SECTOR SHEET

FEBRUARY 2024

CTE: DEVELOPING THE BIOSCIENCES WORKFORCE

Career and technical education (CTE) supports America's biosciences needs by

preparing learners to enter this critical workforce, which employs over **2.1 million**[1] people nationwide across more than **127,000** business establishments in every state and Puerto Rico.

CTE programs in the biosciences develop students' technical, academic and employability skills through work-based and hands-on learning, ensuring they are prepared to enter a **high-wage, in-demand** career in areas such as laboratories, medical equipment and devices, and pharmaceutical manufacturing.

This infographic describes a small sample of the career opportunities available in the biosciences workforce.

LABORATORIES

- The research, testing and medical laboratories sub-sector accounts for **one in three**[2] biosciences jobs, with **19%** growth in jobs in recent years.
- About **24,000**[3] job openings for clinical laboratory technicians are predicted each year, on average, through 2032, and the highest-earning technicians can make more than **$84,000**[4] per year.
- The laboratories field employs technicians **across industries** like health care, the physical sciences, agriculture and more.
- Apprenticeships, industry credentials, postsecondary certificates and degrees can help individuals achieve **career success** in the laboratories sub-sector.

MEDICAL EQUIPMENT AND DEVICES

- The medical equipment and devices sub-sector pays an average annual salary of more than **$98,000**.[5]
- Almost **400,000**[6] people work in medical device and equipment manufacturing, making surgical and medical instruments, laboratory equipment, MRI and ultrasound equipment, and more.
- Jobs for medical equipment repairers are expected to grow **13%**[7] through 2032, much faster than the average for all occupations.
- Postsecondary certificates and degrees, apprenticeships, and industry credentials can help individuals build a **fulfilling career** in medical equipment and devices.

PHARMACEUTICAL MANUFACTURING

- In 2021, the pharmaceutical manufacturing sub-sector employed nearly **345,000**[8] individuals, accounting for **16%** of all U.S. biosciences jobs.
- Employment in pharmaceutical manufacturing grew by almost **12%**[9] from 2018 to 2021.
- Pharmaceutical manufacturing jobs include microbiology quality control technicians, process development associates and quality assurance documentation coordinators, all of which can pay an average entry-level salary of **$60,000**.[10]
- Industry credentials, apprenticeships, and postsecondary certificates and degrees can help individuals **break into and advance in** this field.

Association for Career and Technical Education ACTE®

Pearson

Proud supporters of ACTE.

CTE: DEVELOPING THE BIOSCIENCES WORKFORCE

MORE JOBS IN THE BIOSCIENCES WORKFORCE

In addition to the careers already profiled, CTE prepares youth and adults for these further occupations in the biosciences workforce:

- **Biofuel technician**
- **Agricultural and food science technician**
- **Compliance specialist**
- **Biomedical engineer**
- **Production line worker**
- **Validation specialist**
- **Biochemist**
- **Calibration technician**
- **Biomanufacturing technician**
- **Forensic toxicologist**

At Howard Community College (HCC) in Columbia, Maryland, students in the two-year Biomedical Equipment Technology Apprenticeship Program learn to test, adjust, monitor and repair medical equipment through 46 course credits and 4,000 hours of paid, on-the-job experience with one of HCC's health care employer partners. Completers earn an associate of applied science degree from HCC, the only institution in the state to offer this program.

HOW CTE PREPARES THE BIOSCIENCES WORKFORCE

CTE programs of study and career pathways prepare secondary, postsecondary and adult learners for the biosciences workforce in many ways:

- **Courses** such as Project Lead The Way Principles of Biomedical Science, Project Lead The Way Biomedical Innovation, pharmacology, forensic science, medical lab technology and more spanning secondary and postsecondary education.
- Opportunities to earn **postsecondary certificates and degrees** in biology, biochemistry, clinical research, biotechnology, biomedical sciences, molecular sciences, food sciences and more.
- Opportunities to earn **industry credentials** from the Advancement of Medical Instrumentation Organization, Biotility and Certifications for Life Sciences Industries, among others.
- **Work-based learning** experiences like job shadowing, internships and apprenticeships.
- Competitive events, service learning and leadership development through **career and technical student organizations** such as SkillsUSA, HOSA–Future Health Professionals, FFA and the Technology Student Association.
- **Activities** that build technical, academic and employability skills such as teamwork, communication and problem solving.

Learn More

This Sector Sheet highlights just a few occupations within the biosciences workforce. To learn more, please visit the U.S. Department of Labor at www.CareerOneStop.org/ExploreCareers and MyNextMove.org.

Association for Career and Technical Education ACTE®

Pearson

Proud supporters of ACTE.

Citations

[1] Biotechnology Innovation Organization and Council of State Bioscience Associations. (2023, June). *The U.S. biosciences industry in the states: Best practices in innovation, partnerships, and job creation*. Retrieved from https://www.bio.org/sites/default/files/2023-06/BIO_CSBA_Best_Practices_Report_2023.pdf

[2] TEConomy Partners, LLC, Council of State Bioscience Associations and Biotechnology Innovation Organization. (2022). *The U.S. bioscience industry: Fostering innovation and driving America's economy forward*. Retrieved from https://go.bio.org/rs/490-EHZ-999/images/TEConomy_BIO_2022_Report.pdf

[3] U.S. Bureau of Labor Statistics. (2023, September). *Occupational outlook handbook: Clinical laboratory technologists and technicians*. Retrieved from https://www.bls.gov/ooh/healthcare/clinical-laboratory-technologists-and-technicians.htm#tab-6

[4] U.S. Bureau of Labor Statistics. (2023, September). *Occupational outlook handbook: Clinical laboratory technologists and technicians*. Retrieved from https://www.bls.gov/ooh/healthcare/clinical-laboratory-technologists-and-technicians.htm#tab-5

[5] TEConomy Partners, LLC, Council of State Bioscience Associations and Biotechnology Innovation Organization. (2022). *The U.S. bioscience industry: Fostering innovation and driving America's economy forward*. Retrieved from https://go.bio.org/rs/490-EHZ-999/images/TEConomy_BIO_2022_Report.pdf

[6] Ibid.

[7] U.S. Bureau of Labor Statistics. (2023, September). *Occupational outlook handbook: Medical equipment repairers*. Retrieved from https://www.bls.gov/ooh/installation-maintenance-and-repair/medical-equipment-repairers.htm

[8] TEConomy Partners, LLC, Council of State Bioscience Associations and Biotechnology Innovation Organization. (2022). *The U.S. bioscience industry: Fostering innovation and driving America's economy forward*. Retrieved from https://go.bio.org/rs/490-EHZ-999/images/TEConomy_BIO_2022_Report.pdf

[9] Ibid.

[10] Biotech-Careers.org. (N.d.). *Biotechnology career pathways*. Retrieved from https://www.biotech-careers.org/careers