Lubart Strger) 4 Edition

14.	Program Development Plan

Seminar by students

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
Second		Biochemistry	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of Thin al Scient ific	Reception require And it For the materi ific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions and their use	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: Biochemistry	
2. CourseCode: A	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name:. lecture Dr Nasser Nafaa	
8. Course Objectives	
Course Objectives	• Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Definition of biochemistry. Historical Background of biochemistry	Introduction to biochemistry	Data show	
2	hours	.Definition .Biological functions .Classification - Stereochemistry of sugar Medical importance of Carbohydrates Digestion and .absorption	Carbohydrate	Data show	Quizzes and monthly exam.
3	hours	.Definition .Biological functions - Classification.	Amino acid	Data show	Quizzes and monthly exam.
4	hours	protein classification protein Digestion and - absorption. Medical importance of protein Medical importance of protein	protein	Data show	Quizzes and monthly exam.
5	hours	.Definition Classification of .nitrogenous bases Biological functions of free nucleotides.	Nucleotides and Nucleic acids:	Data show	Quizzes and monthly exam.
6	hours	a) active sites b) catalytic efficiency c) specificity d) cofactor e) regulation f) location within the cells Factors affecting - reaction velocity a) Substrate concentration b) Temperature c) Ph	General properties of enzymes:	Data show	Quizzes and monthly exam.

7+8	hours	.Definition .Biological functions - .Classification Digestion and absorption Medical importance of lipid	Lipids	Data show	Quizzes and monthly exam
9+10	hours	.Definition Classification (Water and Fat soluble .(vitamins Members of each class as regards chemical ,nature, sources daily requirement, biological function and abnormal conditions due to deficiency or toxicity	Vitamins	Data show	Quizzes and monthly exam.
11+12	hours	.Definition Classification according to their .chemical nature Names and physiological functions ,of hypothalamic pituitary, thyroid, parathyroid, suprarenal, pancreatic and sex gland hormones	HORMONES	Data show	Quizzes and monthly exam.
13	hours	Pathways of glycolysis	Glycolysis	Data show	Quizzes and monthly exam.
14	hours	Definition	Krebs cycle	Data show	Quizzes and monthly exam.
15	hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

Department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biotechnology sciences, improving their level of experimental studies, and applying some modern technologies in order to understand role of biotechnology in production the medical drugs and applications in Forensic Science, agriculture and bioremediation

3. Program Objectives

- a) The student should understand the applications of biotechnology in diagnoses.
- b) The student should be familiar with basic laboratory techniques.
- c) The student should be knowledgeable about the main technologies used in biotechnology, as well as the principles and mechanisms behind their operation
- d) The student should have an understanding of the future trends in biotechnology.

4. Program Accreditation

There is no program accreditation

5. Other external influences

Al- Kufa University

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	-	-	-	-
College Requirements	-	-	-	-

Department Requirements	1	3		
Summer Training	-	-	-	-
Other	-	-	--	-

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third	Path-423	Medical biotechnology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Using the Biotechnological tools	Detection and diagnosis the diseases
Skills	
Protein detection and purification	Production of medical and pharmaceutical products
Biotechnological tools	Introduction to the fundamental concepts and techniques used in molecular biotechnology.
Ethics	
Human samples	A blood sample or any other fluids cannot be taken from a patient without their permission. In order to analyze or study the sample, the patient must provide written consent by signing a document.
Genetic material of human	It cannot be manipulated in terms of addition, deletion, or change in its sequence

9. Teaching and Learning Strategies
a) Teaching the student, the fundamental principles of molecular biotechnology. b) Understanding various disciplines related to technology c) The student learning about the key applications of molecular technology in biology. d) The student used the basic laboratory techniques in molecular biotechnology research.

10. Evaluation methods
a) Daily exams (quizzes) , b) Monthly exams (2) , c) Discussions d) Daily activity

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special	Biotechnological techniques tools		Staff	Lecturer
Assit.Prof.PhD	Genetic Engineering	Molecular Biology			Staff	-

Professional Development

Mentoring new faculty members

Involving the new members in training courses and seminars related to their field of expertise, and maintaining regular communication with them both in person and through electronic means

Professional development of faculty and members

Training on the use of modern equipment to diagnose diseases and accurately describe each case by sending them to hospitals and specialized medical centers.

12. Acceptance Criterion

- The acceptance criterion for the Pathological Analyses Department are primarily based on the student's grade.
- The number of students accepted into the program is determined by college policy, which takes into consideration the demand for this specialization in the job market.

13. The most important sources of information about the program

- Introduction to Biotechnology (3rd Edition) [Michael A. Paladin](#) (Author)
- Textbook of Biotechnology , Kara and Ghosh Dalai British biotechnology journal

14. Program Development Plan

Students will be kept updated on the latest advancements in biotechnologies in order to stay current with scientific developments in this field. The course will include reviewing lectures the international universities related to the subject.

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
Third	Path-423	Medical biotechnology	Basic	Establish a strong and solid foundation for molecular and biotechnology	The ability to read relevant scientific research and literature	the capability to identify and analyze disease in a laboratory, as well as being able to distinguish between different types of disease	Learn about the working mechanisms of medical devices and how to use them in diagnosis	knowledge about the process of producing medical drugs and the various methods used to develop new drugs.	capability of creating a wide range of products related to health, agriculture, and industry. This could include items such as medicines, food products, and materials used in manufacturing.	The ability to harness biotechnologies and their products in forensic medicine, investigation of victims, and follow up on environmental disasters	Identify modern molecular techniques and import diagnosis and treatment	Do not use chemicals that are harmful to human health in food products	Genetically modified foods should not be created, but if they are, consumers should be informed about it.	unethical and wrong to conduct experiments on humans in laboratories or to alter their tissues or its genome.	teaching the student how to interact and communicate effectively with the patient in a medical or healthcare setting.

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

Course Description Form

1. Course Name:	Medical biotechnology
2. Course Code:	Path-423
3. Semester / Year:	Semester
4. Description Preparation Date:	2024
5. Available Attendance Forms:	Theoretical and Practical
6. Number of Credit Hours: (5) ,	Number of Units (3)
7. Course administrator's name (mention all, if more than one name)	
Name : Mahdi Saber Al-deresawi Email: Malderesawi@uowasit.edu.iq	
8. Course Objectives	
Course Objectives 1.To understand the basic concepts of biotechnology and methods used in the development of drugs and food 2. To understand how biotechnology tools are used to modify an organism. 3. To become aware of the numerous benefits of biotechnology and its utilization in basic and applied sciences. 4. To develop an understanding of the regulatory and social issues surrounding biotechnology.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures presented using modern methods of presentation, such as video lectures or electronic lectures for training purposes.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction	Introduction: Historical and modern biotechnology	LCD	Quizzes, Monthly exams, Seminars and Daily activity
2	2	Fermenters and Bioreactors	The role of Design and composition	LCD	Quizzes, Monthly exams, Seminars and Daily activity
3	2	Type of fermenters	Type of fermenters	LCD	Quizzes, Monthly exams, Seminars and Daily activity
4	2	Design of fermenter	Design of fermenter	LCD	Quizzes, Monthly exams, Seminars and Daily activity
5	2	Proteins as Products	Production and purification of protein	LCD	Quizzes, Monthly exams, Seminars and Daily activity
6	2	Extraction and purification of Penicillin	Methods of penicillin production	LCD	Quizzes, Monthly exams, Seminars and Daily activity
7	2	BiosapARATION	Type of BiosapARATION : chromatography	LCD	Quizzes, Monthly exams, Seminars and Daily activity
8	2	Polymerase chain reaction	Principles, requirements and programming	LCD	Quizzes, Monthly exams, Seminars and Daily activity
9	2	Bioremediation	Mechanism of bioremediation and organism	LCD	Quizzes, Monthly exams, Seminars and Daily activity
10	2	Plant biotechnology	The important of plant biotechnology	LCD	Quizzes, Monthly exams, Seminars and Daily activity
11	2	Biosensor	Type and application of biosensor	LCD	Quizzes, Monthly exams, Seminars and Daily activity
12	2	Nanobiotechnology	Definition ,importance and application	LCD	Quizzes, Monthly exams, Seminars and Daily activity
13	2	Gene therapy	Definition ,importance and application	LCD	Quizzes, Monthly exams, Seminars and Daily activity
14	2	Forensic Biotechnology	Tools of Biotechnology that used in Forensic Biotechnology	LCD	Quizzes, Monthly exams, Seminars and Daily activity
15	2	Applications of Biotechnology	Products of Modern Biotechnology	LCD	Quizzes, Monthly exams, Seminars and Daily activity

11- Course Evaluation

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

12- Learning and Teaching Recourse

Required textbooks (Curricular book, if any)	Glick, B.R. and Pasternak, J.J. 1998. Molecular Biotechnology: Principles and Applications of Recombinant DNA (second edition)
Main references (Source)	U. Satyanarayana ,Biotechnology B.D, Singh
Recommended books and reference (Scientific journal m reports....	Textbook of Biotechnology , Kara and Ghosh Dalai British biotechnology journal
Electronic Reference	www.journals.elsevier.com/journal-of-biotechnology/

1. Program Vision

Department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

To teach students the basic principles of molecular life science by studying large molecules, especially nucleic acids and proteins, their function and role in life, as well as studying genetic mutations and repair systems for these mutations, as well as the role of these mutations in causing diseases.

4. Program Accreditation

There is no program accreditation

5. Other external influences

Al- Kufa University

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	-	-	-	-
College Requirements	-	-	-	-

Department Requirements	1	3		
Summer Training	-	-	-	-
Other	-	-	--	-

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third	Path-313	Molecular Biology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Identify the large molecule in cell	The role of the large molecule in regulation of many metabolic processes
Skills	
Molecular techniques	Detection the mutation and mutagenesis
Biotechnological tools	Early detection of cancer and other diseases
Ethics	
Human samples	A blood sample or any other fluids cannot be taken from a patient without their permission. In order to analyze or study the sample, the patient must provide written consent by signing a document.
Genetic material of human	It cannot be manipulated in terms of addition, deletion, or change in its sequence

9. Teaching and Learning Strategies
a) Establishing a strong and solid foundation for molecular life science as it relates to most other biological sciences. b) Ability to demonstrate mastery of laboratory molecular analytical skills c) The ability to read relevant scientific research and literature.

10. Evaluation methods
a) Daily exams (quizzes) , b) Monthly exams (2) , c) Discussions d) Daily activity

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special	PCR and real-time PCR		Staff	Lecturer
Assit.Prof.PhD	Genetic Engineering	Molecular Biology			Staff	-

Professional Development

Mentoring new faculty members

Involving the new members in training courses and seminars related to their field of expertise, and maintaining regular communication with them both in person and through electronic means

Professional development of faculty and members

Training on the use of modern equipment to diagnose diseases and accurately describe each case by sending them to hospitals and specialized medical centers.

12. Acceptance Criterion

- The acceptance criterion for the Pathological Analyses Department are primarily based on the student's grade.
- The number of students accepted into the program is determined by college policy, which takes into consideration the demand for this specialization in the job market.

13. The most important sources of information about the program

1. -Molecular Biology /3rd Edition- 2018 -David Clark, Nanette Pazdernik, Michelle McGehee
2. -ABC OF CLINICAL GENETICS /Third edition/Helen M Kingston *Consultant Clinical Geneticist, Regional Genetic Service, St Mary's Hospital, Manchester, UK*
3. -Molecular Genetics of Bacteria/4th Edition Jeremy W. Dale and Simon F. Park/University of Surrey, UK

14. Program Development Plan

Reviewing lectures and vocabulary from Iraqi and international universities related to the subject. Additionally, the course is being updated with the latest advancements in technology in the field to ensure that students are receiving the most up-to-date information.

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
Third	Path-313	Molecular biology	Basic	Ability to use different teaching methods	The ability to diagnose genetic diseases	the capability to identify and analyze genetic abnormalities in a laboratory setting, as well as being able to distinguish between different types of abnormalities.	Identifying genetic mutations and their relationship to some genetic diseases	Detecting mutations and mutagenesis	Early detection of cancer and other diseases	The ability to read relevant scientific research and literature.	Identify modern molecular techniques and their importance in diagnosis and treatment	A blood sample or any other fluids cannot be taken from a patient without their permission	In order to analyze sample, the patient must provide written consent by signing	It cannot be manipulated in terms of deletion, or change in its sequence	teaching the student how to interact and communicate effectively with the patient in a medical or healthcare setting.

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

Course Description Form

1. Course Name:	Molecular Biology
2. Course Code:	Path-313
3. Semester / Year:	Semester
4. Description Preparation Date:	2024
5. Available Attendance Forms:	Theoretical and Practical
6. Number of Credit Hours: (5) ,	Number of Units (3)
7. Course administrator's name (mention all, if more than one name)	
Name : Mahdi Saber Al-deresawi Email: Malderesawi@uowasit.edu.iq	
8. Course Objectives	
Course Objectives 1. Enabling the students understand nucleic acids and their various types. 2. Enhance students' ability to recognize genetic mutations and understand how they are linked to certain genetic disorders. 3. Prepare students to participate in scientific research focusing on the molecular level. 4. Familiarize students with contemporary molecular techniques and highlight their significance in the fields of diagnosis and treatment.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures presented using modern methods of presentation, such as video lectures or electronic lectures for training purposes.

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

11- Course Evaluation

12- Learning and Teaching Recourse

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

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the concept of endocrine glands in all its topics with examples and all applications related to this science in applied and medical fields, especially with regard to diagnosing diseases caused by a defect in the endocrine glands or accidental, and with a scientific lecture that achieves a solid scientific background for students in the field of endocrinology so that they can take their active role in Serving community members

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Requirements				

--	--	--	--	--

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third	Path-412	endocrinology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Lecturer .Dr	biology	endocrinology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
- Williams' textbook of endocrinology, 8th edition, 1992 - Oxford Handbook of Endocrinology and Diabetes, John Wass, Helen Turner 4th edition - Essentials of Endocrinology and Metabolism: A Practical Guide for Medical Students 1st ed. 2020 Edition

14.	Program Development Plan

Seminar by students

Program Skills Outline															
				RequiredprogramLearningoutcomes											
Year/Level	CourseCode	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Third	Path-412	endocrinology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion the information	Students can differentiate between two terms Scientists	The student can distinguish between types of thinking	Reception request And accept it For the material Scientific	Developing the learner's ability to think Scientific	Analyzing a problem of information retrieval al techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student study Subject Scientific		

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

CourseDescriptionForm

1. CourseName: endocrinology	
2. CourseCode: A	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: lecturer Dr zahraa alwan	
8. Course Objectives	
Course Objectives	• Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Functions of the endocrine system, Functions of the Hypothalamus gland	Endocrine system	Data show	
2	hours	Characteristics or properties of hormone, Positive feedback system, :	Feedback mechanism for hormones:	Data show	Quizzes and monthly exam.
3	hours	Six important peptide hormones, Physiological Functions of Growth Hormone (GH))	Pituitary gland	Data show	Quizzes and monthly exam.
4	hours	A abnormality of ACTH secretion, Thyroid stimulation hormones (TSH):	Adrenocorticotrophic hormone (ACTH)	Data show	Quizzes and monthly exam.
5	hours	Definition and function of Thyroid gland	Thyroid gland	Data show	Quizzes and monthly exam.
6	hours	Diagnostic and Symptoms of the disorder of thyroid gland	Grave's Disease	Data show	Quizzes and monthly exam.
7	hours	Function of Parathyroid hormone (PTH), Complications of parathyroid disorders	Parathyroid glands	Data show	Quizzes and monthly exam.
8	hours	Hypoparathyroidism	Mechanism of calcium balance	Data show	Quizzes and monthly exam.
9	hours	Zona glomerulosa, Aldosterone, Disorder of aldosterone	Adrenal glands	Data show	Quizzes and monthly exam.
10	hours	Function of Cortisol, Hypercortisolism	cortisol and corticosterone hormones	Data show	Quizzes and monthly exam.
11	hours	Function of Insulin hormone, glucagon	The pancreas :	Data show	Quizzes and monthly exam.
12	hours	Disorder of pancreas hormones, Hypoglycemia and Insulin Shock	Disorder of pancreas hormones	Data show	Quizzes and monthly exam.
13	hours	Functions of Estrogen Hormone, Progesterone hormone: inhibin	The gonad glands (Ovaries and Testes)	Data show	Quizzes and monthly exam.
14	hours	Function of serotonin , Diagnostic of disease	Pineal gland	Data show	Quizzes and monthly exam.
15	hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

- Identifying the importance of serums in protecting humans from infections
- B2 – Distinguish between vaccination, inoculation, etc
- B3 – Identify the importance of vaccines and methods of producing and dealing with them

4. Program Accreditation

nothing

5. Other external influences

nothing

6. Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements		٣		Basic course
College Requirements				
Department Requirements				
Summer Training	yes			
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
2023–2024 Third stage		Sera and vaccines	theoretica I	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Study of serum, its components and its role in immunity A2– Identify vaccines, their components, types, and how they work.	

A3– Identify the most important methods used in immunological tests	
Skills	
B1–Distinguishing the role of serums in protecting humans from pathogens B2 – Distinguish between vaccination, inoculation, etc B3 – Identify the importance of vaccines and methods of producing and dealing with them	
Ethics	
1-- The student should be aware of the importance of the role he will play in society . 2– The student should deduce the importance of essay questions and analyze the types of objective questions.	

9. Teaching and Learning Strategies
Delivering, lecturing, class discussion (pair method, seminar method), interrogation method, surprise test (cooz), and inductive thinking.

10. Evaluation methods

Written tests (objective – essay).

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Lec	biology	zoology			Staff	

Professional Development

Mentoring new faculty members

Developing classroom management and control skills.

Professional development of faculty members

- 1– Developing questioning skills.
- 2–Developing evaluation skills.
- 3– Developing the skills of linking the material to reality using reinforcement examples from daily life.

12. Acceptance Criterion

The student's average in the preparatory stage, in addition to the student's desire, as well as the geographical area of the student's residence, in line with the admission policy in Iraqi universities, colleges, and institutes.

13. The most important sources of information about the program

Sources and references from books, research, studies, periodicals, various means of communication from the Internet and others.

14. Program Development Plan

Developing the curriculum with modern topics in line with the developments of the times for the purpose of preparing the student professionally, educationally, psychologically and health-wise.

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
2023-2024 Third stage		Sera and vaccines	Basic	/	/	/	/	/	/	/	/	/	/	/	/

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

Course Description Form

1. Course Name:					
Sera and vaccines					
2. Course Code:					
3. Semester / Year:					
Semester system					
4. Description Preparation Date:					
1/9/2024					
5. Available Attendance Forms:					
presence only					
6. Number of Credit Hours (Total)/Number of Unit s(Total) 3					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Lina Mussa Kadhim Email:					
8. Course Objectives					
Distinguishing the role of serums in protecting humans from pathogens B2 - Distinguish between vaccination, inoculation, etc B3 - Identify the importance of vaccines and methods of producing and dealing with them					
9. Teaching and Learning Strategies					
Strategy		Theoretical lectures and group discussions for the purpose facilitating the explanation of material, addition to use diagrams and illustrations.			
10. Course Structure					
Week	Hou rs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	4 hours		Introduction in serology and vaccination	Data show	
2	4 hours		SEROLOGIC DIAGNOSTIC METHODS	Data show	Quizzes and monthly exam.
3	4 hours		Herd Immunity	Data show	Quizzes and monthly exam.
4	4 hours		TYPES OF IMMUNITY	Data show	Quizzes and monthly exam.
5	4 hours		Types of Vaccines	Data show	Quizzes and monthly exam.
6	4 hours		First exam	Data show	Quizzes and monthly exam.
7	4 hours		Vaccine composition and production	Data show	Quizzes and monthly exam.
8	4 hours		Bacilli calmette-guerin (BCG) vaccine and Polio vaccines	Data show	Quizzes and monthly exam.
9	4 hours		DPT vaccine and MMR vaccine	Data show	Quizzes and monthly exam.
10	4 hours		Hepatitis B vaccine, Rotavirus vaccine and Haemophilus influenza type b vaccine	Data show	Quizzes and monthly exam.
11	4 hours		Rabies vaccine and Chickenpox (Varicella zoster) vaccine	Data show	Quizzes and monthly exam.
12	4 hours		Second exam	Data show	Quizzes and monthly exam.
13	4 hours		Typhoid vaccine, Cholera vaccine and Influenza vaccine	Data show	Quizzes and monthly exam.
14	4 hours		DNA Vaccination	Data show	Quizzes and monthly exam.
15	4 hours		Alternative approaches for vaccine production	Data show	Quizzes and monthly exam.

Course Evaluation					
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Distributing the score out of 100 according to the tasks assign to the student such as reports, daily and monthly exams etc	
Learning and Teaching Resources	
11. Required textbooks (curricular books, if any)	
Main references (sources)	Immunology and Serology (Fifth edition) Mary L.Turge Clinical Immunology & Serology (Fifth edition)Linda E.Miller
Recommended books and references (scien journals, reports...)	.

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third	Path-223	General immunology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Professor	biology	immunology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Medical Microbiology and Immunology, Warren Levinson, 2016. • Microbiology and Immunology ,Subhash Chandra Parija, 2012 • Cellular and molecular immunology 2015 • Sara's Immunology 2014

14. Program Development Plan

Seminar by students

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
Third	Path-223	General immunology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion the information	Students can differentiate between two terms Scientists	The student can distinguish between types of thinking	Reception request And accept it For the material Scientific	Developing the learner's ability to think Scientific	Analyzing a problem and information retrieval techniques and their use	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: General immunology	
2. CourseCode: A	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assistt. prof .Dr noor habeeb	
8. Course Objectives	
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

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

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

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third	Path-223	General immunology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Professor	biology	immunology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Medical Microbiology and Immunology, Warren Levinson, 2016. • Microbiology and Immunology ,Subhash Chandra Parija, 2012 • Cellular and molecular immunology 2015 • Sara's Immunology 2014

14.	Program Development Plan

Seminar by students

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
Third	Path-223	General immunology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of Thin al Scient ific	Reception require And it For the materi ific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions and their use	Testing a group of information retrieval techniques and	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: General immunology	
2. CourseCode: Path-223	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assistt. prof .Dr noor habeeb	
8. Course Objectives	
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

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

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

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11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third	Path-223	General immunology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills		Number of the teaching staff	
			(if applicable)			
	General	Special			Staff	Lecturer
Assist. Professor	biology	immunology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Medical Microbiology and Immunology, Warren Levinson, 2016. • Microbiology and Immunology ,Subhash Chandra Parija, 2012 • Cellular and molecular immunology 2015 • Sara's Immunology 2014

14.	Program Development Plan

Seminar by students

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
Third	Path-223	General immunology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of Thin al Scient ific	Reception require And it For the materi ific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions and their use	Testing a group of information retrieval techniques and	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: General immunology	
2. CourseCode: Path-223	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assistt. prof .Dr noor habeeb	
8. Course Objectives	
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

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

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

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11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of Infectious diseases in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis, transmits, control, treatment and the important signs of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of infectious diseases so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Requirements				

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Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third	Path-223	Infectious diseases	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Professor	Vet. medicine	Zoonotic diseases			staff	

Professional Development

Mentoring new faculty members

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

Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion

Central student admission, special expenses, and evening study .

13. The most important sources of information about the program

- Medical Microbiology and Immunology, Warren Levinson, 2016.
- Microbiology and Immunology , Subhash Chandra Parija, 2012
- In addition to electronic reference and web site.

14.	Program Development Plan

Seminar by students

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
Third	Path-223	Infectious diseases	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of thinking	Reception request And accept it For the material Scientific	Developing the learner's ability to think Scientific	Analyzing problems and information to formulate solutions and their use	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: Infectious diseases	
2. CourseCode: A	
3. Semester/Year: semester	
4. Description Preparation Date: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assist. prof. Zinah Shakir Shallal	
.....	
8. Course Objectives	
Course Objectives • Prepare the laboratory samples individually. - Providing the student with the ability to draw blood samples and perform various blood analyses. • Implementing plans, instructions and controls issued by the higher authorities. . Conduct all laboratory experiments while adhering to modern technologies. • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

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

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

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of Infectious diseases in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis, transmits, control, treatment and the important signs of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of infectious diseases so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third		Lab profession	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Professor	Biotechno logy	Molecular biotechnolo gy			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Laboratort tests & diagnostic procedures 2007 • Clinical chemistry, Labrotort prespective 2007 • Basic pathlogy, 2022

14. Program Development Plan

Seminar by students

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
Third		Lab profession	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion the information	Students can differentiate between two terms Scientists	The student can distinguish between types Thinking	Reception requester And it For the material Scientific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student in study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: Lab profession	
2. CourseCode: A	
3. Semester/Year: semester	
4. Description Preparation Date: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assist. prof. Ahmed Darweesh Jabbar	
8. Course Objectives	
Course Objectives	
Students are capable of comprehending, using, and utilizing sterilization techniques, laboratory supplies, and the international system of units. Along with these analyses, students can learn about the endocrine system, clinical chemistry, enzymology, blood gases and electrolytes, serology, diagnostic immunology, the urinary tract, sputum, medical parasitology, clinical hematology, blood banks, semen, sputum, pregnancy tests, examination of gastrointestinal contents, diabetes mellitus laboratory diagnosis, liver function tests, and more in this course.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and encouraging participation discussions addition to use of diagrams and illustrations.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4 hours	Understanding disease and their classification	Disease	Data show	
2	4 hours	Understanding the renal system and their disorder	Renal function test	Data show	Quizzes and monthly exam.
3	4 hours	comprehend Fluids the General Body	Fluid and Electrolytes regulation	Data show	Quizzes and monthly exam.
4	4 hours	Understanding hyponatremia	hyponatremia	Data show	Quizzes and monthly exam.
5	4 hours	Understanding Diabetis and their regulation	Hypoglycemia	Data show	Quizzes and monthly exam.
6	4 hours	Monthly Exam.		Data show	Quizzes and monthly exam.
7	4 hours	Recognizing main plasm proteins and enzymed	Plasma Proteins and enzymes	Data show	Quizzes and monthly exam.
8	4 hours	Student able to measure the liver enzyme and interpret the results	Liver function test	Data show	Quizzes and monthly exam.
9	4 hours	Giardiasis , Cryptosporidium spp. and Scabies infection	The important methods to diagnosis of this parasites	Data show	Quizzes and monthly exam.
10	4 hours	HIV ,MUMPS ,Herpes simples virus .	The methods techniques to diagnosis of viruses	Data show	Quizzes and monthly exam.
11	4 hours	Students will be able to detect tumor markers and interpret the results	Tumor marker	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

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4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third		Lab profession	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Professor	Biotechno logy	Molecular biotechnolo gy			staff	

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Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Laboratort tests & diagnostic procedures 2007 • Clinical chemistry, Labrotort prespective 2007 • Basic pathlogy, 2022

14. Program Development Plan

Seminar by students

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
Third		Lab profession	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion the information	Students can differentiate between two terms Scientists	The student can distinguish between types Thinking	Reception requester And it For the material Scientific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student in study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: Lab profession	
2. CourseCode: A	
3. Semester/Year: semester	
4. Description Preparation Date: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Assist. prof. Ahmed Darweesh Jabbar	
8. Course Objectives	
Course Objectives	
Students are capable of comprehending, using, and utilizing sterilization techniques, laboratory supplies, and the international system of units. Along with these analyses, students can learn about the endocrine system, clinical chemistry, enzymology, blood gases and electrolytes, serology, diagnostic immunology, the urinary tract, sputum, medical parasitology, clinical hematology, blood banks, semen, sputum, pregnancy tests, examination of gastrointestinal contents, diabetes mellitus laboratory diagnosis, liver function tests, and more in this course.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and encouraging participation discussions addition to use of diagrams and illustrations.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4 hours	Understanding disease and their classification	Disease	Data show	
2	4 hours	Understanding the renal system and their disorder	Renal function test	Data show	Quizzes and monthly exam.
3	4 hours	comprehend Fluids the General Body	Fluid and Electrolytes regulation	Data show	Quizzes and monthly exam.
4	4 hours	Understanding hyponatremia	hyponatremia	Data show	Quizzes and monthly exam.
5	4 hours	Understanding Diabetis and their regulation	Hypoglycemia	Data show	Quizzes and monthly exam.
6	4 hours	Monthly Exam.		Data show	Quizzes and monthly exam.
7	4 hours	Recognizing main plasm proteins and enzymed	Plasma Proteins and enzymes	Data show	Quizzes and monthly exam.
8	4 hours	Student able to measure the liver enzyme and interpret the results	Liver function test	Data show	Quizzes and monthly exam.
9	4 hours	Giardiasis , Cryptosporidium spp. and Scabies infection	The important methods to diagnosis of this parasites	Data show	Quizzes and monthly exam.
10	4 hours	HIV ,MUMPS ,Herpes simples virus .	The methods techniques to diagnosis of viruses	Data show	Quizzes and monthly exam.
11	4 hours	Students will be able to detect tumor markers and interpret the results	Tumor marker	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course description form

1. Course name :	
Biostatistics	
2. Course code :	
3. Semester/year :	
Semester system / Fourth stage – Semester 2	
4. The date this description was prepared :	
٢٠٢٤ /٢/15	
5. Available forms of attendance :	
Actual mandatory attendance	
6. Number of study hours (total)/number of units (total)	
30 hours (2 hours per week)	
7. Name of the course administrator (if more than one name is mentioned(	
Assist Prof Dr. Faik Jameel Hassan	
8. Course objectives	
Make the student able to: - Qualifying and training the student and teaching him the central tendency measures (Mean, Median and Mode) for both grouped and ungrouped data. - Qualifying and training the student and teaching him the measurements of variation. - Qualifying and training the student and teaching him the statistical distributions (Normal and Binomial distributions).	
9. Teaching and learning strategies	
- Explanation and clarification through lectures - Self-education through homework - Graduation projects - Solving difficult problems using scientific material - Use of e-learning	The strategy

10.Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Daily and monthly exams and group discussions	Explanation + discussion	Introduction to statistics	Definition of statistics and biostatistics with examples and Population and samples and methods of sampling	4	1-2
Daily and monthly exams and group discussions	Explanation + discussion	Central Tendency measurements	Central Tendency measurements (Mean, Median, and Mode)	6	3-5
Daily and monthly exams and group discussions	Explanation + discussion	Measurements of variations	Measurements of variations (Mean deviation, standard Deviation and Variance)	4	6-7
Daily and monthly exams and group discussions	Explanation + discussion	Probability	Elementary probability rules And Random variables	8	8-11
Daily and monthly exams and group discussions	Explanation + discussion	Statistical Distributions	Statistical Distributions (Normal Distribution and Binomial Distribution) and t-test and Chi square test	8	12-15

11.Course evaluation

- Daily and monthly tests and use of brainstorm
- Open group discussion method

12.Learning and Teaching Resources

Donald N. Forthofer, Eun Sul Lee, Introduction to Biostatistics: A Guide to Design, Analysis, and Discovery, Academic Press INC. (1995)

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Fourth	Path-223	Microbial Diagnosis	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Veterinary medicine	Microbiology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Medical Microbiology and Immunology, Warren Levinson, 2016. • Microbiology and Immunology , Subhash Chandra Parija, 2012 • Cellular and molecular immunology 2015 • Sara's Immunology 2014

14. Program Development Plan

Seminar by students

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
Fourth	Path-223	Microbial Diagnosis	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of Thin al Scient ific	Reception require And it For the materi ific	Developing the learner's ability to think Scientific	Analyze problems and formulate solutions and their use	Testing a group of information retrieval techniques and	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific	

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

Course Description Form

1. CourseName: Microbial Diagnosis	
2. CourseCode: A	
3. Semester/Year: semester	
4. Description Preparation Date: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: prof .Khairi Jameel	
8. Course Objectives	
Course Objectives	• Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Collection of specimen and processing and Microbiologic evaluations	Principles of Diagnosis of Microbiology	Data show	
2	hours	Transport of microbiological specimens	Collection of specimen	Data show	Quizzes and monthly exam.
3	hours	Definition, Types, Examples, Uses.	Microbial Culture Media	Data show	Quizzes and monthly exam.
4	hours	Selenite F Broth- Composition, Principle, Preparation, Results, Uses	Examples of Enrichment media	Data show	Quizzes and monthly exam.
5	hours	Definition, Types, Examples, Uses	Biochemical tests	Data show	Quizzes and monthly exam.
6	hours	Formula, Calculator, Method, Uses, Examples	Serial Dilution	Data show	Quizzes and monthly exam.
7	hours	Transmission of <i>H. pylori</i> , Pathogenicity and virulence factors.	<i>Helicobacter pylori</i> (<i>H. pylori</i>) Diagnosis	Data show	Quizzes and monthly exam.
8	hours	Biochemical Test of <i>Helicobacter pylori</i>	. Stool Antigen Test (SAT)	Data show	Quizzes and monthly exam.
9	hours	Causative Agents of UTI, Symptoms of UTI	Diagnosis of Bacteria Causing UTI (Urinary Tract Infection)	Data show	Quizzes and monthly exam.
10	hours	Cultural characteristics of <i>E.coli</i> Identification of the isolates by API20E system,	Isolation of E.coli	Data show	Quizzes and monthly exam.
11	hours	Clinical cases of <i>Staphylococcus aureus</i> Virulence factors.	Diagnosis of <i>Staphylococcus aureus</i> in clinical cases	Data show	Quizzes and monthly exam.
12	hours	General Characteristics of <i>Aspergillus</i> spp	Diagnosis of <i>Aspergillus fumigatus</i> infection	Data show	Quizzes and monthly exam.

13	hours ξ	Cultural isolation , Antigen detection, Serology	Laboratory diagnosis of <i>Aspergillus</i> <i>fumigatus</i>	Data show	Quizzes and monthly exam.
14	hours ξ	Cultural isolation , Antigen detection, Serology	Diagnosis of candida fumigatus infection	Data show	Quizzes and monthly exam.
15	hours ξ	Exam	Exam	Data show	Quizzes and monthly exam.

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Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
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4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Fourth	Path-223	Microbial Diagnosis	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
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14.	Program Development Plan

Seminar by students

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				Required program Learning outcomes											
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Course Description Form

1. CourseName: Microbial Diagnosis	
2. CourseCode: A	
3. Semester/Year: semester	
4. Description Preparation Date: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
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Name: prof .Khairi Jameel	
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Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Collection of specimen and processing and Microbiologic evaluations	Principles of Diagnosis of Microbiology	Data show	
2	hours	Transport of microbiological specimens	Collection of specimen	Data show	Quizzes and monthly exam.
3	hours	Definition, Types, Examples, Uses.	Microbial Culture Media	Data show	Quizzes and monthly exam.
4	hours	Selenite F Broth- Composition, Principle, Preparation, Results, Uses	Examples of Enrichment media	Data show	Quizzes and monthly exam.
5	hours	Definition, Types, Examples, Uses	Biochemical tests	Data show	Quizzes and monthly exam.
6	hours	Formula, Calculator, Method, Uses, Examples	Serial Dilution	Data show	Quizzes and monthly exam.
7	hours	Transmission of <i>H. pylori</i> , Pathogenicity and virulence factors.	<i>Helicobacter pylori</i> (<i>H. pylori</i>) Diagnosis	Data show	Quizzes and monthly exam.
8	hours	Biochemical Test of <i>Helicobacter pylori</i>	. Stool Antigen Test (SAT)	Data show	Quizzes and monthly exam.
9	hours	Causative Agents of UTI, Symptoms of UTI	Diagnosis of Bacteria Causing UTI (Urinary Tract Infection)	Data show	Quizzes and monthly exam.
10	hours	Cultural characteristics of <i>E.coli</i> Identification of the isolates by API20E system,	Isolation of <i>E.coli</i>	Data show	Quizzes and monthly exam.
11	hours	Clinical cases of <i>Staphylococcus aureus</i> Virulence factors.	Diagnosis of <i>Staphylococcus aureus</i> in clinical cases	Data show	Quizzes and monthly exam.
12	hours	General Characteristics of <i>Aspergillus</i> spp	Diagnosis of <i>Aspergillus fumigatus</i> infection	Data show	Quizzes and monthly exam.

13	hours ξ	Cultural isolation , Antigen detection, Serology	Laboratory diagnosis of <i>Aspergillus</i> <i>fumigatus</i>	Data show	Quizzes and monthly exam.
14	hours ξ	Cultural isolation , Antigen detection, Serology	Diagnosis of candida fumigatus infection	Data show	Quizzes and monthly exam.
15	hours ξ	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
4 TH	Sc-Path-425	Microbial Toxicology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Microbiology	Virology			Staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Medical Microbiology ,Jawetz and Melnic 2018. • Microbiology and Immunology ,Subhash Chandra Parija,2012

14. Program Development Plan

Seminar by students

Program Skills Outline															
				RequiredprogramLearningoutcomes											
Year/Level	CourseCode	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
4 th	Sc-Path-425	Microbial toxicology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between types of thinking	Reception request And accept it For the material Scientific	Developing the learner's ability to think Scientific	Analyzing a problem of information retrieval al techniques and their use	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific		

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

CourseDescriptionForm

1. Course Name: Microbial Toxicology	
2. Course Code: Sc-Path425	
3. Semester/Year: Semester	
4. Description Preparation Date: 2024	
5. Available Attendance Forms: (theoretical and practical)	
6. Number of Credit Hours (Total)/Number of Unit s(Total) 30hr , 2	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof .Dr. Hussein Al.Bayati Sama Ali Zahraa Kareem	
8. Course Objectives	
Course Objectives • Define the microbial toxicology - Familiar with microorganisms produced toxins - Differentiate between chemical toxins and biological toxins - Compare between Endotoxins and Exotoxins - Diagnose the symptoms of bacterial toxins and mycotoxins - list the types of bacterial and mycotoxins - write briefly the structure of any microbial toxin - Discuss the mechanism action of any toxin - Describe the detoxification methods of the microbial toxins - List the method used for assaying the bacterial and myco-toxins - Diagram the chemical structure of microbial toxins - Calculate the lethal dose of any toxin - Predict with the type of toxin through the symptoms Summarize the conditions influencing the production of microbial toxins 	
9. Teaching and Learning Strategies	

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

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

		Salmonella toxins, Erythrogenic Toxins,			
5	4 hours	-Structure of bacterial toxins -Level of toxicity -Symptom of each bacteria toxins	Toxicity Details	Data show	Quizzes and monthly exam.
6	4 hours	Mechanism of action of bacterial toxins	Cellular interaction	Data show	Quizzes and monthly exam.
7	4 hours	Diseases caused by or associated with bacterial toxins:	Toxin Pathogenesis	Data show	Quizzes and monthly exam.
8	4 hours	Methods for detoxification of bacterial toxins	Toxin antidotes	Data show	Quizzes and monthly exam.
9	4 hours	Production of microbial toxins Factors influence production of bacterial and fungal toxins	Toxin Production	Data show	Quizzes and monthly exam.
10	4 hours	Mycotoxins: -General properties of fungal toxins Microorganisms produced toxins	Mycotoxins	Data show	Quizzes and monthly exam.
11	4 hours	-Type of fungal toxins: (Aflatoxins , Ochratoxin , Citrinin , Ergot Alkaloids, Patulin , Fusarium toxins)	Mycotoxins Types	Data show	Quizzes and monthly exam.
12	4 hours	Structure of fungal toxins -level of toxicity -Symptom of each toxin	Mycotoxins	Data show	Quizzes and monthly exam.
13	4 hours	Mechanism of action of fungal toxins -Diseases associated with fungal toxins	Mycotoxicosis	Data show	Quizzes and monthly exam.
14	4 hours	Methods for detoxification of	Toxicity Treatments	Data show	Quizzes and monthly exam.

		fungus toxins			
15	4 hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of immunology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of immunology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
4 TH		Medical virology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Ethics	
Learning Outcomes 3	Learning Outcomes Statement 3
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Microbiology	Virology			Staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Medical Microbiology ,Jawetz and Melnic 2018. • Microbiology and Immunology ,Levenson ,2016 • Fields Virology , 2014

14. Program Development Plan

Seminar by students

Program Skills Outline															
				RequiredprogramLearningoutcomes											
Year/Level	CourseCode	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
4 th , 2 nd		Virogy	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion the information	Students can differentiate between two terms Scientists	The student can distinguish between types of thinking	Reception request And accept it For the material Scientific	Developing the learner's ability to think Scientific	Analyzing a problem of information retrieval al techniques and their use	student participates in explaining the material Scientific	student should be careful to Present Subject lectures Scientific	To desire Student in study Subject Scientific		

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

CourseDescriptionForm

1. Course Name: Medical Virology	
2. Course Code:	
3. Semester/Year: Semester	
4. Description Preparation Date: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 30hr , 2	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: Prof .Dr. Hussein Al.Bayati Ali shaker Mohsen Ali	
8. Course Objectives	
Course Objectives	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations. The students should gain fundamental knowledge on various aspects of virology and immunology and should get acquainted with the infrastructure required for working with viruses and to also acquire knowledge about various safety measures.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4 hours	Introduction and History , principles of virology	Introduction	Data show	
2	4 hours	Virus structure and morphology	Chemical and Physical Properties	Data show	Quizzes and monthly exam.
3	4 hours	introduction to replication strategies.	Replication of N.A	Data show	Quizzes and monthly exam.
4	4 hours	-Antiviral Drug , Vaccination	Protection and Prevention	Data show	Quizzes and monthly exam.
5	4 hours	Virus-Interaction Methods of Transmition	Genetic rearrangements	Data show	Quizzes and monthly exam.
6	4 hours	viral pathogenesis Immunity to infections	Coarse of Viral Infection	Data show	Quizzes and monthly exam.
7	4 hours	Diseases caused by or associated with bacterial toxins:	Toxin Pathogenesis	Data show	Quizzes and monthly exam.
8	4 hours	Non-enveloped DNA viruses		Data show	Quizzes and monthly exam.
9	4 hours	enveloped DNA viruses		Data show	Quizzes and monthly exam.
10	4 hours	RNA viruses I		Data show	Quizzes and monthly exam.
11	4 hours	RNA viruses II		Data show	Quizzes and monthly exam.
12	4 hours	Arbo Viruses		Data show	Quizzes and monthly exam.
13	4 hours	Hepatitis Viruses		Data show	Quizzes and monthly exam.
14	4 hours	Retro Virus		Data show	Quizzes and monthly exam.
15	4 hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teach students the basics of enzymatic science in all its topics with examples and all applications related to this science in industrial and medical fields, especially with regard to diagnosing diseases caused by hereditary or accidental enzyme defects, and with scientific lectures that achieve a solid scientific background for students in the field of enzymes so that they can take their active role in serving... Members of the Society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Forth	Path-323	enzymology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Lecturer .Dr	biology	Physiology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
- Williams' textbook of endocrinology, 8th edition, 1992 - Oxford Handbook of Endocrinology and Diabetes, John Wass, Helen Turner 4th edition - Essentials of Endocrinology and Metabolism: A Practical Guide for Medical Students 1st ed. 2020 Edition

14. Program Development Plan

Seminar by students

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
Fourth	Path-323	enzymology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion the information	Students can differentiate between two terms Scientists	The student can distinguish between the types of thinking	Reception request And accept it For the material Scientific	Developing the learner's ability to think Scientific	Analyzing a problem and information retrieval techniques and their use	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: endocrinology	
2. CourseCode: A	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: lecturer Dr zahraa alwan	
8. Course Objectives	
Course Objectives	• Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Study the enzymology and the Chemical nature of enzyme	Definition of enzymes	Data show	
2	hours	Properties of enzyme .Chemical	Properties for enzymes	Data show	Quizzes and monthly exam.
3	hours	Enzyme classification	Classification and type of enzyme	Data show	Quizzes and monthly exam.
4	hours	Denaturation of enzyme	Structure of enzymes	Data show	Quizzes and monthly exam.
5	hours	Specificity, and Function determination the Rate of reaction	Specificity, and Function of enzymes	Data show	Quizzes and monthly exam.
6	hours	Factors affecting enzyme action, Effect of PH Temp.	Factors affecting enzyme reaction	Data show	Quizzes and monthly exam.
7	hours	Michaelis-Menten equation	Enzyme kinetics	Data show	Quizzes and monthly exam.
8	hours	Determining Vmax and Km	Lineweaver- Burk plot applications	Data show	Quizzes and monthly exam.
9	hours	The Meaning of Km	Effinity of enzyme.	Data show	Quizzes and monthly exam.
10	hours	Inhibiter Antibiotic effect on some enzymes	The Inhibitors	Data show	Quizzes and monthly exam.
11	hours	Regulator	Allosteric effectors	Data show	Quizzes and monthly exam.
12	hours	Isoenzyme	electrophoresis	Data show	Quizzes and monthly exam.
13	hours	Some inborn error of metabolism	fructose uria determination	Data show	Quizzes and monthly exam.
14	hours	Diagnostic foe disease	Uses of enzymes	Data show	Quizzes and monthly exam.
15	hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of blood diseases in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of hematology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
fourth	Path-411	Blood Diseases	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Lecturer	biology	Animal Physiology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
- Hoffbrands Essential Haematology, 2019 - Basics of Clinical Hematology, Sushma, U. K. 2019 - Clinical hematology, Stephen Golgberg, M. D. 2021 - Clinical Hematology Atlas, 2021

14. Program Development Plan

Seminar by students

Program Skills Outline															
				RequiredprogramLearningoutcomes											
Year/Level	CourseCode	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
fourth	Path-411	Blood Diseases	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion on the information	Students can differentiate between two terms Scientists	The student can distinguish between the types of Thin al Scient ific	Reception require And accept it For the materi al Scient ific	Developing the learner's ability to think Scientific	Analyze the problems and information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student study Subject Scientific		

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

CourseDescriptionForm

1. CourseName: blood diseases	
2. CourseCode: Path-411	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: lecturer Dr . Aqdas mohammed	
8. Course Objectives	
Course Objectives • Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.	
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	General introduction and Definition of anemia	Anemia	Data show	Quizzes and monthly exam.
2	hours	Iron absorption and metabolism, Causes of iron Iron-deficiency anemia	Iron-deficiency anemia	Data show	Quizzes and monthly exam.
3	hours	Types of sideroblastic anemia diagnosis and treatment of sideroblastic anemia	Sideroblastic Anemia	Data show	Quizzes and monthly exam.
4	hours	Congenital sideroblastic anemia, Acquired clonal sideroblastic anemia, and Acquired reversible sideroblastic anemia.	Causes of Sideroblastic Anemia	Data show	Quizzes and monthly exam.
5	hours	Causes of sickle cell anemia, Diagnosis and treatment of sickle cell anemia	Sickle Cell Anemia	Data show	Quizzes and monthly exam.
6	hours	HbSS, HbSC, HbS beta thalassemia .	Types of sickle cell disease	Data show	Quizzes and monthly exam.
7	hours	Definition of Thalassemia Diagnosis and treatment of Thalassemia	Thalassemia	Data show	Quizzes and monthly exam.
8	hours	Alpha- thalassemia and Beta thalassemi	Types of Thalassemia	Data show	Quizzes and monthly exam.
9	hours	General Definition of Leukemia, Acute Leukemia and chronic Leukemia Diagnosis and treatment of Leukemia	Leukemia	Data show	Quizzes and monthly exam.

10	hours	ALL, AML, CLL CML	Types of Leukemia	Data show	Quizzes and monthly exam.
11	hours	Causes of megaloblastic anemia, Clinical features of megaloblastic anemia Diagnosis and treatment of Megaloblastic Anemia	Megaloblastic Anemia	Data show	Quizzes and monthly exam.
12	hours	Causes of bleeding disorders, Types of bleeding disorders Symptoms of bleeding disorder	Bleeding Disorders	Data show	Quizzes and monthly exam.
13	hours	Definition of lymphoma Causes of lymphoma Diagnosis and treatment of lymphoma	Lymphoma	Data show	Quizzes and monthly exam.
14	hours	Classification of Reticuloendothelial cell, Functions of Reticuloendothelial System	The reticuloendothelial system (RES)	Data show	Quizzes and monthly exam.
15	hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports..... etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

1. Program Vision

department works to train students to achieve academic excellence through modern curricula, experiential education and extracurricular activities. The department works to provide an intellectual climate where university students interact with the faculty. Students will acquire the knowledge necessary to continue graduate studies or work in the educational field .

2. Program Mission

Specialized in teaching students the principles of biological sciences, improving their level of experimental studies, and applying some modern technologies in order to understand living organisms and their surrounding environment.

3. Program Objectives

Teaching students the basics of hematology in all its topics, with examples and all applications related to this science, especially what is related to the diagnosis of diseases that affect humans (the health aspect), in a way that achieves a solid scientific background for students in the field of hematology so that they can take their effective role in serving members of society.

4. Program Accreditation

Did not receive accreditation

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
College				
Requirements				

Department Requirements		3		Basic
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
fourth	Path-325	Hematology	theoretical	practical
			√	√

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general. Style of thinking and discussion Practical tests used in laboratories Teaching through exploratory lecture Lecture, use of the blackboard, and delivery. - Illustrative presentations (using diagrams, pictures, and educational films) - Interactive discussion - Self-education

10. Evaluation methods
exam degree Research, reports and tests .

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Lecturer	biology	Animal Physiology			staff	

Professional Development
Mentoring new faculty members
Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels. Courses, workshops and lectures .
Professional development of 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. Courses in teaching methods and courses in the safety of the Arabic language.

12. Acceptance Criterion
Central student admission, special expenses, and evening study .

13. The most important sources of information about the program
• Hoffbrands Essential Haematology, 2019 • Basics of Clinical Hematology, Sushma, U. K. 2019 • Clinical hematology, Stephen Golgberg, M. D. 2021 • Clinical Hematology Atlas, 2021

14. Program Development Plan

Seminar by students

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
fourth	Path-325	Hematology	Basic	ability to Use information in a way practical in place appropriate	The ability to put information together to form a conclusion the information	Students can differentiate between two terms Scientists	The student can distinguish between the types of thinking	Reception request And accept it For the material Scientific	Developing the learner's ability to think Scientific	Analyzing a problem of information retrieval techniques and their use	Testing a group of information retrieval techniques and their use	student participates in explaining the material Scientific	student should be careful to Presence Subject lectures Scientific	To desire Student study Subject Scientific	

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

CourseDescriptionForm

1. CourseName: Hematology	
2. CourseCode: Path-325	
3. Semester/Year: semester	
4. DescriptionPreparationDate: 2024	
5.AvailableAttendanceForms: (theoretical and practical)	
6.Number of Credit Hours (Total)/Number of Unit s(Total) 3	
7.Courseadministrator's name (mentionall,if morethanone name)	
Name: lecturer Dr . Aqdas mohammed	
8. Course Objectives	
Course Objectives	• Giving the student the ability to understand the functions and physiology of his body's various systems . • Providing the student with the ability to draw blood samples and perform various blood analyses. • Providing the student with the ability to dissect laboratory animals . • Giving the student the ability to evaluate an individual's health through his ability to read various tests.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures and group discussions for the purpose of facilitating the explanation of material, addition to use of diagrams and illustrations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	hours	Definition of hematology as science, Function of blood and the composition of blood	Introduction to hematology	Data show	Quizzes and monthly exam.
2	hours	Hematopoiesis period and Haemopoietic growth factors	Haemopoiesis	Data show	Quizzes and monthly exam.
3	hours	myeloid and lymphoid stem cells, classification and function	progenitor cells	Data show	Quizzes and monthly exam.
4	hours	Steps of erythropoiesis process, Erythrocyte production, and metabolism	Erythropoiesis	Data show	Quizzes and monthly exam.
5	hours	Steps of hemostasis, Formation of a Platelet Plug	Hemostasis	Data show	Quizzes and monthly exam.
6	hours	Types of Hemoglobin, Abnormalities of Hemoglobin Production, and Haemoglobin Degradation	Hemoglobin Production and Degradation	Data show	Quizzes and monthly exam.
7	hours	Synthesis of Heme-molecule and Synthesis of Globin-molecule	Synthesis of Haemoglobin	Data show	Quizzes and monthly exam.
8	hours	Iron Absorption and Metabolism, Dietary Iron: Heme Iron and non- Heme Iron	Iron Metabolism	Data show	Quizzes and monthly exam.
9	hours	Regulation of Total Iron in The Body, The sites of iron storage in the body	Iron transport and storage	Data show	Quizzes and monthly exam.

10	hours	Platelets formation and function	Platelets	Data show	Quizzes and monthly exam.
11	hours	Membrane lipid in Outer Monolayer and inner Monolayer	Erythrocyte Membrane – lipid composition	Data show	Quizzes and monthly exam.
12	hours	Types of Erythrocyte Membrane Proteins and Membrane integrity	Erythrocyte Membrane Proteins Composition	Data show	Quizzes and monthly exam.
13	hours	Regulation of RBC production and Degradation	The life cycle of a red blood cell	Data show	Quizzes and monthly exam.
14	hours	Disorders of leukocyte ,function Leukaemoid reaction, and General characteristic of monocytes	white blood cells (leucocytes)	Data show	Quizzes and monthly exam.
15	hours	Exam	Exam	Data show	Quizzes and monthly exam.

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assign to the student such as daily preparation ,daily oral ,monthly ,or written exams, reports..... etc.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

