

Careers in the life sciences

What are the careers within the life sciences?

How do those careers work together to solve health-related problems?

Did you know that the number of careers in Life Sciences is growing in Ohio? The US Bureau of Labor Statistics (data.bls.gov) predicts overall employment in life, physical, and social science occupations will grow faster than the average for all occupations from 2023 to 2033. About 148,400 openings are projected each year, on average, in these occupations due to employment growth and the need to replace workers who leave the occupations permanently.

The median annual wage for this group was \$78,280 in May 2023, which was higher than the median annual wage for all occupations of \$48,060.

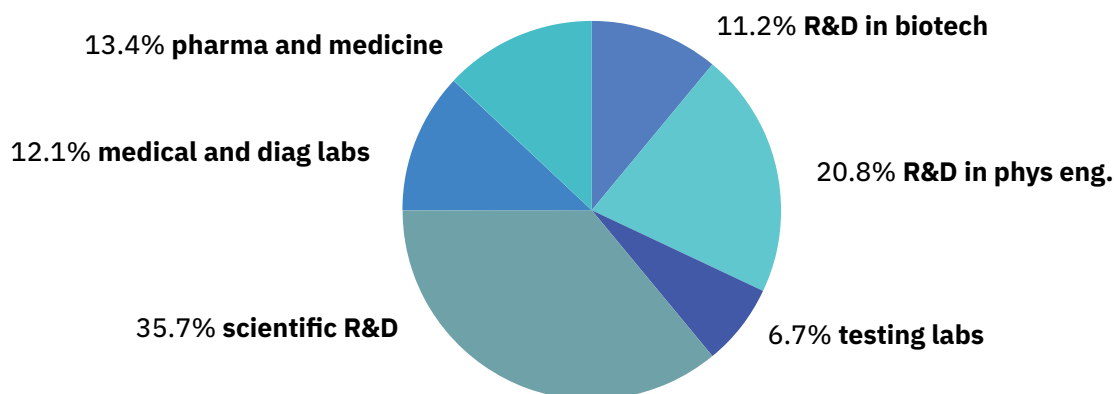
Materials

- Pie charts of current statistics of life science-related careers
- Scenarios

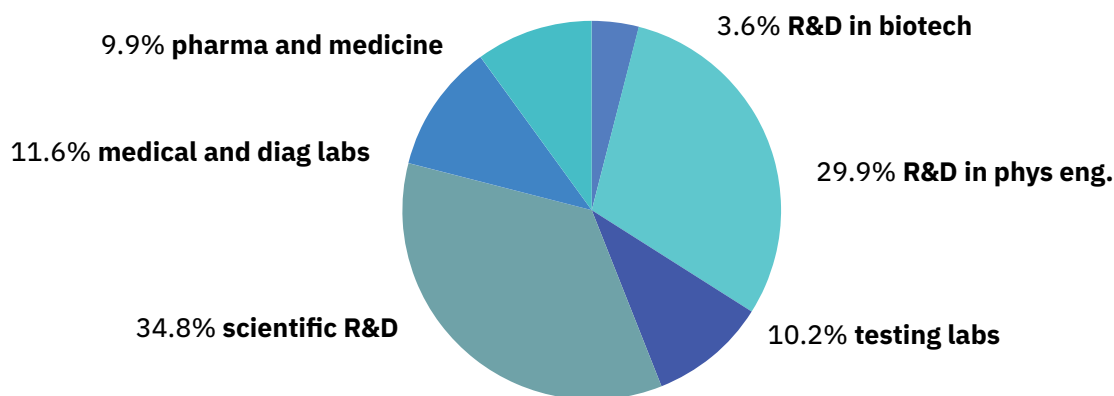
Procedure

1. Observe the charts that compare the employment statistics of life science careers in Ohio vs the United States. Compare the percentages.

Average annual employment in the US (2023)



Average annual employment in Ohio (2023)



2. What additional careers are not included in these charts?
3. Use internet access to determine which careers will help solve one of the five scenarios. Each of the categories listed above contain a multitude of careers. These careers do not necessarily have direct patient contact (although many hospitals and outpatient facilities are looking for direct patient care workers, such as surgical technologists, respiratory therapy, radiology technologist), but these categories provide support to those who do have direct patient contact. These are the fastest-growing opportunities in life sciences careers, according to Biotility at the University of Florida.

- **Biomedical Engineers:** These engineers combine engineering with medical and biological sciences, usually to design and construct equipment, devices, computer systems and software used in healthcare. There are often bachelor's programs in biomedical engineering. According to the BLS, the median pay is \$85,620 per year and the job growth outlook is much faster than average, at 23 percent.
- **Laboratory Technologists/Technicians:** A technician position may require completion of a rigorous secondary program in biotechnology or biomedical science or a two-year associate's degree. A technologist position may require a four-year bachelor's degree, sometimes with a year's practical internship on top of it. A shortage of medical technologists for at least the last 20 years isn't expected to decrease as the general population ages. Most medical laboratory technologists and technicians work in healthcare laboratories at hospital laboratories or large commercial clinical diagnostic companies, although there are also positions in physician office laboratories. According to Salary.com, the average annual salary for an ASCP-certified medical technologist is \$66,108. BLS lumps technicians and technologists into the same category, with a median salary of \$50,930. However, it does suggest that the technician salary is typically \$38,950.
- **Biophysicists/Biochemists:** These positions are usually at the PhD level. Biophysicists merge physics with the biological scientists. According to the BLS, biophysicists have an average annual salary of \$87,640, with the top 10 percent earning over \$147,320. A biochemist rather obviously studies biochemistry, which is to say, the chemistry of living organisms. Salary.com indicates that the median annual salary for a Biochemist I is \$50,516, although it's necessary to point out that this refers to people with a bachelor's degree in biochemistry. For a PhD, the U.S. Department of Labor indicates the highest earning PhDs exceed \$100,000 per year.
- **Epidemiologists:** An epidemiologist applies statistical analysis to diseases in human populations. They are broadly called public health professionals, although there are academic positions as well, and there is a significant crossover these days in data science and bioinformatics. According to the BLS, the median pay for an epidemiologist is \$70,820, requires a master's degree, and from 2014 to 2024 is growing at about the average rate of 6%.
- **Microbiologists:** This can be a rather broad field, although it generally focuses on bacteria, fungi and viruses. It also requires a broad background in human cell biology and molecular biology. The BLS projected a 4 percent increase in demand between 2014 and 2024. Most positions call for a minimum of a bachelor's degree. Positions exist in clinical diagnostic laboratories, academic and industrial research laboratories, and public health laboratories. According to the BLS, the median pay for a microbiologist—probably with a bachelor's degree—is \$66,850.

Some additional careers that are not represented here include: regulatory and legal services, direction of clinical trials, human resources and recruitment, marketing, specialty construction of lab spaces and buildings (including HVAC), and logistics for transportation and delivery.

Take a moment to review the scenarios that represent challenges in life sciences industries. Refer to the slides or go to <https://biotech-careers.org/careers> to find at least five careers/ companies that might help you to address the issue presented in the scenario.

Reflection

1. When observing the pie charts, what did you notice? What did you wonder?
2. After seeing the presentation, what questions do you still have about careers in the life sciences?
3. Making a career choice is a difficult and personal decision. Personal, psychological, social, environmental, and educational factors will impact your career decision. Talking to a trusted adult, assessing your gifts and talents for various activities, trying out different careers through shadowing someone in a career of interest, spending time learning more about a career of interest through reading or watching videos, and actually experiencing activities that relate directly to that career can be very helpful in determining if a career is a good fit for you.