

Master of Microbiology program's description

Identification Card

Program:	Microbiology
Program Code:	MBI
Qualification Level:	7 (Master)
Department:	Botany and Microbiology
College:	Science
University:	King Saud University
Program's Main Location:	Al Daryah, Riyadh
Program's Branches:	NA
Total credit hours:	26
Exit Points:	NA

Microbiology Program's Mission

Qualifying the M.Sc. students in Microbiology to substantial educational and research standards through an inspirational academic environment to meet the needs of KSA in all related domains.

General description

A Master's degree in Microbiology is an advanced program that explores the study of microorganisms, including bacteria, viruses, and fungi, and their roles in health, ecology, and industry. The curriculum includes core courses in microbial physiology, genetics, pathogenic microbiology, and environmental microbiology. Students engage in hands-on laboratory work and research, culminating in a thesis or capstone project that fosters practical skills and critical thinking. Graduates are prepared for diverse career paths in healthcare, environmental science, biotechnology, and academia, equipped with the expertise to address contemporary challenges in microbiological sciences.

Microbiology program's study plan

The master's degree in microbiology encompasses a structured study plan consisting of 26 units across four levels. In the First Level (10 Units), students take courses such as Advanced Virology, Advanced Bacteriology, Advanced Mycology, Advanced Microbial Physiology, and Advanced Studies in Microalgae, providing a solid foundation in microbial biology. The Second Level (10 Units) goes deeper into specific topics, including Bacterial Infection Mechanisms, Mycotoxins, Microbiological Biotechnology, Biology of Cyanophyta, and Special Topics, exploring current trends and research. In the Third Level (5 Units), students engage with Molecular Microbiology, participate in seminars discussing recent advancements, and prepare research proposals to refine their experimental design and objectives for their theses. Finally, the Fourth Level (1 Unit) is dedicated to the completion of an original research thesis, allowing students to apply their acquired knowledge and skills. This comprehensive curriculum equips graduates with the expertise needed for careers in research, academia, or industry.

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.

Job Opportunities (Master Microbiology)

Graduates of a master's program in Microbiology in Saudi Arabia have numerous work opportunities across various sectors. The country's growing focus on healthcare, biotechnology, environmental sustainability, and research provides a rich landscape for employment.

No	Sector	Job description
1	Healthcare Sector	<ul style="list-style-type: none"> • Clinical Microbiologist: Work in hospital laboratories, conducting tests to diagnose infectious diseases and guiding treatment options. • Medical Technologist: Analyze laboratory specimens, focusing on microbiological testing, to support clinical diagnoses.
2	Pharmaceutical Industry	<ul style="list-style-type: none"> • Quality Control/Assurance Specialist: Ensure that pharmaceutical products meet quality standards through microbiological testing and compliance with regulations. • Research and Development Scientist: Engage in the development of new pharmaceuticals or vaccines, focusing on microbial applications.
3	Biotechnology Companies	<ul style="list-style-type: none"> • Biotechnologist: Utilize microbes for product development in areas such as agriculture (biopesticides, biofertilizers) and industry (biofuels, enzymes). • Product Development Specialist: Work on creating and improving biotechnological products, including diagnostics and biologics.
4	Environmental Sector	<ul style="list-style-type: none"> • Environmental Microbiologist: Study microbial processes in ecosystems, contributing to environmental monitoring, pollution control, and bioremediation projects.
5	Food Industry	<ul style="list-style-type: none"> • Food Microbiologist: Ensure food safety and quality by analyzing food products for microbial contamination and studying fermentation processes. • Quality Assurance Manager: Oversee food safety and hygiene measures in food production companies.
6	Research Institutions and Academia	<ul style="list-style-type: none"> • Research Scientist: Conduct scientific research in universities or governmental research centers, focusing on various aspects of microbiology. • Lecturer/Professor: Teach microbiology courses at universities or colleges and supervise student research projects.
7	Public Health	<ul style="list-style-type: none"> • Public Health Microbiologist: Work with governmental health agencies to monitor, control, and prevent infectious diseases. • Epidemiologist: Analyze patterns of disease outbreaks and contribute to public health strategies.
8	Diagnostic Laboratories	<ul style="list-style-type: none"> • Laboratory Manager: Oversee operations in diagnostic labs, ensuring accurate testing and compliance with health standards.
9	Consulting and Advisory Roles	<ul style="list-style-type: none"> • Microbial Consultant: Provide expert advice to industries on microbial-related issues, including safety, compliance, and product development.

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