

MICROBIOLOGY CAREERS

General Information

- **Microbiology is the study of organisms invisible to the naked eye, such as bacteria, fungi, & viruses.**
- There are many different types of microbiology careers. Medical, veterinary, environmental, food, and pharmaceutical microbiology deal with the way microbes or microorganisms affect the health care industry, animals, the environment, and the food supply.
- Most microbiology jobs require a Bachelor's degree. Administrative, and university teaching & research positions generally require a graduate degree.
- It is critical to gain relevant work experience through internships, research, jobs, and volunteer work.

The following list provides a brief sample of responsibilities, employers, jobs, and industries for individuals with a degree in this major. This is by no means an exhaustive listing, but is simply designed to give initial insight into a particular career field that would employ the skills and knowledge gained through this major.

Areas	Employers
Environmental/Veterinary <ul style="list-style-type: none"> • Study how organisms such as bacteria function and react to themselves and other processes in the environment, such as pollution, plants, animals, and seasonal & evolutionary changes. • Examination of microbes role in the cycling of inorganic nutrients and weathering of minerals. • Purify and treat water for safe consumption and use. 	<ul style="list-style-type: none"> • BLM • DOI • EPA • NOAA • USDA • USFS • USFWS • USGS • Zoos/Aquariums • Private Contractors • National Parks • State Wildlife Agencies • Army Corp of Engineers
Industrial <ul style="list-style-type: none"> • Examine food supply later distributed to grocery stores and other vendors. • Ensure food and beverage supply is free of pathogenic organisms potentially harmful to health of those who consume it. • Guarantee food is safe to distribute to public. • Dairy/Agriculture management & quality control. • Identify, catalogue, or culture microbes for industrial production (Cosmetics, toiletries, oil, sales, breweries, etc.). 	<ul style="list-style-type: none"> • Food & Drug Administration • U.S. Dept. of Agriculture • Food & Beverage Suppliers
Legal <ul style="list-style-type: none"> • Knowledge about microbial species and products in drafting patents and technological transfer agreements. 	<ul style="list-style-type: none"> • Law Firms • Gov't • Transfer Ofc.
Medical/Pharmaceutical <ul style="list-style-type: none"> • Identify disease-causing bacteria that may have affected a patient or potentially could affect the human body (<i>Medical</i>). • Assist in preventing the spread of disease by containing & treating it (<i>Epidemiology</i>). • Test organisms for vaccine development or distribution of medicine (<i>Immunology, Mol. Pathogenesis, Virology</i>). 	<ul style="list-style-type: none"> • NIH • Hospitals, Clinics, • Research Universities • Pharmaceutical Companies • Department of Health and Human Services
Research <ul style="list-style-type: none"> • Study and test bacteria and other organisms in controlled environments to understand their breakdown and reaction to various tests (<i>Epidemiology, Immunology, Mol. Pathogenesis, Virology</i>). 	<ul style="list-style-type: none"> • CDC • Hospitals • Private Companies

<ul style="list-style-type: none"> Identifying bacterial, viral, fungal and parasitic infections to prevent epidemics. Study the structure, function, ecology, biotechnology and genetics of micro-organisms and research the functioning of human, animal and plant tissues and cells. 	<ul style="list-style-type: none"> Research Universities & Institutions
Safety/Homeland Security <ul style="list-style-type: none"> Combination of field and lab research working with biological agents to protect against bioterrorism. Vaccine and anti-viral development for serious or fatal illnesses. 	<ul style="list-style-type: none"> DOD FBI/ Law Enforcement NIH, NIAID Military Services
Teaching <ul style="list-style-type: none"> Lecture about the systems and advances of microbiology. Conduct microbiology research and train students. 	<ul style="list-style-type: none"> Primary/Secondary/Tech. School Community Colleges Universities, Med./Dental Schools

Job Titles	Employment Areas
Brew master Clinical lab tech Clinical microbiologist Clinical trials asst. or mgr. Food microbiologist Histotechnologist Lab Coordinator Lab research analyst Lab tech Immunologist Infection Control Medical research scientist Medical technologist Med. Tech. sales rep Microbiologist Mycologist Pathologist Phlebotomist Physician Asst. Practitioner Professor Research assistant Research tech Technician Virologist	Academia Agricultural companies Consulting Contract research organizations Environmental Engineering Food Processing/Engineering Government Healthcare Hospitals Journalism Law enforcement Legal Medical Research Lab Medical Schools Manufacturing Military Photomicrographer Private Quality Control/Safety Research & Development Sales and Marketing State & County

References:

www.aboutbioscience.org/microbiologist.html

<http://microcell.ufl.edu/programs/undergraduate-program/career-information/careers-in-the-microbiological-sciences/>

www.microbiologycareers.org/index.php/microbiology-positions