

**Department of Botany and Microbiology**  
**Skills and Capabilities of the Graduates**

قسم النباتات والأحياء الدقيقة



**A) Botany Program Graduates:**

- 1- Familiar with the basic concepts and knowledge of different botany sciences and their relationship with other sciences.
- 2- Completely acquainted with safety regulations in botany laboratories.
- 3- Capable to identify the different botanical groups and their ecosystems.
- 4- Has the ability to analyze the type of plant cover (vegetation) in different regions and to determine the factors that affect and control its distribution.
- 5- Skillful in analyzing the soil elements, identifying soil type and texture, and identifying the relationship between soil characteristics and plant growth.
- 6- Practically able to dissect plants and to recognize their internal structures.
- 7- Capable to distinguish the internal and external adaptations of the plants and to predict their effects on ecological acclimatization.
- 8- Completely familiar with the technologies utilized to recognize the different seeds of plants in soil banks.
- 9- Fully acquainted with the flora of Saudi Arabia and their taxonomy and geographical distribution.

- 10- Able to collect, classify, and preserve plant samples appropriately and professionally.
- 11- Proficient in studying the plants under stress conditions and interpreting the results.
- 12- Skillful in studying the environmental effect on hereditary in plants.
- 13- Capable to study the environmental pollution and the role of plants in controlling its effects.
- 14- Familiar with genetic improving of plants and breeding of genetically modified plants.
- 15- Fully acquainted with nucleic acid extraction methods and PCR technologies.
- 16- Able to chemically analyze the plant samples and to distinguish their constituents and active ingredients.
- 17- Able to analyze the water samples for competence in seed germination and seedling growth.
- 18- Proficient in designing and execution of experiments that analyze the metabolic processes in plants.
- 19- Familiar with all laboratory instruments utilized in botany laboratory.
- 20- Proficient in preparation of scientific reports in botany.
- 21- Competent in designing, execution, and evaluation of scientific research in botany sciences.
- 22- Professional user of computers, databases and information networks.
- 23- Fully acquainted with policies and legalizations of botany sciences, and ethics of professional practice.

## **Microbiology Graduates:**

- 1- Familiar with the basic concepts and knowledge of different microbiology sciences and their relationship with other sciences.
- 2- Fully acquainted with safety regulations in microbiology laboratories.
- 3- Able to recognize the general properties and structure of viruses, and the different methods used for virus isolation and propagation.
- 4- Skillful in isolation and purification of bacteria from different sources and in identification of bacterial cultures.
- 5- Competent in studying structure, characteristics, growth, replication, classification, economy, and commercial applications of yeast, molds and fungi.
- 6- Proficient in collection, transportation, and preservation of microbiological samples, and in molecular identification of disease-causing organisms.
- 7- Capable to identify the different microorganisms exploited in nutrition.
- 8- Skillful in studying the environment of microorganisms and analyzing the factors influencing their growth.
- 9- Able to study the detailed structure of different groups of microorganisms.
- 10- Capable to recognize medically-important and zoonotic fungal groups; their habitats, pathogenicity, and diagnosis in tissues and cultures.
- 11- Familiar with petrol microbiology (original microbial communities in petrol fields, sulfur-reducing bacteria, archaea, thermophilic bacteria, methane-producing bacteria, ... etc).
- 12- Proficient in studying and identification of the microbiological pollution of water and soil.
- 13- Capable to identify the different groups of antibiotics and their producing organisms, isolation and purification methods, and mode of actions.

- 14- Familiar with all laboratory instruments utilized in microbiology laboratory.
- 15- Proficient in preparation of scientific reports in microbiology.
- 16- Competent in designing, execution, and evaluation of scientific research in microbiology sciences.
- 17- Professional user of computers, databases and information networks.
- 18- Fully acquainted with policies and legalizations of microbiology sciences, and ethics of professional practice.