

*Republic of Iraq  
Ministry of Higher Education & Scientific Research  
Supervision and Scientific Evaluation Directorate  
Quality Assurance and Academic Accreditation*

## *Academic Program Specification Form For The Academic*

*University:*

*College :*

*Department :*

*Date Of Form Completion :*

*Dean's Name*

*Date: / /*

*Signature*



*Dean's Assistant  
For Scientific  
Affairs*

*Date: / /*

*Signature*

*Head of  
Department  
Date: / /*

*Signature*

*Quality Assurance And University Performance*

*Manager Date: / /*

*Signature*



# TEMPLATE FOR PROGRAMME SPECIFICATION

## HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

### PROGRAMME SPECIFICATION

This Program Specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

1. Teaching Institution	Collage of Medicin \ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Program Title	Master's degree in Medical Microbiology
4. Title of Final Award	MSc. In Microbiology
5. Modes of Attendance offered	Curses in advanced Medical Microbiology
6. Accreditation	The program is accredited by the Ministry of Higher Education, and Iraqi governorate.
7. Other external influences	UNESCO.
8. Date of production/revision of this specification	June 11, 2024
9. Aims of the Program	
1- The graduation of professional staff capable of diagnosing common bacterial diseases using laboratory analysis methods.	
2- Graduating of professional staff capable of diagnosing rare cases of bacterial diseases through specialized research.	
3- The Graduation of professional staff capable of conducting, and developing a research program in the field of microbial diseases.	
4- The graduation of professional staff whom possess the scientific methodology in research and discovery.	

## 10. Learning Outcomes, Teaching, Learning and Assessment Methods

### A. Knowledge and Understanding

- A1- Comprehending the physical nature of the medical microorganisms at importance.
- A2- Understand the methods that lead to infection and\ or contamination.
- A3- Mastering the common and rare microorganisms of medical importance.
- A4- Understand the pathophysiology of their diseases.
- A5- Understand the methods of diagnosis and examinations.
- A6- Explain the preferred therapy and the methods of immunization.

### B. Subject-specific skills

- B1 – Obtaining the ability to perform laboratory tests to diagnose pathogenic bacteria.
- B2 - Obtaining the ability to perform laboratory tests to diagnose pathogenic viruses.
- B3 - Obtaining the ability to perform laboratory tests for the diagnose pathogenic fungi and parasites.

### Teaching and Learning Methods

- 1- Throw lectures, seminars and workshops.
- 2- Conducting laboratory experiments.
- 3- Sessions on the interpretation of the results.
- 4- Small group teaching.
- 5- Sessions on the guidelines of laboratory tests to diagnosis microbial diseases.

### Assessment methods

- 1- Written mid-term exams.
- 2- Written final exams.
- 3- Daily assessments in theory and practice.
- 4- Daily assessments in the form of solving a problem for a bacterial disease using the analytical methods.

### C. Thinking Skills

- C1. Field practice for a year in health institutions and hospitals.
- C2. Teaching the student the art of publication, and scientific methods of discussion and interpretation of research results.
- C3. Teaching the student communication skills, and how to obtain research samples.
- C4. Teaching the student the ethics of scientific research and international agreements on human and animal rights in research.

### Teaching and Learning Methods

- 1- Lectures.
- 2- Each student's direct supervision by a faculty member holding the title of Assistant Professor or above.
- 3- Direct supervision of each student by a teaching physician holding the title of Assistant Professor or above or a consultant physician in the Ministry of Health.

### Assessment methods

The branch is provided every month with a detailed report on the student's work and professional conduct, determining whether the student will continue his research or be suspended or prevented from studying by the supervisors.

D. General and Transferable Skills (other skills relevant to employability and personal development).

D1. The student conducts specialized research on a pathogenic microbe that enables him to gain comprehensive knowledge about it.

D2. The student will gain a qualified knowledge on methods of reach, laboratory diagnosis for that microbe.

D3. Enabling the student to know the quality for each laboratory diagnostic method.

D4. Enabling the student to find differences and similarities in specialized analyses of that microbial investigations.

#### Teaching and Learning Methods

1- Advanced specialized lectures on the pathological diagnosis of the student's specific research.

2- Practical application of specialized experiments under the supervision of specialized supervisors on the student's disease.

3- Re-implementing the analysis at least one hundred times to acquire the skill, identify work errors, and trouble shootings.

#### Assessment Methods

1- A monthly report on the student's personal evaluation, and work by two supervisors.

2- Statistical evaluation of the validity of the summarized results of the research.

3- External scientific evaluation of the validity of the research results.

4- Evaluation of the research by the discussion committee.

### 11. Program Structure

Level/Year	Course or Module Code	Course or Module Title	Creditrating				12. Awards and Credits
First course	MP2701	Protozoa					MSc. Degree Requires ( x ) credits
	MA2712	Advanced Bacteriology					
	MP2702	Pathology					
	MM2706	Mycology					
	MB1709	Biostatistics					
	MR1705	Research methodology					
	MV2707	Virology					
Sec. course	MM2703	Molecular Biology			MM2703		
	MI2708	Immunology			MI2708		
	MH2704	Helminthology			MH2704		
	M2711	Bacterial diagnosis			MB2711		
	MB2710	Bacterial physiology			MB2710		
Masters research		Research project	Sample collection	Sample analysis	Result analysis	Thesis writing	
			3 Months	3 Months	3 Months	3 Months	

## 12. Personal Development Planning

In the research year, the student will learn to function as part of a scientific research groups with different titles and positions to reach a result that satisfies everyone and contributes to developing ways to reach the cure of patients from the germ that the student specializes in. He is also trained to plan the research project using standard scientific methods and means before proceeding with the work. This will give him a future leadership ability that enables him to reach the diagnosis or supervision of research and even education and training.

## 13. Admission criteria .

The student who holds a bachelor's degree in the above-mentioned specializations is accepted, provided that he undergoes a scientific clearing in which the percentage of difference from the curriculum does not exceed five percent, and the following subjects are the basis for clearance:

- 1- Pathological protozoa.
- 2- Human pathology.
- 3- Pathogenic fungi.
- 4- Biological statistics.
- 5- Research methods.
- 6- Pathogenic viruses.
- 7- Molecular biology.
- 8- Human immunity.
- 9- Pathogenic worms.
- 10- Physiology of bacteria.
- 11- Bacterial diagnosis.

## 14. Key sources of information about the program

- 1- Modern scientific references
- 2- Virtual library
- 3- The Internet
- 4- Theses and dissertations in the specialty.
- 5- Scientific journals



## COURSE SPECIFICATION

### HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

### COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Medical Protozoa / MP2701
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this Specification	June 12, 2024
9. Aims of the Course	
1- Enabling students to classify primary medically important protozoa according to associated diseases.	
2- Students gain knowledge of international standard methods for diagnosing medically important protozoa.	
3- Students gain practical experience. Ability to interpret laboratory results.	

11.Course Structure PROTOZOA					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Week
Short exams	Lect. & Lab training	Introduction	Introduction	١٠+٢ع	١
=	=	Pathogenic Amoeba	Pathogenic Amoeba		٢

=	=	None Amoeba	None Amoeba		٣
=	=	Free Living Amoeba 	Free Living Amoeba 		٤
=	=	Intestinal flagellates	Intestinal flagellates		٥
=	=	Trypanosomiasis	Trypanosomiasis	ع٢+ ن١	٦
			Seminar		٧
=	=	Leishmaniasis	Leishmaniasis	ع٢+ ن١	٨
=	=	Sporozoa/Plasmodium1	Sporozoa/Plasmodium1	ع٢+ ن١	٩
=	=	Plasmodium 2, Babesia	Plasmodium 2, Babesia	ع٢+ ن١	١٠
=	=	Toxoplasmosis &Sarcocyst	Toxoplasmosis &Sarcocyst	ع٢+ ن١	١١
=	=	Intestinal sporozoan	Intestinal sporozoan	ع٢+ ن١	١٢
=	=	Ciliates/Balantidium coli	Ciliates/Balantidium coli	ع٢+ ن١	١٣
			Seminar	ع٢+ ن١	١٤
			Final exam	ع٢+ ن١	١٥

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Human pathology/ MP2702
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	15 hrs.
8. Date of production/revision of this specification	June 12, 2024
9. Aims of the Course	
1- Introducing the student to human pathology.	
2- Enabling the student to understand laboratory diagnostic methods.	
3- Training the student on methods for deriving results.	
4- Enabling the student to diagnose advanced diseases.	



11 _ Course Structure pathology					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Week
Short exam	Lectures		Cell adaptation	١٥	١
=	=		Irreversible cell changes		٢
=	=		Inflammation 1		٣
=	=		Inflammations 2		٤
=	=		Vascular disease		٥
=	=		Hematologic		٦
			سمنار	١٥	٧
=	=		Neoplasia 1		٨
=	=		Neoplasia 2		٩
=	=		Immune disorders 1		١٠
=	=		Infection disease 1		١١
=	=		Infection disease 2		١٢
			Healing		١٣
			Genetic disorders		١٤
			التقييم والاختبار النهائي		١٥

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Molecular Biology MM2703
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this specification	June 12, 2024
9. Aims of the Course	
	1- Enabling students to recognize the molecular diagnosis of microorganisms.
	2- Students acquire advanced knowledge in molecular biological examinations.
	3- Students gain practical experience. Methods of interpreting results for molecular tests

## 11. Course Structure Molecular biology

Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Week
Short exam	Lectures & Lab training	Principles and essentials of nucleic acids:- structure, function, replication	Principles and essentials of nucleic acids:- structure, function, replication	٢٤ ع٢+	١
=	=	Central dogma for molecular biology- Protein synthesis	Central dogma for molecular biology- Protein synthesis	٢٤ ع٢+	٢
=	=	Genomic mutations and gene rearrangement	Genomic mutations and gene rearrangement	٢٤ ع٢+	٣
=	=	Gene therapy and its application in medicine	Gene therapy and its application in medicine	٢٤ ع٢+	٤
=	=	Epigenetics:- -Definition, History, How it works -Mechanisms of epigenetics -Epigenetics and embryo development -Types of epigenetic modifications	Epigenetics:- -Definition, History, How it works -Mechanisms of epigenetics -Epigenetics and embryo development -Types of epigenetic modifications	٢٤ ع٢+	٥
=	=	Molecular cloning and hybridization -Restriction enzymes -Cell based approach	Molecular cloning and hybridization -Restriction enzymes -Cell based approach	٢٤ ع٢+	٦
			سمنار		٧
=	=	Polymerase Chain reaction:- -Conventional PCR -Nested PCR -Reverse transcriptase PCR -Quantitative real time PCR (qRT-PCR)	Polymerase Chain reaction:- -Conventional PCR -Nested PCR -Reverse transcriptase PCR -Quantitative real time PCR (qRT-PCR)	٢٤ ع٢+	٨
=	=	Forensic DNA technology:- -Nuclear and mitochondrial DNA -DNA profile - DNA fingerprinting	Forensic DNA technology:- -Nuclear and mitochondrial DNA -DNA profile - DNA fingerprinting	٢٤ ع٢+	٩
=	=	Sequencing and next generation sequencing:- -Whole genome sequencing -Exome sequencing	Sequencing and next generation sequencing:- -Whole genome sequencing -Exome sequencing	٢٤ ع٢+	١٠
=	=	Cytogenetic:- -Introduction to cytogenetic -Milestones in cytogenetic -Indications for cytogenetic analysis -Approach to cytogenetic analysis -Chromosomal classifications	Cytogenetic:- -Introduction to cytogenetic -Milestones in cytogenetic -Indications for cytogenetic analysis -Approach to cytogenetic analysis -Chromosomal classifications	٢٤ ع٢+	١١
=	=	Updated molecular tools used for clinical diagnosis	Updated molecular tools used for clinical diagnosis	٢٤ ع٢+	١٢
		Methods for diagnosis	Cl. Chromosomal abnormalities	٢٤ ع٢+	١٣
			Karyotyping	٢٤ ع٢+	14
			Final exam		١٥

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Helminthology/ MH2704
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this specification	June 12, 2024
9. Aims of the Course	
1- Teaching the student to classify pathogenic worms.	
2- Enable the student to link worms with clinical signs.	
3- Training the student on diagnostic tests used internationally and locally.	
4- Enable the student to interpret laboratory results for helminth diseases	

11. Course Structure Medical Helminthology					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Week
Short exam	Lectures & Lab training	Introduction	Introduction	ع٢+ن٢	١
=	=	Trematodes Liver flukes	Trematodes Liver flukes	ع٢+ن٢	٢
=	=	Intestinal flukes	Intestinal flukes	ع٢+ن٢	٣
=	=	Blood flukes	Blood flukes	ع٢+ن٢	٤
=	=	Cestodes/ T. Solium &T. saginata	Cestodes/ T. Solium &T. saginata	ع٢+ن٢	٥
=	=	Hydatidosis	Hydatidosis	ع٢+ن٢	٦
			Seminar	ع٢+ن٢	٧
=	=	Hydatidosis	Hydatidosis	ع٢+ن٢	٨
=	=	Hymenolipiasis Dipylidiasis Diphylbothriasis	Hymenolipiasis Dipylidiasis Diphylbothriasis	ع٢+ن٢	٩
=	=	Nematodes T. trichura	Nematodes T. trichura	ع٢+ن٢	١٠
=	=	Ascariasis Enterobiasis	Ascariasis Enterobiasis	ع٢+ن٢	١١
=	=	Ancylostomiasis	Ancylostomiasis	ع٢+ن٢	١٢
=	=	Strongyodiasis Larvae migrans	Strongyodiasis Larvae migrans	ع٢+ن٢	١٣
		Filariasis	Filariasis	ع٢+ن٢	١٤
			Final exam & evaluation	ع٢+ن٢	١٥

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Research Methodology/ MR1705
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this Specification	June 12, 2024
9. Aims of the Course	
1- Comprehending, scientific research and its conditions.	
2- Expanding the student's understanding to reach sound scientific output.	
3- Training the student on methods of publishing and academic reputation.	
4- Enabling the student to analyze the data to arrive at a scientific explanation Logical.	

## 11. Course Structure research method

Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Wk
Short exam	Lectures & Lab training	Introduction to Statistical Package for the Social Sciences (SPSS)	Study design (observational or Non experimental study)	2٤٢+٧	1
=	=		Study design (Non experimental study)	2٤٢+٧	2
=	=	Enter Data in SPSS and Data definition in SPSS	Cross-sectional Studies	2٤٢+٧	3
=	=	Subscribe with Anbar medical Journal	Case-control studies and Cohort studies	2٤٢+٧	4
=	=	Manuscript evaluation & revision	Basic structure & types of medical research paper	2٤٢+٧	5
=	=	Evaluation of scientific research by students	How to get published in a standard peer-reviewed medical journal	2٤٢+٧	6
=	=	Writing a discussion of scientific research	Create & Manage Your Academic Researcher Profile	2٤٢+٧	7
=	=	Writing a scientific article	How to increase citation of Medical scientific research	2٤٢+٧	8
=	=	Writing a research review	Artificial intelligence and scientific research	2٤٢+٧	9
=	=	Selecting update references for scientific research	Randomized controlled trials (RCTs)	2٤٢+٧	10
=	=	Applying Grammarly software in scientific writing for research	Sampling and sample size	2٤٢+٧	11
		Cleaning of Qualitative and Quantitative Data and missing value in SPSS	Endnote and Mendeley for Reference manger		١٢
		Descriptive statistics for Qualitative variables and Quantitative variables in SPSS	Meta-analysis and systemic review articles		١٣
		Correlation and Regression, Odds Ratio & Relative risk and Pre-Post tests in SPSS	Creation of Google scholar, ORCID, Research gate for each students		١٤
		Sample size calculation, Subscribe with Anbar medical Journal)	Guidelines for writing research paper for publication		١٥

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Medical mycology/ MM2706
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	15 hrs.
8. Date of production/revision of this specification	June 12, 2024
9. Aims of the Course	
1- Comprehending about fungal diseases.	
2- Teaching the student the methods used to diagnose fungal diseases.	
3- Training the student to derive results and ways to interpret them	
4- Enabling the student to conduct a logical analysis of the causes of fungal diseases	

11. Course Structure Mycology					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Wk.
Short exam	Lectures	Introduction to medical Mycology	Introduction to medical Mycology	٢ن	١
=	=	Cutaneous Mycology	Cutaneous Mycology	٢ن	٢
=	=	Subcutaneous Mycology	Subcutaneous Mycology	٢ن	٣
=	=	Histoplasmosis	Histoplasmosis	٢ن	٤
=	=	Opportunistic system mycosis	Opportunistic system mycosis	٢ن	٥
=	=	Nocardiosis	Nocardiosis	٢ن	٦
			Seminar	٢ن	7
=	=	candida	candida	٢ن	٨
=	=	cryptococcus	cryptococcus	٢ن	٩
=	=	Mycotoxin	Mycotoxin	٢ن	١٠
=	=	Aspergillosis	Aspergillosis	٢ن	١١
=	=	Antifungal Agents	Antifungal Agents	٢ن	١٢
=	=	Biofilm	Biofilm	٢ن	١٣
=	=	Systemic Mycosis	Systemic Mycosis	٢ن	١٤
			Final exam	٢ن	١٥

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Medical Virology/ MV2707
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this Specification	June 12, 2024
9. Aims of the Course	
1- Introducing the student to the science of pathogenic viruses.	
2- Enabling the student to understand the diagnostic methods used for viruses.	
3- Training the student on methods for deriving and analyzing results.	
4- Enabling the student to know the progress made in virology.	

11. Course Structure Virology					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Wk.
Short exam	Lectures & Lab training	<b>Introduction of Human viruses</b>	<b>Introduction of Human viruses</b>	ع٢+ن١	١
=	=	<b>Replication of viruses with atypical viruses</b>	<b>Replication of viruses with atypical viruses</b>	ع٢+ن١	٢
=	=	<b>Vaccination against viruses</b>	<b>Vaccination against viruses</b>	ع٢+ن١	٣
=	=	<b>Pathogenesis of the viruses</b>	<b>Pathogenesis of the viruses</b>	ع٢+ن١	٤
=	=	<b>Antiviral therapy with interferons</b>	<b>Antiviral therapy with interferons</b>	ع٢+ن١	٥
=	=	<b>Herpesvaridae and Poxvaridae</b>	<b>Herpesvaridae and Poxvaridae</b>	ع٢+ن١	٦
=	=	<b>Adenoviruses, Human Papilloma viruses and Parvovirus</b>	<b>Adenoviruses, Human Papilloma viruses and Parvovirus</b>	ع٢+ن١	٧
=	=	<b>Orthomyxovaridea include influenza viruses</b>	<b>Orthomyxovaridea include influenza viruses</b>	ع٢+ن١	٨
=	=	<b>Picoranvaridae</b>	<b>Picoranvaridae</b>	ع٢+ن١	٩
=	=	<b>Rota virus, calici, astrovirus infection</b>	<b>Rota virus, calici, astrovirus infection</b>	ع٢+ن١	١٠
		<b>Hepatitis viruses</b>	<b>Hepatitis viruses</b>	ع٢+ن١	١١
		<b>Retrovaridae include HIV</b>	<b>Retrovaridae include HIV</b>	ع٢+ن١	١٢
		<b>Coronaviruses</b>	<b>Coronaviruses</b>	ع٢+ن١	١٣
		<b>Rhabdovaridae )Rabies virus( and Rotaviruses</b>	<b>Rhabdovaridae )Rabies virus( and Rotaviruses</b>	ع٢+ن١	١٤
		<b>Yellow and Haemorrhagic fever viruses</b>	<b>Yellow and Haemorrhagic fever viruses</b>	ع٢+ن١	١٥
=	=	<b>Zinka virus</b>	<b>Zinka virus</b>	ع٢+ن١	١٦

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Medical Immunology/ MI2708
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this specification	June 12, 2024
9. Aims of the Course	
1- Teaching the student the basics of immunity for the human body.	
2- Expanding the student's awareness of what immunology has recently achieved.	
3- Training the student on the immunological tests used internationally and nationally.	
4- Enabling the student to diagnose immune diseases.	

## 11. Course Structure Immunology

Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Wk.
Short exam	Lectures & Lab training	Introduction to Immunity	Introduction to Immunity	ع٢+ن٢	١
=	=	Cells & organs of immunity	Cells & organs of immunity	ع٢+ن٢	٢
=	=	CMI & HI	CMI & HI	ع٢+ن٢	٣
=	=	Complement System	Complement System	ع٢+ن٢	٤
=	=	Cytokines	Cytokines	ع٢+ن٢	٥
=	=	Hyper sensitivity	Hypersensitivity	ع٢+ن٢	٦
=	=	Immune response	Immune response	ع٢+ن٢	٧
=	=	Immune response to infectious disease	Immune response to infectious disease	ع٢+ن٢	٨
=	=	Immunoglobulin	Immunoglobulin	ع٢+ن٢	٩
=	=	MHC	MHC	ع٢+ن٢	١٠
=	=	Organ transplantation	Organ transplantation	ع٢+ن٢	١١
=	=	T cell maturation & Activation	T cell maturation & Activation	ع٢+ن٢	١٢
=	=	Vaccine	Vaccine	ع٢+ن٢	١٣
=	=	Autoimmune disease	Autoimmune disease	ع٢+ن٢	١٤
=	=	Cancer	Cancer	ع٢+ن٢	١٥



1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Biostatistics/ MB1709
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this Specification	June 12, 2024
9. Aims of the Course	
1- Enabling students to understand research statistics.	
2- Practicing the student on ways to write statistical tables.	
3- Enabling the student to derive research results.	

11. Course Structure Biostatistics					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Wk.
Short exam	Lectures & Lab training	Introduction	Introduction	٤٢+٢٢	١
=	=	Central tendency	Central tendency	٤٢+٢٢	٢
=	=	Measurement of Variability	Measurement of Variability	٤٢+٢٢	٣
=	=	Sampling and Sample Size	Sampling and Sample Size	٤٢+٢٢	٤
=	=	Data representation	Data representation	٤٢+٢٢	٥
=	=	Chi square	Chi square	٤٢+٢٢	٦
=	=	Communication	Communication	٤٢+٢٢	٧
=	=		Seminar	٤٢+٢٢	٨
=	=	Correlation	Correlation	٤٢+٢٢	٩
=	=	Community diagnosis	Community diagnosis	٤٢+٢٢	١٠
=	=	Screening	Screening	٤٢+٢٢	١١
=	=	Data representation	Data representation	٤٢+٢٢	١٢
=	=	SPSS	SPSS	٤٢+٢٢	١٣
=	=		Seminar	٤٢+٢٢	14
=	=		Final exam	٤٢+٢٢	١٥

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Bacterial physiology MB2710
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	15 hrs.
8. Date of production/revision of this Specification	June 12, 2024
9. Aims of the Course	
1- Enabling students to understand research statistics.	
2- Practicing the student on ways to write statistical tables.	
3- Enabling the student to derive research results.	

11. Course Structure Bacterial Physiology					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Wk.
Short exam	Lectures	Sterilization (Disinfection & Antiseptic )	Sterilization (Disinfection & Antiseptic )	ع٢+ن٢	١
=	=	Bacterial cell Anatomy	Bacterial cell Anatomy	ع٢+ن٢	٢
=	=	Host- parasite Relationships	Host- parasite Relationships	ع٢+ن٢	٣
=	=	Bacterial growth and normal flora	Bacterial growth and normal flora	ع٢+ن٢	٤
=	=	Bacterial Nutrition	Bacterial Nutrition	ع٢+ن٢	٥
			Seminar		٦
=	=	Bacteria physiology transport	Bacteria physiology transport	ع٢+ن٢	٧
=	=	Metabolism	Metabolism	ع٢+ن٢	٨
=	=	Bacterial genetics	Bacterial genetics	ع٢+ن٢	٩
=	=	Antimicrobial Agents	Antimicrobial Agents	ع٢+ن٢	١٠
=	=	Protein synthesis	Protein synthesis	ع٢+ن٢	١١
=	=	Bacterial enzyme	Bacterial enzyme	ع٢+ن٢	١٢
=	=		Final exam	ع٢+ن٢	١٣

1. Teaching Institution	College of Medicin\ University of Anbar
2. University Department/Centre	Department of Microbiology
3. Course title/code	Medical Advanced Bacteriology/ MA2712
4. Program(s) to which it contributes	MSc. In Microbiology
5. Modes of Attendance offered	Classroom lectures
6. Semester/Year	Semester
7. Number of hours tuition (total)	45 hrs.
8. Date of production/revision of this Specification	June 12, 2024
9. Aims of the Course	
	1- Enabling students to understand terminology at an advanced level of bacteriology.
	2- Students acquire advanced knowledge in medical bacteriology.
	3- Students gain practical experience and lurn how to interpret the culture results.

11. Course Structure Bacterial Diagnosis					
Assessment Method	Teaching Method	ILOs	Unit/Module or Topic Title	hours	Wk.
Short exam	Lectures & Lab training	Advanced Microbiology	Introduction	ع٢+ن٢	١
=	=	Staphylococcus spp.	Gram's positive cocci	ع٢+ن٢	٢
=	=	Streptococcus spp.	Streptococcus spp.	ع٢+ن٢	٣
=	=	Neisseria spp.	Neisseria spp.	ع٢+ن٢	٤
=	=	Gram-positive aerobic bacilli	Gram-positive aerobic bacilli	ع٢+ن٢	٥
=	=	Gram-positive anaerobic bacilli	Gram-positive anaerobic bacilli		٦
=	=	Mycobacterium spp.	Mycobacterium spp.		٧
=	=	Diphtheria & diphtheroids	Diphtheria & diphtheroids		٨
=	=	Parvobacteria	Parvobacteria		٩
=	=	Anaerobic Gram-negative bacteria	Anaerobic Gram-negative bacteria		١٠
=	=	Enterobacteriaceae	Enterobacteriaceae		١١
=	=	Antimicrobials	Antimicrobials		١٢
=	=	Vibrio bacteria	Vibrio bacteria		١٣
=	=	Spirochetes	Spirochetes		١٤
=	=	Mycoplasma / Chlamydia / Rickettsia	Mycoplasma / Chlamydia / Rickettsia		١٥
=	=		Final exam		١٦

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	Three
Maximum number of students	Fifteen