

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



Academic Program and Course Description Guide

3rd stage Microbiology 2025- 2026

Academic Program Description Form

University Name: University of Al-Qadisiyah

Faculty/Institute: College of medicine

Scientific Department:

Academic or Professional Program Name: General Medicine and Surgery

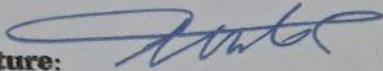
Final Certificate Name: Bachelor's degree in General Medicine and Surgery

Academic System: Annual year / 2 semester

Description Preparation Date: 10/9 /2025

File Completion Date: 16/9/2025

Signature:



Head of Department Name:

Prof Dr.Nael Mohammed

Signature:


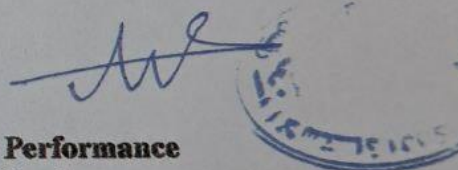


Scientific Associate Name:

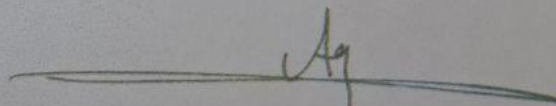
Prof. Dr. Ibrahim Altem

The file is checked by: Prof Dr. Anwar jassib
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance
Department:

Signature:



Approval of the Dean



1. Program Vision
<ul style="list-style-type: none"> • <ul style="list-style-type: none"> • The program aim to preparing well trained physicians in knowing the microbial pathogens, and their relationship with the human body and immune response. All these are based on the integrative curriculum. The curriculum focused on student based learning plan, small group sessions, and problem based discussions. This task makes the student capable to achieve long live learning and able to work in a team.

2. Program Mission
<ul style="list-style-type: none"> • At the end of the course student will develop a knowledge base of principles of microbial, structure, physiology, and function, and will know major types of pathogenic microorganisms for human. And would be familiar with the major types of Immune mediated diseases. In addition to that, post-graduate study in Medical Microbiology that support various sectors of health care system. • Make student able to conduct novel and meaningful research, and offer consultation in microbiology and immunology as they relate to human disease. • Demonstrate the ability to use the laboratory to diagnose infections, including appropriate specimen collection and test ordering, along with the ability to interpret laboratory findings in the context of the patient’s presentation and findings. In addition to problem solving ability and diagnostic skills of infectious diseases.

3. Program Objectives
<p>Graduating distinguished doctors and rehabilitating them scientifically, professionally and ethically so that they can provide health and medical care to individuals, families and society on sound scientific bases and in accordance with the noble moral, social and humanitarian values with great interest in primary health care</p> <ul style="list-style-type: none"> - Developing curricula, teaching aids and methods to improve quality based on international quality standards and academic accreditation - Achieving accreditation through the institutional capacity standards of the college. Achieving academic accreditation standards for student and graduate programs offered by the college <p>Continuous support for distinguished cadres of faculty members through an academic environment that encourages production and creativity</p> <p>θ Continuous development of the scientific research system to identify and diagnose major health problems in the community, propose appropriate scientific solutions to them, and keep pace with development in basic and clinical medical sciences.</p>

4. Program Accreditation
An application has been made for national accreditation for medical colleges

5. Other external influences

Advances in medical science and technology , requiring regular curriculum updates

6. Program Structure

Program Structure	Number of semester	Credit hours	Percentage	Reviews*
Institution Requirements	2	Total 150h for annual year semester I,II (90h theory and 60h practical)		Basic
College Requirements	2	Total 150h for annual year semester I,II (90h theory and 60h practical)		Basic
Department Requirements	2	Total 150h for annual year semester I,II (90h theory and 60h practical)		Basic
Summer Training	Not found			
Other	Basic course			

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
3 rd year	MIC 3203	Microbiology	Total 90 h for annual year semester I,II	Total 60 h for annual year semester I, II

8. Expected learning outcomes of the program

Knowledge

Knowledge and Understanding

1. Develop a knowledge base of principles of microbial taxonomy, structure, physiology, and function.
2. Develop a vocabulary for describing the host parasite relationship and microbial pathogenesis.
3. Recognize the most important infectious clinical conditions and outline the diagnosis, treatment, prevention and control of the most likely organisms causing such diseases.
4. Develop familiarity with the major types of Immune mediated diseases.

Skills

1. Demonstrate the ability to use the laboratory to diagnose infections, including appropriate specimen collection and test ordering.
2. Demonstrate the ability to interpret laboratory findings in the context of the patient's presentation and findings.
3. Demonstrate problem solving ability and diagnostic reasoning with infectious diseases.
4. Develop an ability to use evidence-based medicine to determine methods for diagnosis and treatment of infections.
5. Demonstrate knowledge of the effect of age on the types of infections seen in the life cycle, including those seen in perinatal, pediatric, and geriatric patients.

Ethics

Follow biosafety and biosecurity guidelines to prevent laboratory acquired infections and environmental contamination

9. Teaching and Learning Strategies

- The method of lecture and the use of the smart board
 - Readings, self-learning, panel discussions.
 - Exercises and activities in the classroom.
 - Guide students to some websites to benefit from them to develop abilities.
- Ask the students a set of thinking questions during the lectures such as what, how, when and why

10. Evaluation methods

Formative Examination: Assessment of knowledge, Learning, and Skills

Summative Examination: Assessment of knowledge, Learning and intellectual skills.

Methods of Assessments: A. Long Essay Question, Short essay Question, MCQ, and Objective Structured Test (OST)

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
prof	Microbiology	Immunology			1	
prof	Microbiology	Bacteriology			3	
prof	Microbiology	Microbiology			1	
prof	Microbiology	Molecular biology			1	
prof	parasitology	parasitology			1	
Assist. prof	Microbiology	immunology			1	
Assist. prof	Microbiology	virology			1	
Assist. prof	Microbiology	Microbiology			1	
Assist. prof	Microbiology	bacteriology			1	
Assist. lecturer	Microbiology	microbiology			2	

Professional Development

Mentoring new faculty members

processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students.

Professional development of faculty members

creating or sustaining a culture of teaching excellence; advancing new initiatives in teaching and learning; and supporting individual faculty members' goals for professional development.

12. Acceptance Criterion

According to the student's central acceptance rate

13. The most important sources of information about the program

- 1- Jawetz, Melnick&Adelberg's Medical Microbiology, Brooks, Butel and Morse. Cal Books/McGraw-Hill Publishers.
- 2- Mims' Medical Microbiology and Immunology, 7th Edition Clinical biochemistry, 3ed ed. Gaw A, Cowan R, O'Reilly D, Stewart M. 2004

14. Program Development Plan

1. Trying to make vertical integration between basic and clinical science, in order to make basic knowledge in medical wise guide.
2. Focus on host- parasite relationship, causal relationship, critical thinking and scientific integrity.
3. Make an update on curriculum according to community, and most common infection that either make community problem or hospital acquired infection like Covid-19

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
3rd year	MIC 3203	Microbiology	Basic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Course Description Form

1. Course Name: Microbiology	
Microbiology	
2. Course Code: MIC 3203	
MIC 3203	
3. Semester / annual	
Year: 3rd year , annual year , semester I,II	
4. Description Preparation	
Date: 10/9/2025	
5. Available Attendance Forms:	
Official working hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
150 H total hour for annual year , semester I,II (90h theory and 60 h practical)/ 8 unit total	
7. Course administrator's name (mention all, if more than one name)	
Name: Ibrahim A. Altamemi Email: ibrahim.altamemi@qu.edu.iq	
8. Course Objectives	
Course Objectives	<p>Pathogenesis: principles of how microbes cause disease, including mechanisms of infection, virulence factors, and host–pathogen interactions</p> <p>Immunity: role of the immune system in combating infections, including both innate and adaptive immunity</p> <p>Immunity: pathway of immune mediated disease, along with Immune deficiency disorder, in addition to its methods of treatment</p> <p>Infectious Diseases: infectious diseases of medical importance, their microorganisms, causes, and their clinical manifestations</p> <p>Laboratory Diagnosis: principles and applications of various laboratory techniques used for the isolation, identification, and characterization of microorganisms.</p> <p>Control and Prevention: methods for controlling microbial growth and preventing spread of infection.</p> <p>Antimicrobial Therapy: the principles of antimicrobial action, resistance, and appropriate use in treating infections.</p> <p>Molecular Microbiology: a basic understanding of molecular techniques and their application in microbiology, such as genomics and PCR.</p> <p>Microscopic Examination: Students should be able to use a microscope to identify and differentiate microorganisms.</p> <p>Diagnostic Interpretation: interpret laboratory results and correlate them with clinical findings.</p>

findings to diagnose infectious diseases

9. Teaching and Learning Strategies

Strategy

- Manage the lecture in a way that feels the importance of time.
- The method of lecture and the use of the smart board
- Readings, self-learning, discussion panels.
- Exercises and activities in the classroom.
- Guiding students to some websites to benefit from them to develop capabilities.
- Asking students a set of thinking questions during the lectures such as what, how, when and why for specific topics
- Sudden daily and weekly continuous tests.
- Allocate a percentage of the class for group activities.

10. Course Evaluation

The method of lecture and the use of the smart board

Readings, self-learning, panel discussions.

Exercises and activities in the classroom.

- Guide students to some websites to benefit from them to develop abilities.

Ask the students a set of thinking questions during the lectures such as what, how, when and why

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Jawetz, Melnick&Adelberg's Medical Microbiology, Brooks, Butel and Morse. Cal Books/McGraw-Hill Publishers.

Main references (sources)

. Mims' Medical Microbiology and Immunology, 7th Edition

Recommended books and references (scientific journals, reports...)

1. Basic and Clinical Immunology, Stites, Stobo, Fudenberg and Wells. Lange Medical Publishing.
2. Clinical Immunology, Brostoff, Scadding, Male and Roitt. Gower Medical Publishing.
3. Immunology, Roitt, Brostoff and Male. Gower Medical Publishing

Electronic References, Websites

<https://asm.org/>

Medical Microbiology by Murray et al.
Elsevier <https://www.microbiologybook.org/>

Course Contents and time table: First Semester General Microbiology

Date	Theory	Hrs	Practical	Hrs	Lecturer
1 st Week 24/9	General properties and classification of viruses	1		1	
1 st Week 25/9	-Introduction to The Microbiology.	2	Laboratory safety	2	All faculty
2 nd week 1/10	Innate Immunity				
2 nd Week 2/10	-Morphology of bacteria – size, shape and arrangement of bacterial cell – cell wall -cytoplasmic membrane, flagella, fimbriae and pili, cytoplasmic matrix, nucleoid· cytoplasmic inclusions.	2	Sterilization and disinfection – Definition, physical agents – (sunlight, Drying, Dry heat, Moist heat, filtration, Radiation, Ultrasonic vibration)Chemical- (Alcohols, Aldehydes, Dyes, Halogens, Phenols,	2	All faculty
3 rd week 8/10	Replication of viruses				
3 rd Week 9/10	-Bacteria – Bacterial growth curve, growth requirements -Bacterial Physiology and Metabolism	1 1	Laboratory methods for identification of Bacteria and sample collection	2	All faculty
4 th week 15/10	Complement system				
4 th Week 16/10	❖ Bacterial genetics- methods of gene transfer – Transformation- mechanism·natural and artificial, Transduction- mechanism, generalized and specialized ❖ transduction, lysogenic conversion, Conjugation- Properties of F-plasmid, HFr ❖ PBL	2	Stains –simple stains, negative stain, differential stains and special stains.	2	All faculty
5 th week 22/10	Viral pathogenesis				
5 th Week 23/10	❖ Bacterial pathogenesis and Toxins	2	Culture methods (streak culture, Pour	2	All faculty

	❖ PBL		plate culture, Stab culture, Anaerobic culture methods		
6 th Week 30/10	❖ Host parasite relationship ❖ PBL	1	Biochemical reactions	2	All faculty
7 th week 5/11	Antigen and Antibody				
7 th Week 6/11	❖ Normal Flora ❖ vaccines	2	DNA extraction and PCR technique	2	All faculty
8 th week 12/11	Viral vaccine				
8 th Week 13/11	-Antimicrobial Agents ❖ PBL	2	Immunology lab	2	All faculty
9 th week 19/11	cytokines				
9 th Week 20/11	❖ Antibiotics and resistance. ❖ PBL	2	Antibiotic sensitivity test-MIC, MBC, Agar dilution, Broth dilution, Disc diffusion etc	2	All faculty
Week 10 26/11	MHC I, and MHCII, structure and function, T and B cell activation				
Week 10 27/11	SBL Bacterial Biofilm	2	PBL		According to group
Week 11 4/12	SBL Immunity to infections	2	PBL		According to group
14 th Week 11/12	SBL Hospital Acquired infections	2	PBL		According to group
15 th week 18/12	Review				

Course Contents and time table: 2nd Semester: Systemic Microbiology

Date	Theory	Hours	Practical and PBL	Hours	Lecturer
1 st Week	Streptococcal spp.	2	PBL	2	According to group
2 nd Week	Staph spp.	2	PBL	2	According to group
3 rd Week	Neisseria spp.	2	Practical Pyogenic cocci	2	
4 th Week	❖ Spore-forming Bacilli ❖ Clostridia	1 1	Practical Diagnostic microbiology of CNS	2	
5 th Week	❖ Vibrio ❖ Pseudomonas	1 1	PBL	2	According to group
6 th Week	❖ Enteric Gram-negative Bacilli (Enterobacteriaceae) ❖ E.Coli	1 1	PBL	2	According to group
7 th Week	❖ Salmonella , shigella ❖ Brucella	1 1	Practical Diagnostic microbiology of genitourinary tract	2	
8 th Week	Mid term Examination	2		2	
9 th Week	❖ Corynaebacterium ❖ Haemophilus, Bordetella Legionella	1 1	PBL	2	
10 th			Practical	2	

Week	❖ Mycobacteria ❖ Chlamydia	1 1	Diagnostic microbiology of upper and lower respiratory tract		
11 th Week	❖ Mycoplasma ❖ Spirochaetes	1 1	Practical Diagnostic microbiology of genitourinary tract	2	
12 th Week	❖ General properties of Fungi. ❖ Superficial Mycoses.	1 1	Practical Diagnostic Mycology		Dr.Hiyam
13 th week	❖ Systemic Mycoses. ❖ Opportunistic Mycoses.	1 1	Practical Diagnostic Mycology		Dr.Hiyam
14 th Week	❖ Pathogenic Actinomycetes.	2	Review		
15 th week	Review	2			

Skills:

- **Microscopic Examination:** Students should be able to use a microscope to identify and differentiate microorganisms.
- **Laboratory Techniques:** They should be proficient in basic microbiological techniques, including culturing, staining, and biochemical testing.
- **Infection Control:** Students should be able to implement appropriate infection control measures in clinical settings.
- **Diagnostic Interpretation:** They should be able to interpret laboratory results and correlate them with clinical findings to diagnose infectious diseases.

Professionalism and Ethics:

- **Teamwork:** They should be able to collaborate effectively with other healthcare professionals as part of an infection control team.
 - **Lifelong Learning:** They should be committed to staying up-to-date with the latest developments in the field of medical microbiology
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Practical sessions

1. Introduction to Immunology laboratory
2. Antibody-Antigen (Ab-Ag) reaction (precipitation)
3. Ab-Ag reaction (hemagglutination)
4. Ab-Ag reaction (complement fixation)
5. Ab-Ag reaction (ELISA) and Immunoblot.
6. Ab-Ag reaction (Immunofluorescence test and RadioImmuno Assay)
7. Flowcytometry
8. Immunohistochemistry (IHC)
- 9-PBL

3rd year medical virology curriculum

Practical sessions

1. Introduction to practical virology
2. Methods of diagnosis of viral infections
3. Preparation of tissue culture.
4. Clinical specimens collection and handling
5. Detection of viruses using immuno-electron microscopy (IEM).
6. Detection of viruses using polymerase chain reaction (PCR)
- 7-PBL

Examinations description:

Examination	Description
1-Continuous progress test (CPT)	oral examination / spot diagnosis , quizzes , PBL ,Short answered questions, and skills assessment , log book activity , Case report ,homework activity
2- Mid theory exam for semester I,II	Short answered questions, M.C.Qs. and case presentation with short answer and matching according bloom and blue print
3- Half year theory exam	M.C.Qs. as case sinario or direct question , according bloom and blue print
4-Final year theory exam	M.C.Qs. as case sinario or direct question , according bloom and blue print
5- Final Practical exam for semester I,II	Spot slide diagnosis , prescription writing, M.C.Q , according bloom and blue print

The minimum passing grades (Faculty bylaws) is 50 marks.

Re-sit Examinations :- Students who fail in annual year assessment will be required to re-sit (second sitting) the Final examination (theory and practical exam) .