SECTOR PROFILE

Life Sciences / Biotech

APRIL 2026

CENTER OF EXCELLENCE FOR LABOR MARKET RESEARCH
BAY AREA

BACCC BAY AREA
COMMUNITY COLLEGE CONSORTIUM

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Introduction

To support the planning and development of career education programs and provide insights into career pathways within the sector, the Bay Region Center of Excellence (COE) has developed a series of sector profiles. These profiles highlight labor market trends and the postsecondary education and workforce implications within each sector in the Bay Region. They categorize jobs into three skill levels: below middle-skill, middle-skill, and above middle-skill jobs. Middle-skill occupations typically require more than a high school diploma, but less than a bachelor's degree except in cases where a bachelor's degree is required, but more than one-third of the workforce has less than a bachelor's degree. These occupations play a crucial role in the regional workforce and contribute to the economic vitality of the 12-county Bay Region, which includes the following counties: Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma.

This life sciences/biotech profile summarizes key findings on current and projected workforce demand, hourly wages for occupations within the sector by career pathway, and program information from community colleges in the region that offer training programs in life sciences/biotech. This report is intended for decision-makers and practitioners to support funding and grant proposals, the development of key courses and pathways, and the alignment of programs between K-12, community colleges, and four-year institutions. Workforce professionals in the sector can also use the data to gain valuable insights into employment trends and educational preparation within this pathway.

What Pathways Make Up the Life Sciences/Biotech Sector?

This profile highlights the labor market for life sciences/biotech, focusing on two key career pathways. The labor market data presented in this profile includes in-demand occupations within these pathways that are related to education and training programs offered at community colleges across the Bay Region.

Life sciences is the broad study of living organisms and life processes (like biology, medicine, agriculture), while biotechnology is a key part of it, using living systems and tools to create practical products and solutions, such as new medicines, improved crops, and biofuels. In essence, occupations in this sector seek to understand life, and biotechnology applies that understanding to solve real-world problems.

The life sciences/biotech sector spans occupations that include roles in biological, chemical, and engineering principles to innovate and produce technologies and products that enhance health, agriculture, and environmental sustainability. This includes various roles such as biological technicians, medical equipment repairers, chemical technicians, and biological scientists. Please note that this list does not include all occupations in the life sciences/biotech sector.

LIFE SCIENCES/BIOTECH CAREER PATHWAYS
Biotechnology
Biotechnology Adjacent

Quick Facts About Life Sciences/Biotech in the Bay Region

Quick facts provide data related to the life sciences/biotech sector (see below), featuring labor market projections between 2024 and 2029 in the Bay Region, as well as community college program information for the program years 2021-22 to 2023-24. Enrolled students include students who were enrolled in at least one term of the selected year at a Bay Region community college.[1]

The life sciences/biotech sector accounted for approximately 50,060 jobs in the Bay Region in 2024, and is projected to grow by 1% between 2024 and 2029. This represents modest growth, driven primarily by replacement demand rather than the creation of new jobs. During this five-year period, the occupations specified in this report are expected to account for 4,900 average annual job openings, and an average of 91% of job openings in the pathway are replacement openings. Note that numbers related to labor market data in this report are rounded to the nearest tenth.

Life sciences/biotech programs were offered at 10 community colleges in the Bay Region (see Table 8 for the life sciences/biotech programs included). An average of more than 826 students enrolled in life sciences/biotech programs annually at a Bay Region community college during the program years 2021-22 to 2023-24, and an average of 203 students completed a degree or certificate each year. As for demographics, approximately 28% of students who enrolled between program years 2021-22 to 2023-24 were between 20 and 24 years old. Females comprised the majority among students who enrolled in life sciences/biotech programs (55%), as well as students who identify as Hispanic (29%) or white (23%).

Bay Region Quick Facts

50,060
Number of Jobs in Pathways, 2024

1%
5-year Pathway Job Growth, 2024-2029

4,900
5-year Avg. Annual Job Openings, 2024-2029

10
Community Colleges (CC) Offering Life Sciences/Biotech Programs

826
Students Enrolled in CC Life Sciences/Biotech Programs (2021-22 to 2023-24)

203
CC Degrees/Certificates Awarded on Average in Life Sciences/Biotech (2021-22 to 2023-24)

[1] This term was updated in DataVista from "non-special admit students" used in previous reports. General admit students are defined as all students who enrolled as first-time in higher education general admit credit students in at least one primary term of the selected year with a minimal credit enrollment at the selected college who are tracked for one, two, three, four and six years from first term of enrollment. https://datavista.cccco.edu/metrics/126.

Industry Employment Demand

The life sciences/biotech sector includes sub-sectors and industries classified under North American Industry Classification System (NAICS) codes 32, 33, 54, 62, and 90 based on staffing patterns (see Appendix A: Methodology for the six-digit NAICS codes used to define the sector). A two-digit NAICS code can represent multiple sub-sectors and industry groups within the broader sector. These codes are used to organize and categorize industries within the job market.

Table 1 shows that the number of industry jobs in the life sciences/biotech sector is projected to remain stable over the next several years (2024-2029). In 2024, approximately 170,102 workers were employed in life sciences/biotech related industries in the region, and this number is projected to decrease by less than 1% through 2029. It is important to note that while total industry employment in the sector is projected to decline slightly, this trend does not reflect reduced demand across all occupations in the sector (as shown in the following sections). Industry employment includes all jobs within relevant industries, while occupational data in this report focuses on selected pathway occupations. As a result, occupational demand may grow even when total industry employment remains stable or declines slightly. More information is also provided in the beyond labor market and supply data section.

Table 1: Industry Demand for the Life Sciences/Biotech Sector

2024 JOBS	2029 JOBS	JOB CHANGE	% CHANGE
170,102	169,646	-456	<1%

Source: Lightcast, Projected Number of Industry Jobs for Life sciences/biotech by NAICS, 2024-2029 [2026.1].

Occupational Demand

To connect overall industry trends with specific roles, the following section examines occupational demand in more detail. When examining demand for the life sciences/biotech career pathways, Table 2 summarizes the number of workers employed in this pathway in 2024 and the total projected openings between 2024 and 2029 in the Bay Region. The life sciences/biotech career pathways employed 50,060 workers in 2024 and is projected to generate 24,490 total openings across the five-year period.

Table 2: Number of Jobs and Total Openings for Life Sciences/Biotech Career Pathways (2024-2029)

PATHWAY	2024 JOBS	2024 - 2029 TOTAL OPENINGS*
Biotechnology	39,040	19,010
Biotechnology Adjacent	11,020	5,480

Source: Lightcast, Number of Jobs and Total Openings, 2024-2029 [2026.1].
*2024-2029 total openings are new job openings and replacement job openings across the five-year period. Replacement openings are created as workers switch jobs, retire or leave for other reasons.

In terms of average annual openings, Figure 1 shows the projected average annual job openings for the life sciences/biotech career pathways. More than 4,900 average annual job openings are projected for occupations in the life sciences/biotech career pathways between 2024 and 2029, and over 3,800 average annual openings were for the biotechnology pathway.

Figure 1: Average Annual Job Openings for Life Sciences/Biotech Career Pathways (2024-2029)

Source: Lightcast, Average Annual Job Openings, 2024-2029 [2026.1].

Occupations and Skill Levels by Life Sciences/Biotech Career Pathways

When examining specific occupations within the life sciences/biotech sector, Table 3 below presents data on employment and projected demand by occupation, grouped by career pathway and skill level. The biotechnology pathway is the largest, with a total of eight occupations. While this pathway includes the greatest number of occupations, it is also projected to experience a slight increase in demand of 1%, on average. Some individual occupations are projected to grow by 4%, while others are projected to decline by as much as 2%. The highest number of annual openings demand is for inspectors, testers, sorters, samplers, and weighers, with 1,690 annual openings. The biotechnology adjacent pathway demonstrates similar growth, with a 1% projected increase in jobs. The highest number of annual job openings is for natural sciences managers, with 560 annual openings.

Please note that the figures in Table 3 are rounded to the nearest tenth, and totals represent the summed averages. On average, 91% of job openings in the pathway are replacement openings. Replacement openings occur when workers switch jobs, retire or leave for other reasons. Please refer to Appendix A: Methodology for more information on how the pathways were defined.

SKILL LEVEL LEGEND

• = Below Middle-Skill **• • = Middle-Skill** **• • • = Above Middle-Skill**

Table 3: Occupations and Projected Demand for Life Sciences/Biotech (2024-2029)

Skill Level	Occupation	Avg. Annual Openings	2024 Jobs	5-Yr Change	5-Yr % Change	5-Yr Annual Replacement Jobs	Replacements as % of Openings
Biotechnology							
• •	Engineering Technologists and Technicians, Except Drafters, All Other	210	2,340	20	1%	190	90%
• •	Biological Technicians	510	4,580	70	1%	470	93%
• •	Chemical Technicians	230	1,950	-20	-1%	220	91%
• •	Clinical Laboratory Technologists and Technicians	630	8,900	180	2%	550	88%
• •	Inspectors, Testers, Sorters, Samplers, and Weighers	1,690	14,430	-260	-2%	1,670	96%
• • •	Bioengineers and Biomedical Engineers	60	920	20	1%	50	81%
• • •	Zoologist and Wildlife Biologist	40	500	20	4%	40	88%
• • •	Biological Scientists, All Other	430	5,420	-20	0%	400	89%
	TOTAL	**3,800**	**39,040**	**10**	**1%**	**3,590**	**90%**

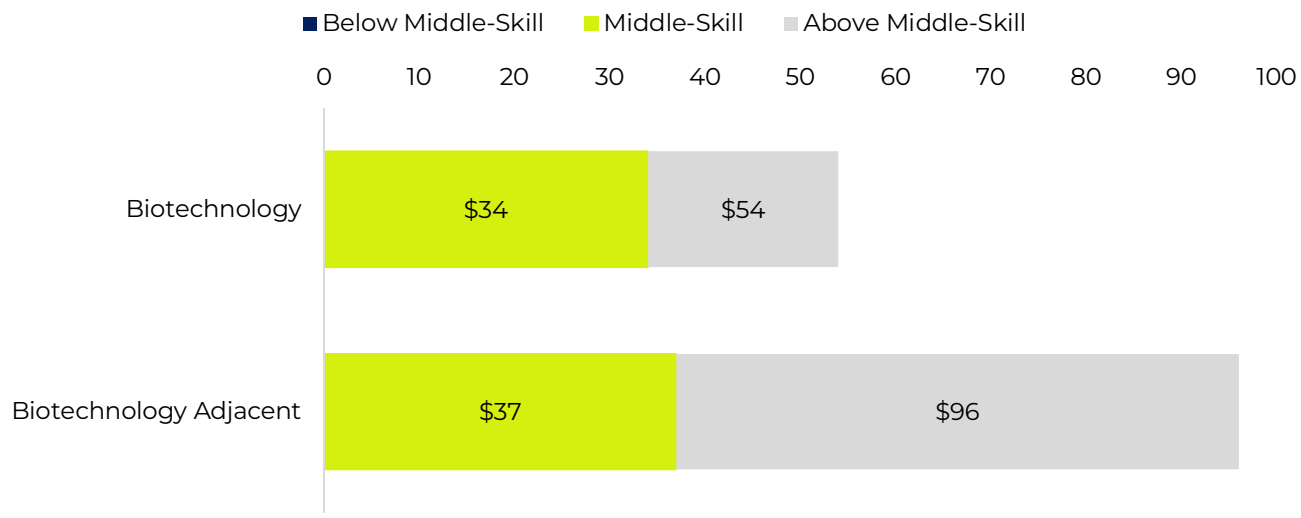
Skill Level	Occupation	Avg. Annual Openings	2024 Jobs	5-Yr Change	5-Yr % Change	5-Yr Annual Replacement Jobs	Replacements as % of Openings
Biotechnology Adjacent							
• •	Life, Physical, and Social Science Technicians, All Other	410	3,170	20	1%	380	94%
• •	Medical Equipment Repairers	130	1,370	20	1%	120	92%
• • •	Natural Sciences Managers	560	6,480	140	2%	490	88%
	TOTAL	**1,100**	**11,020**	**180**	**1%**	**990**	**91%**
	LIFE SCIENCES/BIOTECH TOTAL	**4,900**	**50,060**	**190**	**1%**	**4,580**	**91%**

Source: Lightcast, Projected Demand for Life Sciences/Biotech Occupations, 2024-2029 [2026.1].

Occupational Wages by Life Sciences/Biotech Pathway

In the Bay Region, the living wage is $46 per hour for one adult and one school-aged child, though it varies by subregion (see Table 12 in the Appendix for details). Figure 2 presents the average median hourly earnings for below middle-skill, middle-skill, and above middle-skill jobs by career pathway. Table 4 provides a summary of wages by the 25th percentile, median, and 75th percentile hourly earnings for each occupation. All earnings represent the median across the 12 counties in the Bay Region. The 25th percentile wage represents entry-level earnings, while the 75th percentile wage reflects the earnings of experienced workers.

Figure 2: Average Median Hourly Earnings by Life Sciences/Biotech Career Pathways



Source: Lightcast, Median Hourly Wages by Life Sciences/Biotech Career Pathways [2026.1].

Table 4: Hourly Earnings for Occupations by Life Sciences/Biotech Career Pathways

SKILL LEVEL LEGEND

• = Below Middle-Skill **• • = Middle-Skill** **• • • = Above Middle-Skill**

Skill Level	Occupation	25th Pct. Hourly Earnings	Median Hourly Earnings	75th Pct. Hourly Earnings
Biotechnology				
• •	Engineering Technologists and Technicians, Except Drafters, All Other	$32	$42	$50
• •	Biological Technicians	$27	$34	$42
• •	Chemical Technicians	$24	$29	$36
• •	Clinical Laboratory Technologists and Technicians	$28	$38	$43

Skill Level	Occupation	25th Pct. Hourly Earnings	Median Hourly Earnings	75th Pct. Hourly Earnings
• •	Inspectors, Testers, Sorters, Samplers, and Weighers	$22	$27	$35
• • •	Bioengineers and Biomedical Engineers	$51	$62	$74
• • •	Zoologist and Wildlife Biologist	$29	$42	$58
• • •	Biological Scientists, All Other	$43	$57	$72
	TOTAL	**$32**	**$41**	**$51**
Biotechnology Adjacent				
• •	Life, Physical, and Social Science Technicians, All Other	$27	$34	$45
• •	Medical Equipment Repairers	$30	$39	$51
• • •	Natural Sciences Managers	$78	$96	$119
	TOTAL	**$45**	**$56**	**$72**
	LIFE SCIENCES/BIOTECH TOTAL	**$45**	**$56**	**$72**

Source: Lightcast, 25th pct., Median, and 75th pct. Hourly Earnings for Life Sciences/Biotech Occupations [2026.1].

Job Postings for Life Sciences/Biotech Occupations

Job postings represent the number of online jobs advertised in the Bay Region for occupations in the life sciences/biotech pathway specified in this report. Unique online job postings are de-duplicated based on job title, employer, and region. Across occupations in the life sciences/biotech pathway, there were 11,710 unique online job postings in the Bay Region from January 2025 to December 2025 (see Table 5). These postings represent job postings for the selected occupations and may not capture all hiring activity. Table 6 highlights the top 10 skills sought by employers, categorized into specialized, soft, and technical skills.

Table 5: Online Job Postings for Life Sciences/Biotech Occupations in the Bay Region, 2025

Unique Online Job Postings in the Bay Region
11,710

Table 6: Top Skills for Life Sciences/Biotech Occupations

Specialized Skills	Soft Skills	Technical Skills
Biology	Communication	Microsoft Excel
Data Analysis	Research	Microsoft Office
Auditing	Detail Oriented	Python (Programming Language)
Clinical Trials	Management	R (Programming Language)
Molecular Biology	Operations	Microsoft Word
Clinical Research	Quality Control	Microsoft PowerPoint
Chemistry	Writing	Microsoft Outlook
Workflow Management	Leadership	Laboratory Information Management Systems
Project Management	Problem Solving	Spreadsheets
Laboratory Equipment	Troubleshooting	SAP Applications

Table 7 lists the top employers in the life sciences/biotech sector in the Bay Region, which include employers in healthcare, educational institutions, biotechnology, and biopharmaceuticals.

Table 7: Employers for Life Sciences/Biotech Occupations

Top Employers	Stanford University / Health Care	University of California-Berkeley
	University of California-San Francisco	Natera
	Genentech	Sanmina
	Kaiser Permanente	Gilead Sciences
	Sutter Health	Abbott Laboratories

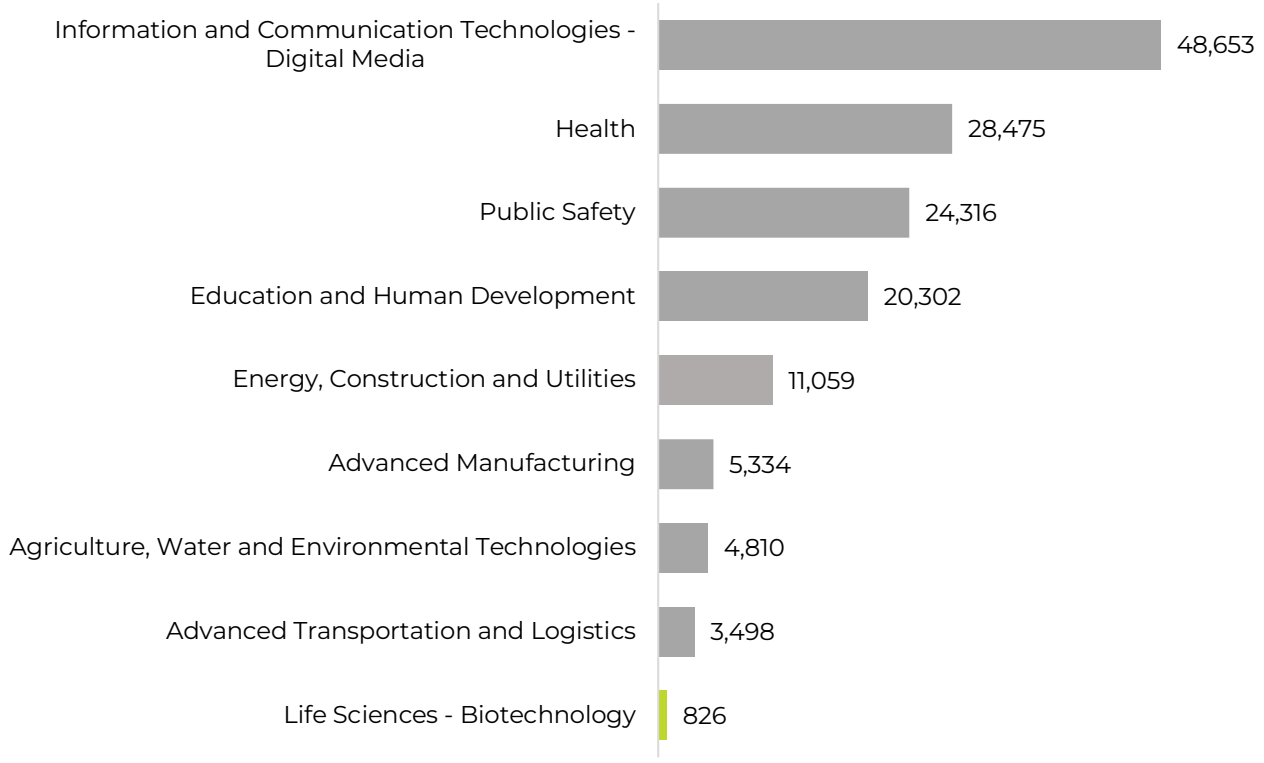
Source: Lightcast, Job Posting Analytics, January 2025-December 2025 [2026.1].

Life Sciences/Biotech Community College Programs

California community colleges offer a variety of programs in life sciences/biotech. Colleges combine classroom instruction on campus, online, or through external work experiences. Of the 28 community colleges in the Bay Region, 10 offer a program related to life sciences/biotech. These community colleges include Berkeley City College, Cabrillo College, Contra Costa College, Laney College, Las Positas College, Merritt College, Ohlone College, San Francisco City College, Skyline College, and Solano College.

Figure 3 shows the number of students enrolled by each of the Bay Region's nine sectors. These sectors refer to the priority sectors identified by the California Community Colleges Chancellor's Office. During program years 2021-22 to 2023-24, an average of more than 826 students enrolled in life sciences/biotech programs each year. For more information about the selection of programs and data sources for student outcomes see the Appendix A: Methodology.

Figure 3: Students Enrolled* by Sector (3-YR Average, 2021-22 to 2023-24)



Source: DataVista. Program Years 2021-22 to 2023-24, Bay Region Community Colleges.
*All students who were enrolled as a general admit student in at least one term of the selected year.

Two (2) Taxonomy of Program (TOP) codes related to life sciences/biotech are presented in Table 8, and these TOP codes also have active or approved programs prior to October 2024 in Bay Region community colleges. This is based on information reported to the California Community Colleges Chancellor's Office Curriculum Inventory (COCI).

Table 8: Life Sciences/Biotech Programs at Community Colleges in the Bay Region

TOP6	TOP6 Program Title	# Colleges w/Programs
043000	Biotechnology and Biomedical Technology	10
095500	Laboratory Science Technology	2

Source: California Community Colleges Chancellor's Office Curriculum Inventory (COCI). This list includes the programs under the TOP code that were currently active or approved in Bay Region community colleges prior to October 2024.

Tables 9 and 10 summarize educational supply by analyzing the number of certificates and degrees awarded in related TOP and Classification of Instructional Programs (CIP) codes, respectively. According to TOP data, an average of 203 awards were conferred at Bay Region community college between program years 2021-22 and 2023-24 (Table 9). The average number of awards in programs may include students who earned multiple degrees, certificates, or awards. Compared to approximately 4,900 annual job openings, this suggests a substantial gap between workforce demand and the number of program completers.

Table 9: Total Awards at Community Colleges in the Bay Region (2021-22 to 2023-24)

TOP6	TOP6 Title	Certificate	Associate Degree/ Associate for Transfer	Noncredit Award	Bachelor's	Total Awards
043000	Biotechnology and Biomedical Technology	117	50	0	22	189
095500	Laboratory Science Technology	3	2	9	0	14
	Total Awards	**120**	**52**	**9**	**22**	**203**

Source: CCCCO Data Mart. Program Years 2021-22 to 2023-24 Annual Awards, by TOP6 Code, Bay Region Community Colleges.

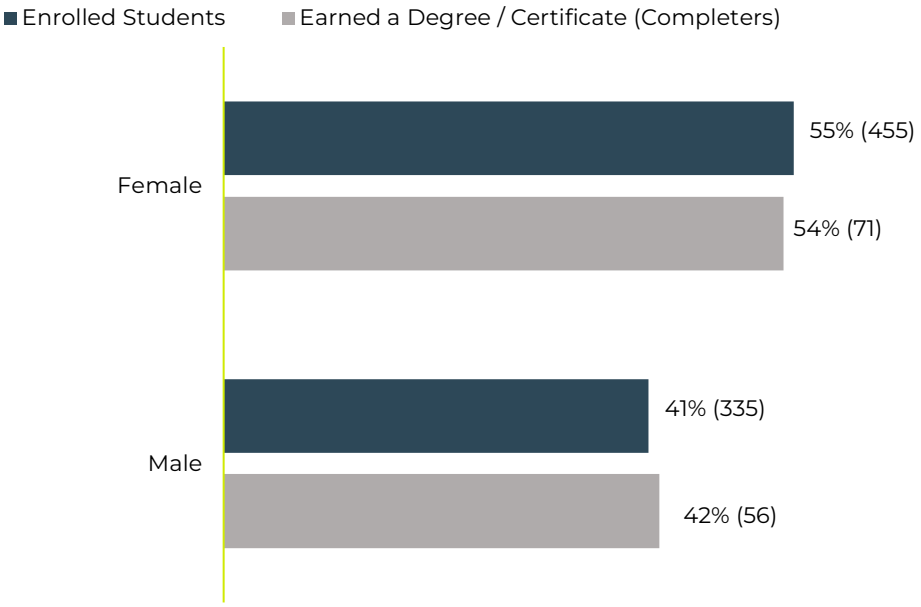
According to CIP data, no non-community college institutions in the Bay Region conferred CIP awards between program years 2020-21 and 2022-23.

Demographic Profile of Students in Community College Life Sciences/Biotech Programs

This sector profile also summarizes the demographics of community college students who enroll in and complete a degree or certificate in life sciences/biotech programs. Figures 4 through 6 present data on students by gender, race/ethnicity, and age. Enrolled students include all general admit students[2] who were enrolled in at least one term of the selected year at a Bay Region community college. In terms of earned a degree or certificate attainment, it represents the number of students who earned one or more of the following: Chancellor's Office approved certificate, associate degree, or non-credit awards.

On average, female students comprised 55% of enrollees and 54% of award earners, compared to 41% and 42% of male students, respectively. Students who identified as Hispanic (29%) and white (23%) represented the two largest racial/ethnic groups among enrolled students, and were also the largest groups that earned degrees (27% and 18%, respectively). Students aged 20 to 24 were the most represented age group among those who enrolled (28%) and earned degrees (26%). Students over 50 years old were the least represented age group among those who enrolled (6%). The figures below provide greater detail on the demographic profiles of students who enrolled in and completed life sciences/biotech programs in the Bay Region.

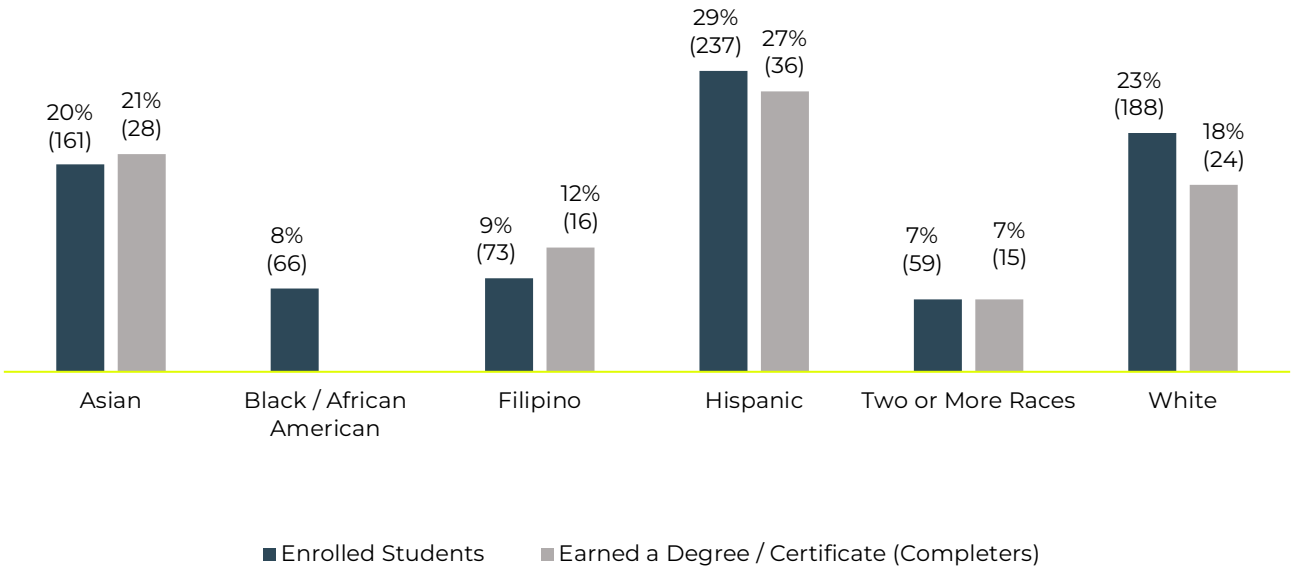
Figure 4: Gender of Students in Life Sciences/Biotech Programs in the Bay Region (2021-22 to 2023-24)



Note: May not total 100 percent due to non-respondent/non-binary.
Source: DataVista. Program Years 2021-22 to 2023-24 Programs, Bay Region Community Colleges.

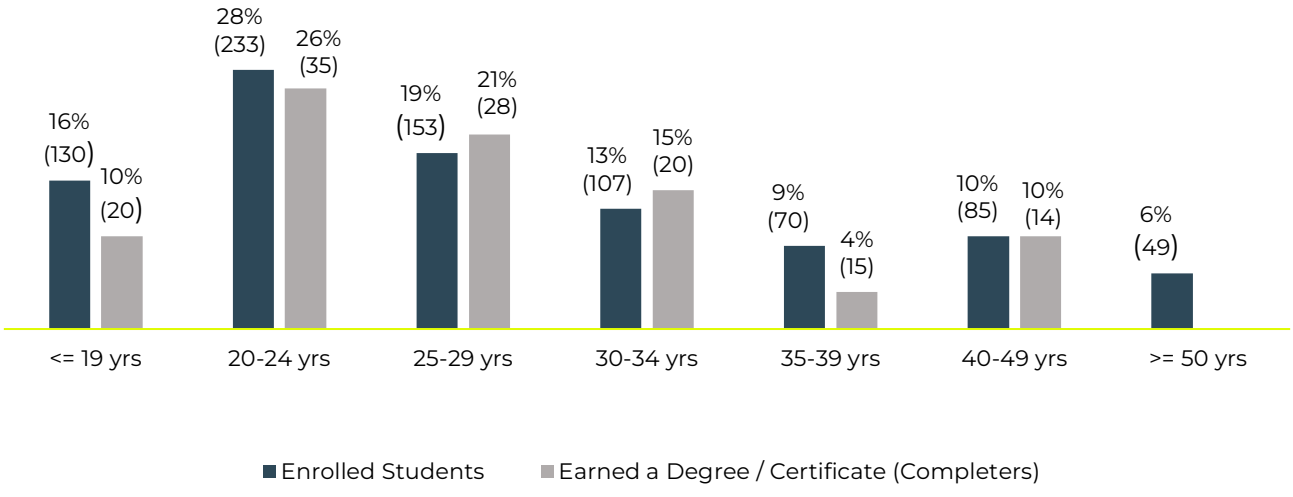
[2] This term was updated in DataVista from "non-special admit students" used in previous reports. General admit students are defined as all students who enrolled as first-time in higher education general admit credit students in at least one primary term of the selected year with a minimal credit enrollment at the selected college who are tracked for one, two, three, four and six years from first term of enrollment. https://datavista.cccco.edu/metrics/126.

Figure 5: Race/Ethnicity of Students in Life Sciences/Biotech Programs in the Bay Region (2021-22 to 2023-24)



Note: May not total 100 percent due to non-respondent/unknown/masked values.
Source: DataVista. Program Years 2021-22 to 2023-24 Programs, Bay Region Community Colleges.

Figure 6: Ages of Students in Life Sciences/Biotech Programs in the Bay Region (2021-22 to 2023-24)



Note: May not total 100 percent due to non-respondent/unknown/masked values.
Source: DataVista. Program Years 2021-22 to 2023-24 Programs, Bay Region Community Colleges.

Beyond Labor Market and Supply Data: Insights and Ideas to Inspire Action

The Bay Region is one of the leading life sciences and biotech hubs in the United States, characterized by both industry scale and a strong startup ecosystem. With more than 3,100 industry establishments, major firms are concentrated in diverse areas such as biopharmaceutical research, drug development, and manufacturing; diagnostics; digital health; AI-driven therapeutics; oncology; and cell and gene therapy.[3,4] Historically, the Bay Region has also been home to a wide range of startups that have attracted substantial investments, and the region accounted for 35% of all life sciences funding nationwide.[5]

In recent years, however, the sector has been navigating a period of significant transition. Funding from investors, which are central for driving innovation and technology, has been shifting away from early-stage startups toward more established companies.[6] Layoffs have also impacted workers since 2022, driven in part by a variety of factors: failed clinical trials, high-profile bankruptcies, stock collapses, and major acquisitions.[7] Companies have been limiting construction and real estate data show vacancy rates of 25% across life sciences facilities.[8]

In addition to these challenges, more recent federal funding cuts have weakened prospects for the future ecosystem of the sector. According to one report, the National Institutes of Health (NIH) lost millions in grants across California in 2025 due to federal cuts.[9] Life sciences was among the sectors most impacted, with loss of grants for research into life-saving drugs, dementia, and heart disease. One administrator noted that these cuts have already disrupted the entire biotech research ecosystem at the University of California, noting that more than 1,000 startups across the state have been founded based on UC patents.[10] Ultimately, lack of funding may also lead to fewer clinical trials, which would continue impacting the need for lab spaces in the region.[11]

[3] "Biotech Companies in the San Francisco Bay Area: A Comprehensive Overview," Intuition Labs, 2025, accessed March 1, 2026, https://intuitionlabs.ai/pdfs/biotech-companies-in-the-san-francisco-bay-area-a-comprehensive-overview.pdf.
[4] "2025 Sector Report," California Life Sciences (CLS), accessed March 1, 2026, https://www.califesciences.org/industry-reports/2025-sector-report/
[5] "Biotech Companies in the San Francisco Bay Area: A Comprehensive Overview," Intuition Labs, 2025, accessed March 1, 2026, https://intuitionlabs.ai/pdfs/biotech-companies-in-the-san-francisco-bay-area-a-comprehensive-overview.pdf.
[6] "San Francisco Bay Area Life Science Market Overview," Newmark, 2025, accessed March 1, 2026, https://nmrk.imgix.net/uploads/fields/pdf-market-reports/1Q25-Bay-Area-Life-Science-Market-Report.pdf.
[7] Ibid.
[8] "Biotech Companies in the San Francisco Bay Area: A Comprehensive Overview," Intuition Labs, 2025, accessed March 1, 2026, https://intuitionlabs.ai/pdfs/biotech-companies-in-the-san-francisco-bay-area-a-comprehensive-overview.pdf.
[9] "Billions of Dollars In California Research Grants Now Hang In The Balance at an Obscure Federal Court," CalMatters, September 2025, accessed March 1, 2026, https://calmatters.org/education/higher-education/2025/09/science-research-california/
[10] Ibid.
[11] "San Francisco Bay Area Life Science Market Overview," Newmark, 2025, accessed March 1, 2026, https://nmrk.imgix.net/uploads/fields/pdf-market-reports/1Q25-Bay-Area-Life-Science-Market-Report.pdf.

Despite uncertainty, the Bay Region remains at the forefront of technological innovation, driven by artificial intelligence, machine learning, gene editing, and personalized medicine.[12,13] Companies across the region are applying these tools to accelerate drug discovery, improve diagnostic accuracy, reduce their carbon footprint, and develop novel therapies.[14,15] The industry and tech coming together reflects the defining nature of collaboration across the sector. For example, hospitals and research centers, such as UCSF Medical Center and Stanford Medicine, regularly conduct clinical trials with local biotech firms, while industry organizations such as the California Life Sciences Association (CLSA) help foster networking, support, and lab space for startups. Overall, these trends suggest that, despite challenges, the Bay Region will continue leading the next phase of innovation in life sciences and biotech.

[12] "Biotech Companies in the San Francisco Bay Area: A Comprehensive Overview," Intuition Labs, 2025, accessed March 1, 2026, https://intuitionlabs.ai/pdfs/biotech-companies-in-the-san-francisco-bay-area-a-comprehensive-overview.pdf.
[13] Ibid.
[14] "Building a Greener Future: Sustainability in Life Sciences," California Life Sciences, 2025, accessed March 20, 2026, https://info.califesciences.org/hubfs/Insights%20Magazine/Insights-magazine-2025-Q1-Final.pdf.
[15] Ibid.

Appendix A: Methodology

The Bay Region COE selected the occupations in this profile by examining job descriptions and skills listed in O*Net. Labor market and job postings data was sourced from Lightcast [data 2026.1]. Online job postings included all unique job postings from January 2025 to December 2025 in the 12-county Bay Region for occupations in the life sciences/biotech pathways specified in this report.

In addition, to evaluate industry data, the life sciences/biotech sector included industries classified under North American Industry Classification System (NAICS) six-digit codes in Table 10. The COE selected these NAICS codes using inverse staffing patterns to determine the industries in which the occupations in this report were employed, and included industries related to life sciences/biotech (see Table 10). Please note that these NAICS codes include industries with more than 1% of the occupation employed in the industry.

Table 10: NAICS codes for the Life Sciences/Biotech Sector

NAICS	Description
334516	Analytical Laboratory Instrument Manufacturing
325220	Artificial and Synthetic Fibers and Filaments Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing
325315	Compost Manufacturing
339114	Dental Equipment and Supplies Manufacturing
339116	Dental Laboratories
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
325193	Ethyl Alcohol Manufacturing
325314	Fertilizer (Mixing Only) Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
334517	Irradiation Apparatus Manufacturing
325411	Medicinal and Botanical Manufacturing
325311	Nitrogenous Fertilizer Manufacturing
339115	Ophthalmic Goods Manufacturing
325320	Pesticide and Other Agricultural Chemical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325312	Phosphatic Fertilizer Manufacturing
541713	Research and Development in Nanotechnology
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
541720	Research and Development in the Social Sciences and Humanities
311224	Soybean and Other Oilseed Processing

NAICS	Description
339112	Surgical and Medical Instrument Manufacturing
339113	Surgical Appliance and Supplies Manufacturing
311221	Wet Corn Milling and Starch Manufacturing
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers
423460	Ophthalmic Goods Merchant Wholesalers
456130	Optical Goods Retailers
456110	Pharmacies and Drug Retailers
541714	Research and Development in Biotechnology (except Nanobiotechnology)
541380	Testing Laboratories and Services

The Bay Region COE selected life sciences/biotech programs based on DataVista's Mapping of Taxonomy of Program (TOP) Codes to Sectors.[16] To evaluate active or approved programs in Bay Region community colleges we examined data reported to the California Community Colleges Chancellor's Office Curriculum Inventory (COCI). This report included active or approved programs prior to October 2024. Educational supply data was retrieved from Data Mart for TOP data and Integrated Postsecondary Education Data System (IPEDS) for CIP data. The total number of degrees awarded for a given TOP or CIP code was calculated as a three-year average.

[16] https://datavista.cccco.edu/resources/8.

Definitions

Average Annual Job Openings: In Lightcast, average annual job openings refer to the estimated number of job openings in a given occupation or group of occupations within a specific geographic area during the course of a year. When calculating this metric for more than a year, the average across those years is determined by adding the annual job openings over the period and dividing the total by the number of years (e.g., for a five-year period, this means adding the total openings across those five years and dividing that number by 5).

This metric is calculated based on:

- New Growth: Openings that arise due to the creation of new jobs as a result of industry or economic growth.
- Replacement Needs: Openings that occur because of workers leaving the occupation (e.g., due to retirement, career changes, or other factors).

Together, these components provide a comprehensive view of the total demand for workers in a specific role or field each year.

Average Annual Replacement Jobs: Average annual projected number of replacement job openings during 2024-2029.

CIP code: The Classification of Instructional Programs (CIP) is a taxonomic coding scheme, developed by the U.S. Department of Education's National Center for Education Statistics (NCES), used to classify and categorize academic programs for federal surveys and reporting of institutional data. Program data from CIP codes comes from the Integrated Postsecondary Education Data System (IPEDS). CIP codes are used to facilitate the alignment of similar programs offered by 2- and 4-year postsecondary institutions with the needs of the labor market.

Living wage: The living wage is the hourly rate that an individual in a household must earn to support themselves and/or their family, working full-time, or 2,080 hours per year. In the Bay Region the living wage is calculated as $46 per hour for one adult and school-aged child using the average median wages across the 12 counties in the Bay Region (Table 12).[17]

Table 12. Living Wage for an Adult + School-Aged Child by County

County	Living Wage	County	Living Wage
Alameda County	$46	San Francisco County	$50
Contra Costa County	$46	San Mateo County	$57
Marin County	$55	Santa Clara County	$51
Monterey County	$44	Santa Cruz County	$59
Napa County	$44	Solano County	$39
San Benito County	$42	Sonoma County	$42

[17] "Self-Sufficiency Standard," Center for Women's Welfare, University of Washington, 2023, accessed May 9, 2025, https://selfsufficiencystandard.org/California.

NAICS codes: North American Industry Classification System (NAICS) codes are used to organize and categorize industries within the job market for this sector. A single two-digit NAICS code can represent multiple sub-sectors and industry groups within the broader sector.

Replacements as Percent of Openings: Percent of replacements of all job openings during 2024-2029.

Skill Level: Occupations are categorized into three skill levels: below middle-skill, middle-skill, and above middle-skill jobs. Classification is based on the typical entry-level education below.

Table 13. Skill Level Definition

Skill Level	Entry-Level Education
Below Middle-Skill	No formal education required
	High school diploma
Middle-Skill	Some college, no award
	Postsecondary certificate (non-degree award)
	Associate degree
	Bachelor's degree (selected occupations where ~33% or greater of positions are held by workers with less than a bachelor's degree)
Above Middle-Skill	Bachelor's degree (All other occupations not identified as middle-skill)
	Advanced degree

TOP code: The Taxonomy of Programs (TOP) is a system of codes used by the California Community College Chancellor's Office to compare differently named academic programs with similar outcomes across community colleges. Programs and courses offered by Community Colleges are assigned a TOP code to identify similar programs and their alignment with the labor market.

Unique Job Postings: Lightcast's deduplication process involves identifying duplicate job postings and counting them as a unique posting. The unique job posting count is the number of postings after the deduplication process has taken place. For example, multiple postings could list the same job, from the same company, and in the same region, and these multiple postings would be reduced to one unique job posting.

Sources

California Community Colleges Chancellor's Office Curriculum Inventory (COCI)
Chancellor's Office Management Information Systems (MIS) Data Mart
DataVista
Integrated Postsecondary Education Data System (IPEDS)
Lightcast
O*Net Online

Contact

For more information about this report, please contact:

- **Marcela Reyes, Director**
  marcela@baccc.net or (831) 219-8875

- **Liza Chavac, Assistant Director**
  liza@baccc.net or (831) 291-5895

- **Yumi Huang, Research Analyst**
  yumi@baccc.net or (831) 275-0043

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