

PhD of Microbiology program's description

Identification Card

Program:	Microbiology
Program Code:	MBI
Qualification Level:	∧ (PhD Degree)
Department:	Botany and Microbiology
College:	Science
University:	King Saud University
Program's Main Location:	Al Daryah, Riyadh
Program's Branches:	NA
Total credit hours:	20
Exit Points:	NA

Microbiology Program's Mission

Graduation of qualified scientists capable to perform world-class applied research and to provide consultation in Microbiology through promoting culture and philosophy in science and technology.

General description

A PhD program in Microbiology is an advanced academic journey focused on the study of microorganisms, including bacteria, viruses, and fungi, as well as their interactions with hosts and environments. Typically lasting 4-6 years, the program encompasses rigorous coursework covering fundamental and specialized topics in microbiology, combined with substantial research culminating in a dissertation that contributes novel findings to the field. Students gain practical laboratory skills through hands-on training in techniques such as molecular biology and bioinformatics, participate in seminars and conferences for professional

development, and may take on teaching assistantships to develop pedagogical experience. Graduates are well-equipped for diverse career paths in academic research, industry, clinical laboratories, and public health organizations, making significant contributions to advancements in health and environmental science.

Study plan

PhD Program

(20 hours)

The First level (10 units)

Course code	Course	Units
611 MBI	Molecular biology of viruses	2 (1+1)
521 MBI	Advanced studies in bacteriology	2 (1+1)
631 MBI	Advanced mycology	2 (1+1)
671 MBI	Advanced Topics in Microalgae	2 (1+1)
691 MBI	seminar	1 (1+0)
699 MBI	Preparing the research proposal	1 (1+0)

The second level (10 units)

Course code	Course	Units
612 MBI	New technology and advances in virology	2 (1+1)
622 MBI	Advanced pathogenic bacteria	2 (2+0)
623 MBI	Antibacterial agents and plasmids	2 (1+1)
632 MBI	Advanced fungal parasitism	2 (2+0)
633 MBI	Advanced studies in fungal symbiosis	2 (1+1)
641 MBI	Advanced microbial ecology	2 (2+0)
651 MBI	Applied serums and vaccines	2 (1+1)
652 MBI	Techniques in microbial molecular genetics	2 (2+0)
661 MBI	Biology of spores	2 (2+0)
662 MBI	Advanced medical	2 (2+0)

	microbiology	
692 MBI	Specialized topics	3 (2+1)
700 MBI	message	1 (1+0)

Facilities and Equipment

The Microbiology program provides 30 contemporary classrooms equipped with audiovisual technology, accommodating 30 to 50 students each, thereby promoting an engaging learning atmosphere. It includes 20 fully-furnished laboratories containing necessary tools and materials for hands-on activities, with the support of a Departmental Laboratory and Safety Committee that oversees regular maintenance and updates. Safety is emphasized with first-aid kits accessible in all laboratories, contributing to an improved educational experience. Additionally, there is a well-organized central laboratory featuring three practical sections dedicated to molecular microbiology, mycology, and virology, along with a facility for animal tissue culture and a designated area for desk work.

Fields of work for graduates of the doctoral program – Microbiology

No	Sector	Description
1	Academic Positions	<ul style="list-style-type: none"> • Professor or lecturer in microbiology, biology, or a related field. • Research scientist or postdoctoral researcher in academic institutions.
٢	Research and Development	<ul style="list-style-type: none"> • Research scientist in government or private research institutions focusing on microbiology, immunology, or related fields. • Development of new microbiological products or processes in biotechnology or pharmaceutical companies.
٣	Healthcare	<ul style="list-style-type: none"> • Clinical microbiologist in hospitals or medical laboratories, responsible for diagnosing infections and understanding microbial diseases. • Infection control specialist, working within healthcare facilities to prevent and manage infections.
٤	Government and Regulatory Agencies	<ul style="list-style-type: none"> • Positions in public health departments, focusing on epidemiology and microbial diseases. • Roles in ministries or agencies regulating food safety, water quality, and environmental health
٥	Biotechnology and Pharmaceutical Companies	<ul style="list-style-type: none"> • Roles in product development, quality control, and quality assurance, with a focus on microbial applications. • Regulatory affairs specialist to ensure compliance with health regulations.

6	Environmental Microbiology	<ul style="list-style-type: none"> • Positions in environmental consulting firms or government organizations focusing on water quality, waste management, and bioremediation.
7	Industry and Quality Assurance	<ul style="list-style-type: none"> • Microbiological quality control in the food, beverage, pharmaceutical, and cosmetics industries to ensure product safety and regulatory compliance.

Program Description's Approval Data	
Council / Committee	Botany and Microbiology department
Reference No.	Program description 2024
Date	