

Microbiologists

SOC: 19-1022 • Career Profile Report

■ Key Facts

\$87,330

Median Salary

20,700

Employment

+4.0%

Growth Rate

■ Requirements & Salary Range

Education: Bachelor's degree

■ Automation Risk Assessment

Low Risk - 8.0% probability of being automated in the next 10-20 years.

This job is relatively safe from automation due to its creative, social, or complex problem-solving requirements.

■■ Work-Life Balance

7.5/10 - Good work-life balance

■ Personality Fit (RIASEC)

Higher scores indicate better personality fit for this career type.

Realistic	6.2/10	Investigative	9.4/10
Artistic	5.6/10	Social	6.4/10
Enterprising	4.8/10	Conventional	6.4/10

■ Top Skills Required

Communication skills, Detail oriented, Interpersonal skills, Logical-thinking skills, Perseverance, Problem-solving skills

✓ Strengths

- High Demand
- Flexible Work
- Continuous Learning

■ Challenges

- Burnout Risk
- Rapid Technological Change

■ What They Do

Microbiologists study microorganisms such as bacteria, viruses, algae, and fungi **to understand their behavior, impact on humans, animals, plants, and the environment**. They conduct research, develop experiments, and analyze results to advance science, medicine, and biotechnology.

This career is well suited for individuals who enjoy scientific research, laboratory work, and solving complex biological problems.

What Do Microbiologists Do?

Microbiologists investigate microorganisms and their interactions with the environment, humans, and other organisms.

Common responsibilities include:

- Designing and conducting laboratory experiments
- Observing, analyzing, and interpreting microbial growth and behavior
- Isolating and identifying microorganisms
- Developing methods to control or utilize microorganisms
- Preparing reports, publications, and presentations of findings
- Collaborating with scientists, healthcare professionals, and research teams
- Ensuring laboratory safety and adherence to protocols

Key Areas of Microbiology

Microbiologists may specialize in specific fields:

- Clinical Microbiology: Studying pathogens and their effects on human health
- Environmental Microbiology: Investigating microbes in soil, water, and ecosystems
- Industrial and Food Microbiology: Using microbes in production and quality control
- Pharmaceutical and Biotechnology Research: Developing drugs, vaccines, and biotechnological applications
- Genetics and Molecular Microbiology: Studying microbial genetics and molecular mechanisms

Skills and Abilities Needed

Microbiologists combine scientific knowledge with analytical and technical skills.

Core Professional Skills

Personal Qualities That Matter

Education and Career Pathway

This role typically requires formal education and research experience:

- Bachelor's Degree: Biology, microbiology, or related fields
- Master's or Doctoral Degree (common for research): Advanced studies in microbiology or specialized areas
- Laboratory Training or Internship: Hands-on experience in research labs
- Continuous Learning: Staying current with scientific research, techniques, and technologies

Where Do Microbiologists Work?

They are employed across industries that study or utilize microorganisms:

- Research Laboratories
- Hospitals and Clinical Labs
- Pharmaceutical and Biotechnology Companies
- Environmental and Government Agencies
- Universities and Academic Institutions

Work environments may include laboratories, research facilities, hospitals, or field sites.

Is This Career Difficult?

This career requires scientific rigor, attention to detail, and patience. Microbiologists must manage complex experiments, maintain sterile environments, and accurately interpret results.

Who Should Consider This Career?

This career may be a strong fit if you:

- Enjoy research, biology, and laboratory work
- Have strong analytical and problem-solving skills
- Are detail-oriented and methodical
- Can work independently and collaboratively
- Want a career that advances scientific knowledge and applications

How to Prepare Early

- Take courses in biology, chemistry, and mathematics
- Participate in laboratory work or science clubs
- Seek internships or volunteer opportunities in research labs
- Develop skills in scientific writing and data analysis
- Stay informed on advances in microbiology and biotechnology

Microbiologists explore the unseen world of microorganisms, applying scientific knowledge to medicine, industry, and environmental solutions.

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Source: <https://www.bls.gov/ooh/life-physical-and-social-science/microbiologists.htm>