

***Regional Industry Advisory
Biotech and Life Sciences
Greater Sacramento region
Fall 2022***



www.coecccc.net

Aaron Wilcher, Director
COE, Greater Sacramento (North)
Biotech, Life Sciences panel December 2, 2022

About the Centers of Excellence (COE)

California Community Colleges need to ensure that CTE curriculum produces workers with the skills relevant to the regional and statewide economies.

The COE provide **quality labor market data and information** to help colleges respond to workforce needs.

Uses of the data:



Investing in new and relevant programs



Assessing labor market needs



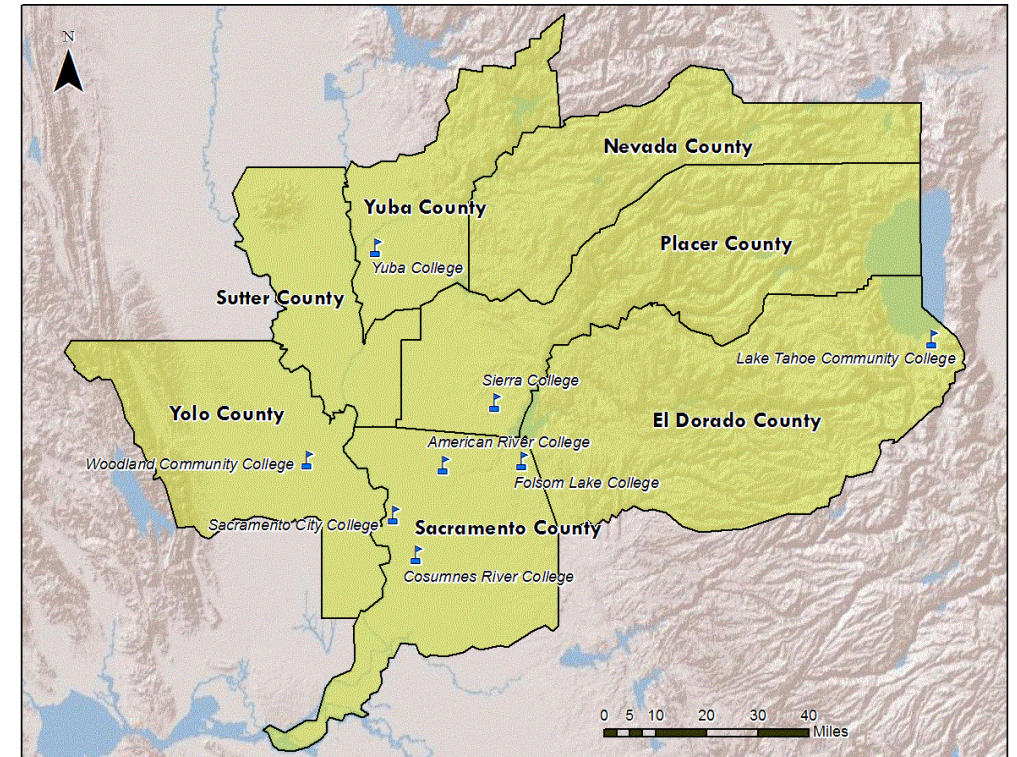
Reviewing existing programs



Pursuing grants

COE Presentation Overview

- Industry analysis
- Occupations “Skilled Technical Workforce”
- Industry sector findings
- Jobs postings analysis
- Education and training programs
- Key takeaways



COE Presentation Overview

- COE- history of reporting for biotech sector- CCSF & NSF connections
- Industry and Occupation definitions
- Program inventory
- 2021 Statewide report

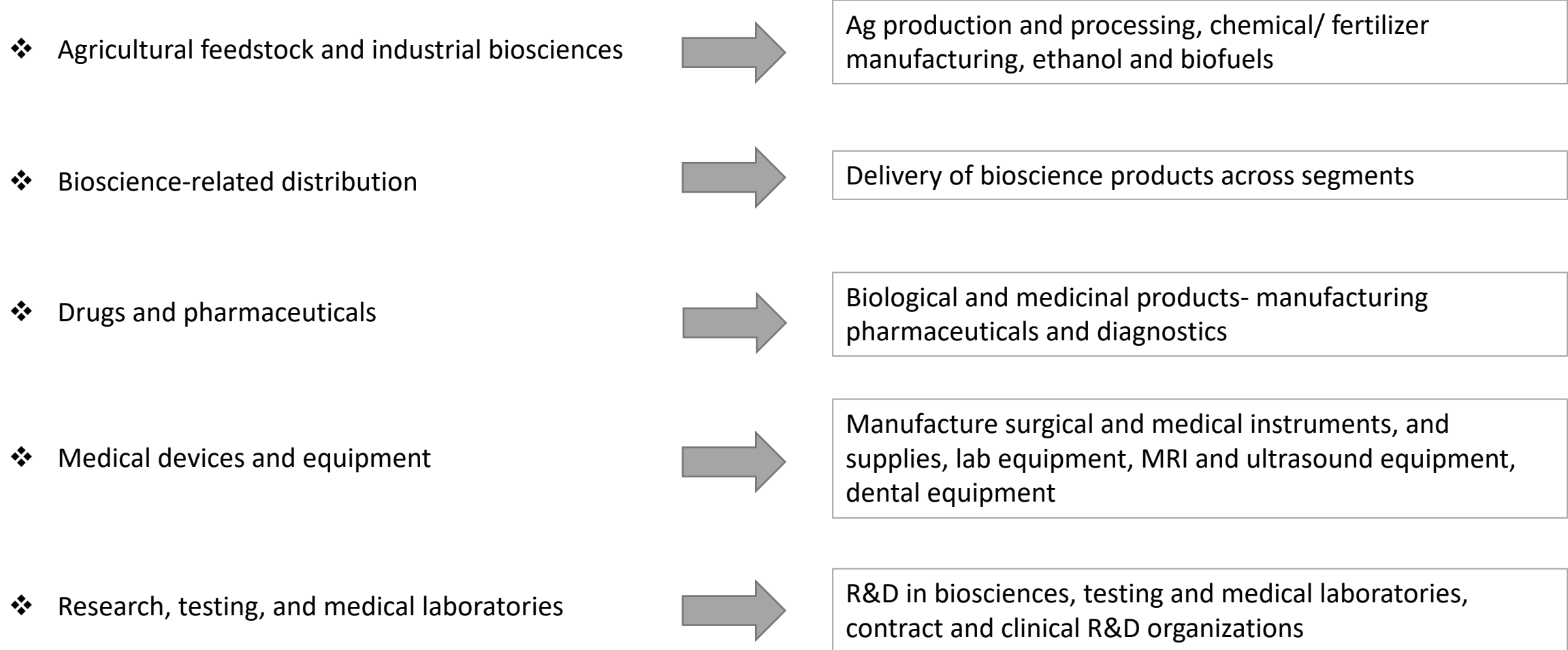
Read the report:

<https://coeccc.net/california/2022/10/biotechnology-5/>



Biotechnology and life sciences industry analysis

Biotech & Life Sciences Subsectors



Industry overview- jobs, LQ, earnings (2016-2026)

Subsector	2016 Jobs	2021 Jobs	2026 Jobs	2016-2021 % Change	2021 Location Quotient	2021 Average Earnings Per Job
Research, Testing, & Medical Laboratories	4,104	4,982	5,530	21.4%	0.90	\$174,396
Bioscience-Related Distribution	1,732	1,829	1,750	5.6%	0.48	\$95,927
Medical Devices & Equipment	985	1,317	1,608	33.7%	0.47	\$133,546
Drugs & Pharmaceuticals	621	931	1,097	50.0%	0.39	\$125,852
Agricultural Feedstock & Industrial Biosciences	333	361	405	8.2%	0.71	\$145,802
Total Biotech	7,775	9,419	10,390	21.2%	0.63	\$157,720

Greater Sacramento region-

- 9,419 jobs
- Generally small LQ
- 21% historical growth rate
- High annual earnings
- 10.3% projected growth by 2026

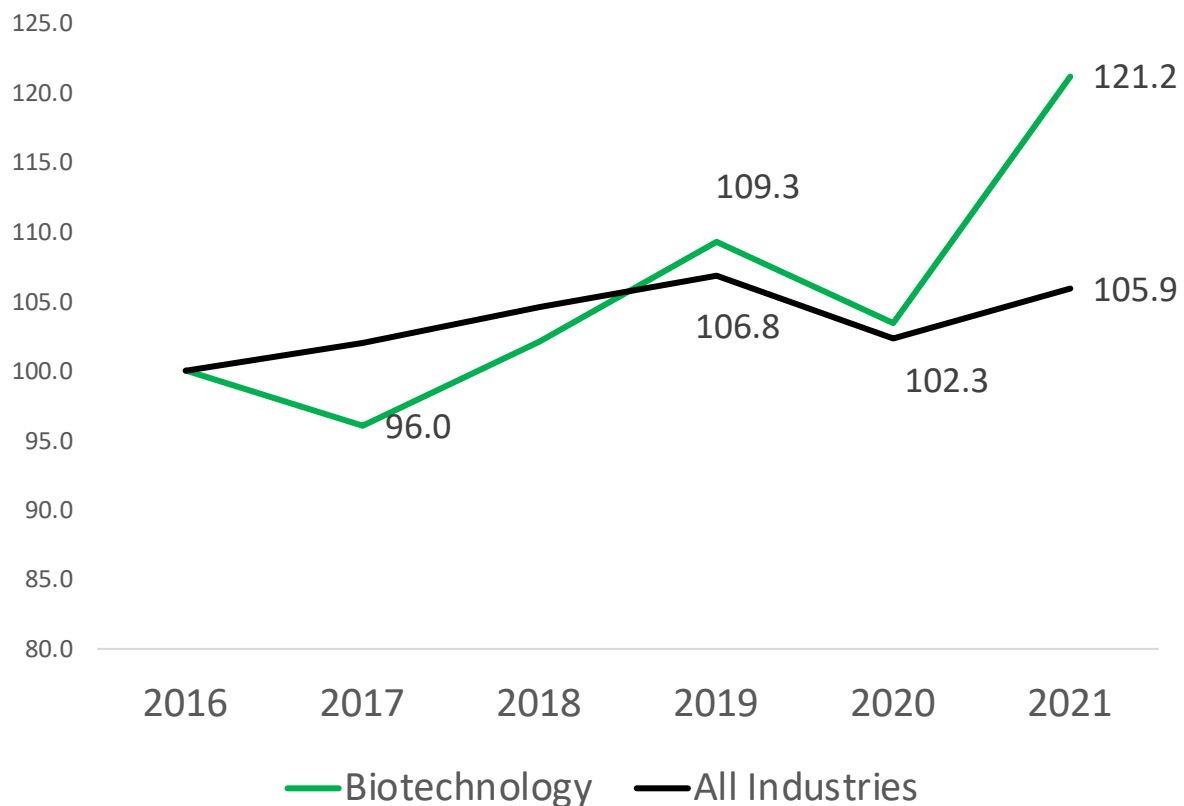
Subsector	2016 Jobs	2021 Jobs	2026 Jobs	2016-2021 % Change	2021 Location Quotient	2021 Average Earnings Per Job
Research, Testing, & Medical Laboratories	110,218	147,678	167,212	34.0%	1.61	\$227,675
Medical Devices & Equipment	64,583	77,629	83,845	20.2%	1.67	\$164,765
Bioscience-Related Distribution	52,136	62,593	65,611	20.1%	0.98	\$154,335
Drugs & Pharmaceuticals	51,179	49,894	52,843	-2.5%	1.24	\$206,641
Agricultural Feedstock & Industrial Biosciences	3,435	4,159	4,777	21.1%	0.49	\$99,109
Total Biotech	281,551	341,953	374,289	21.5%	1.36	\$195,201

California-

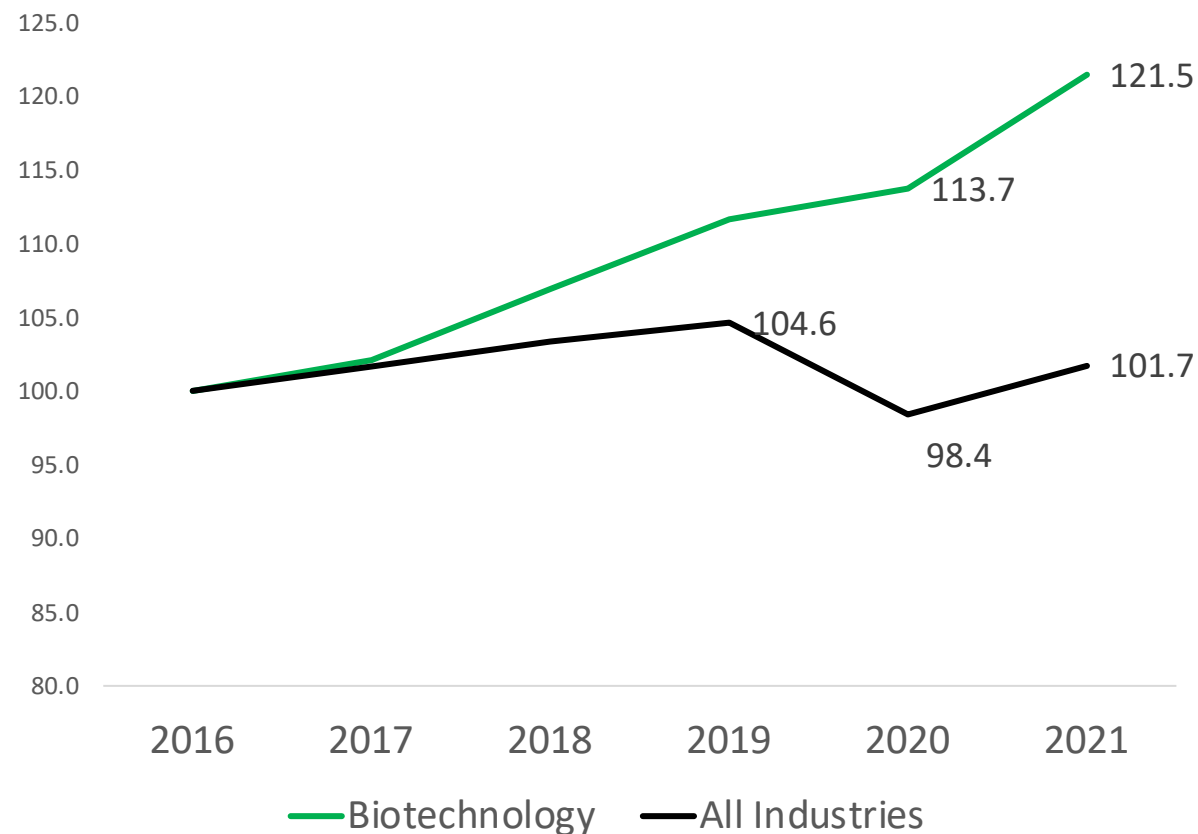
- 341,953 jobs
- Above average LQ
- 21% historical growth rate
- High annual earnings
- 8.6% projected growth by 2026

Industry historical growth vs. total economy (2016-2021)

Greater Sacramento Employment Index,
2016=100.0

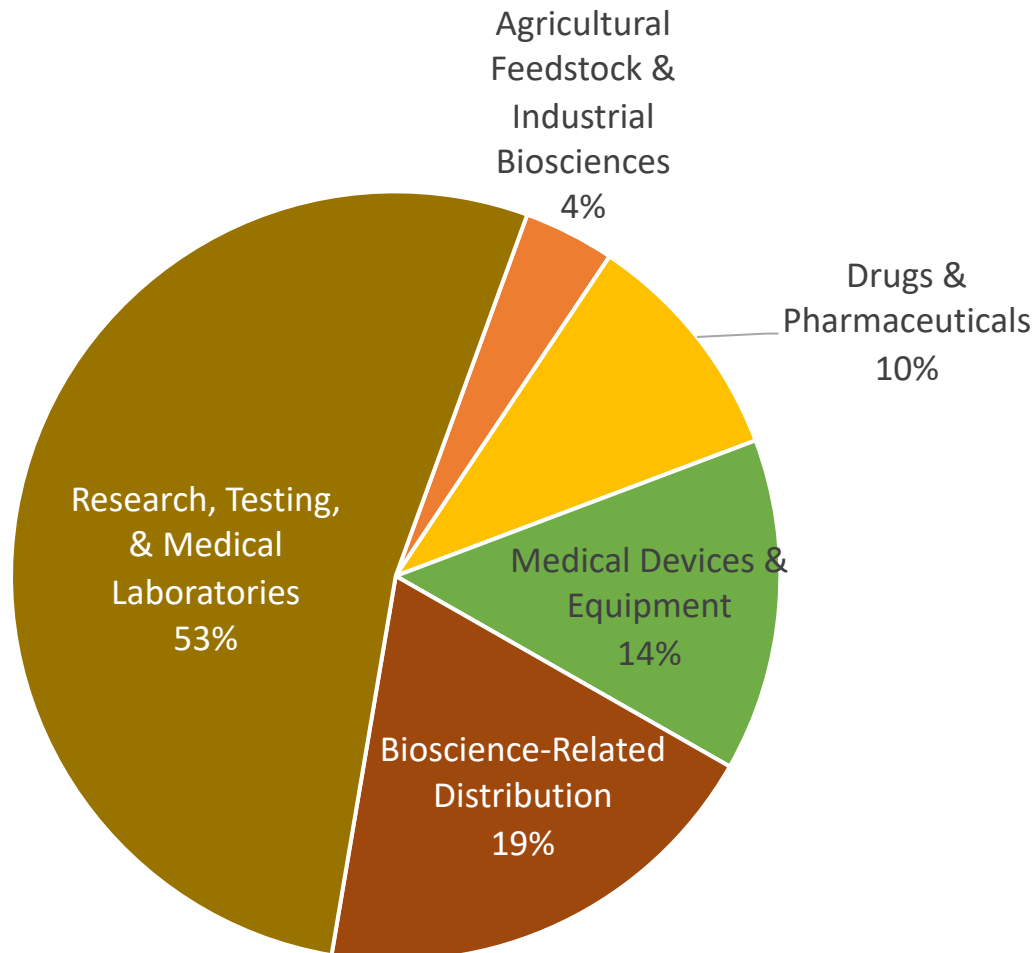


California Employment Index, 2016=100.0

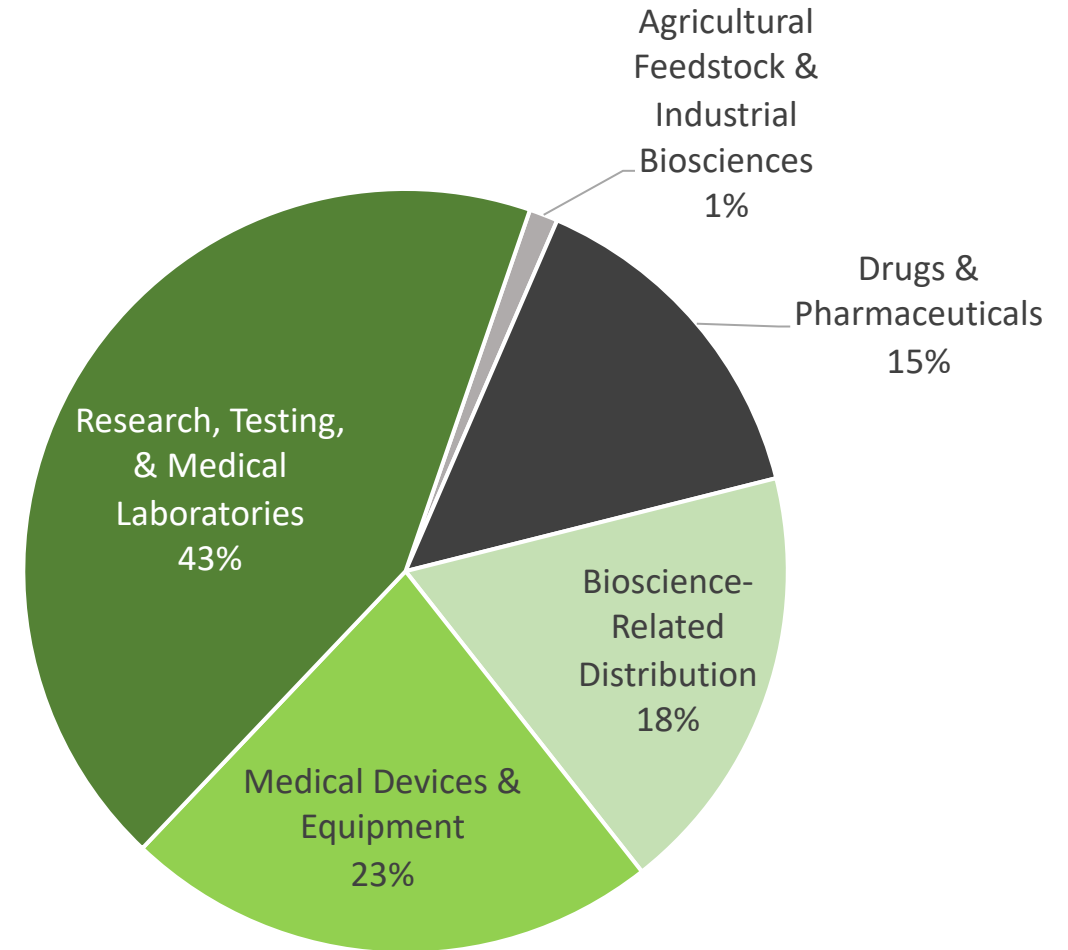


Biotech- Life Sciences Industrial Composition (2021)

Greater Sacramento region, n = 9,419 jobs



California, n = 341,953 jobs



Biotechnology and life sciences **occupation analysis**

Biotech- Life Sciences Industrial Composition (2021)

Entry-level Occupations

1. Biological Technicians
2. Chemical Technicians
3. Food Science Technicians (part of SOC 19-4011 Agricultural and Food Science Technicians)
4. Inspectors, Testers, Sorters, Samplers, Weighers
5. Manufacturing Production Technicians (part of SOC 17-3029 Engineering Techs, Except Drafters, All Other)
6. Medical & Clinical Laboratory Technicians (part of SOC 29-2018 Clinical Laboratory Technologists and Technicians)
7. Quality Control Analysts (part of SOC 19-4099 Life, Physical, and Social Science Technicians, All Other)

Pathway Occupations

1. Biochemists & Biophysicists
2. Biomedical Engineers
3. Biostatisticians (part of SOC 15-2041 Statisticians)
4. Chemists
5. Clinical Data Managers (part of SOC 15-2041 Statisticians)
6. Clinical Research Coordinators (part of SOC 11-9121 Natural Science Mgrs.)
7. Compliance Officers
8. First-Line Supervisors/Mgrs. of Production and Operating Workers
9. Laboratory Managers (part of SOC 11-9121 Natural Science Mgrs.)
10. Manufacturing Engineers (part of SOC 17-2199 Engineers, All Other)
11. Medical Scientists, Except Epidemiologists
12. Microbiologists
13. Sales Representatives, Wholesale & Mfg., Technical & Scientific Products

Statewide report (2021)-

- “Pathway occupations” have more than 2x jobs (21,500 vs. 45,000 jobs)
- Pathway jobs – 2x annual openings (2,500 vs. 5,000)
- Pathway job pay >\$20 per hour more (\$24 per hour vs. \$46 per hour)

Entry-level occupations employment trends (2021-2026)

SOC	Description	2021 Jobs	2026 Jobs	2021 - 2026 Change	2021 - 2026 % Change	Avg. Annual Openings
17-3029.09	Manufacturing Production Technicians	388	411	23	6%	41
19-4013	Food Science Technicians	69	76	6	9%	10
19-4021	Biological Technicians	506	544	38	8%	73
19-4031	Chemical Technicians	213	234	21	10%	28
19-4099.01	Quality Control Specialists	654	676	21	3%	85
29-2018	Clinical Laboratory Technologists and Technicians	1,930	2,064	133	7%	153
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2,264	2,281	17	1%	277
Total		6,025	6,286	260	4%	669

Greater Sacramento region-

- 6,025 jobs
- 669 projected annual openings
- 4% projected growth rate

SOC	Description	2021 Jobs	2026 Jobs	2021 - 2026 Change	2021 - 2026 % Change	Avg. Annual Openings
17-3029.09	Manufacturing Production Technicians	11,807	12,054	247	2%	1,164
19-4013	Food Science Technicians	2,263	2,273	9	0%	298
19-4021	Biological Technicians	9,352	10,085	733	8%	1,366
19-4031	Chemical Technicians	7,806	8,057	251	3%	926
19-4099.01	Quality Control Specialists	11,911	12,424	513	4%	1,581
29-2018	Clinical Laboratory Technologists and Technicians	27,644	30,391	2,747	10%	2,380
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	64,350	60,424	(3,925)	(6%)	7,526
TOTAL		135,132	135,707	575	0%	15,240

California-

- 135,132 jobs
- 15,240 projected annual openings
- 0% projected growth rate

Source: Lightcast, QCEW, Non-QCEW, Self-employed, 2022.4

Note 1: Quality Control Analysts and Manufacturing Production Technicians are embedded in two broad occupation groups which includes many other occupations. Therefore, the employment and projection may be overrated.

Note 2: Medical and Clinical Laboratory Technicians couldn't be found in EMSI and was replaced by Clinical Laboratory Technologists and Technicians.

Entry-level occupations hourly wages (2021)

SOC	Description	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings
17-3029.09	Manufacturing Production Technicians	\$20.54	\$28.58	\$38.51
19-4013	Food Science Technicians	\$18.40	\$22.26	\$28.15
19-4021	Biological Technicians	\$18.55	\$22.90	\$28.21
19-4031	Chemical Technicians	\$18.97	\$23.25	\$29.50
19-4099.01	Quality Control Specialists	\$18.64	\$22.06	\$29.73
29-2018	Clinical Laboratory Technologists and Technicians	\$23.76	\$35.30	\$38.12
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$15.36	\$18.65	\$24.17
TOTAL		\$19.17	\$24.71	\$30.91

SOC	Description	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings
17-3029.09	Manufacturing Production Technicians	\$23.22	\$29.65	\$42.16
19-4013	Food Science Technicians	\$17.95	\$22.05	\$28.50
19-4021	Biological Technicians	\$19.15	\$24.11	\$30.40
19-4031	Chemical Technicians	\$18.18	\$23.14	\$29.52
19-4099.01	Quality Control Specialists	\$20.61	\$27.05	\$36.34
29-2018	Clinical Laboratory Technologists and Technicians	\$22.72	\$29.68	\$38.13
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$17.11	\$21.46	\$28.22
TOTAL		\$19.85	\$25.31	\$33.32

Greater Sacramento region-

- Average wage range –
 - \$19.17 to \$30.91
- Self-sufficiency wage
 - \$29.15

California-

- Average wage range –
 - \$19.85 to \$33.32
- Self-sufficiency wage
 - \$30.48

Source: Lightcast, QCEW, Non-QCEW, Self-employed, 2022.4

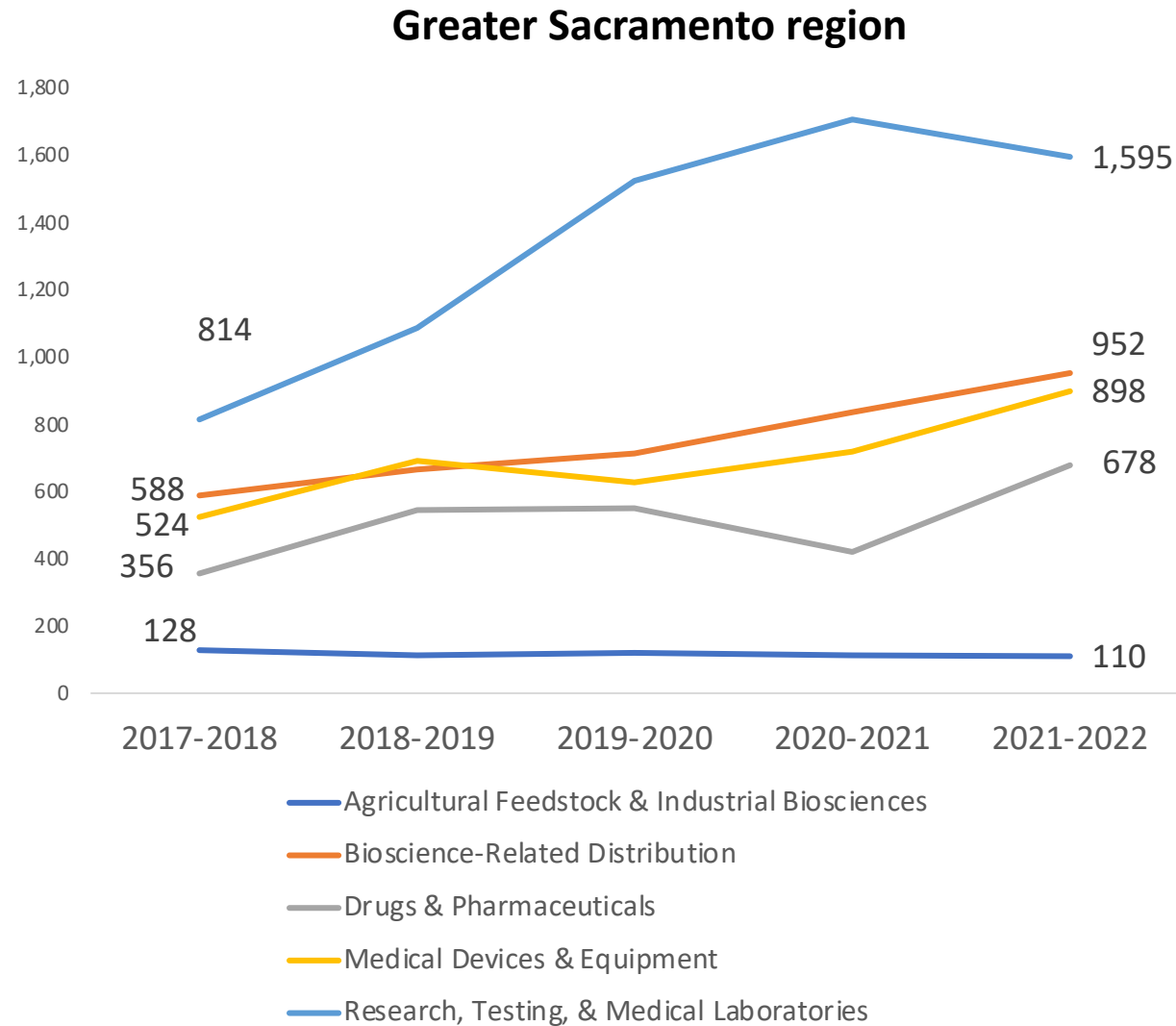
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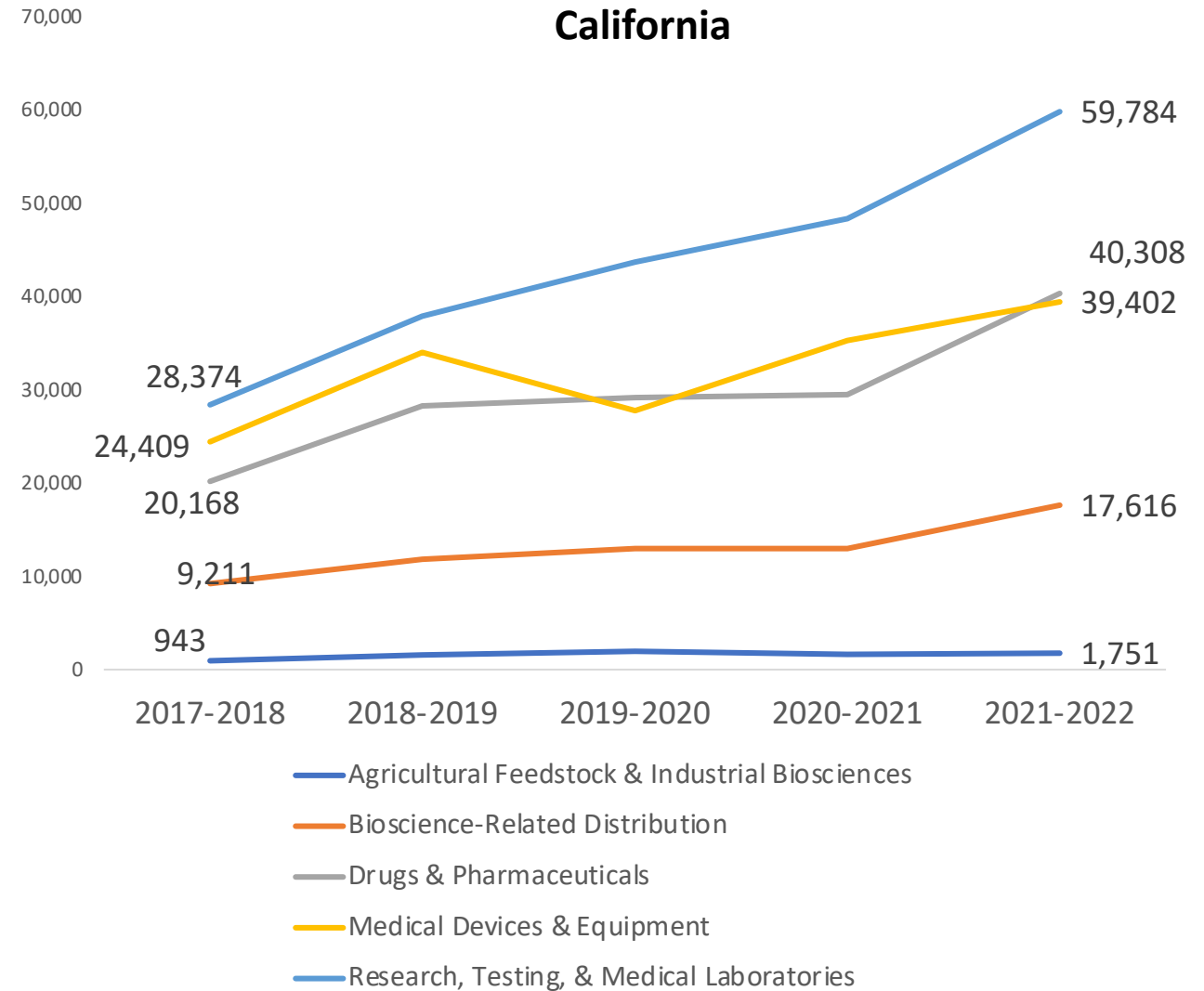
Biotechnology and life sciences **jobs postings** analysis

Jobs postings volumes by industry segment, 5-year trend (2017-2022)

Greater Sacramento region



California



Source: Burning Glass Labor Insight, 2022.4

Note: Some Job postings in Research, Testing & Medical Laboratories might not be directly relevant to biotechnology so the job posting count for this subsector might be overrated.

Jobs postings top employers, Greater Sac region, 12 months (through Oct. 2022)

All industries, 7 key occupations (n=114)

Employer	Job Postings
Eurofins Scientific	29
Quest Diagnostics Incorporated	22
MilliporeSigma	17
Agilent Technologies, Inc.	10
IDEXX Laboratories, Inc.	8
Bayer Corporation	8
Merck & Company	5
The Jackson Laboratory	2
Regeneron	2
Lincare	2
Thermo Fisher Scientific Inc	1
Scotts Company	1
Millipore Corporation	1
McKesson Corporation	1
Eli Lilly	1
Bioreliance Corporation	1
BeiGene	1
Abbott Laboratories	1

All industries, all occupations (n=2,149)

Employer	Job Postings
Quest Diagnostics Incorporated	279
Eurofins Scientific	181
The Jackson Laboratory	166
Thermo Fisher Scientific Inc	138
Icon Medical Imaging	72
Takeda Pharmaceuticals North America, Inc.	71
Optum	71
Bayer Corporation	67
McKesson Corporation	64
PerkinElmer	59
Agilent Technologies, Inc.	58
BeiGene	51
MilliporeSigma	50
Medtronic	48
Baxter International Incorporated	40
American Institutes for Research	37
Bureau Veritas	35
Pfizer	34

Jobs postings top occupations, Greater Sac region, 12 months (through Oct. 2022)

All industries, 7 key occupations (n=114)

Occupation	Job Postings
Medical and Clinical Laboratory Technicians	57
Quality Control Analysts	24
Inspectors, Testers, Sorters, Samplers, and Weighers	13
Cytotechnologists	10
Manufacturing Production Technicians	8
Medical and Clinical Laboratory Technologists	2

All industries, all occupations (n=2,149)

Occupation	Job Postings
Sales Representatives, Wholesale and Manufacturing	156
Phlebotomists	152
Sales Managers	86
Managers, All Other	66
Medical and Clinical Laboratory Technicians	57
Medical and Health Services Managers	50
Maintenance and Repair Workers, General	50
General and Operations Managers	49
Laborers and Freight, Stock, and Material Movers, Hand	47
Software Developers, Applications	46
Marketing Managers	46
Sales Representatives, Wholesale and Manufacturing	45
Medical Scientists, Except Epidemiologists	41
Operations Research Analysts	30
Registered Nurses	29
First-Line Supervisors of Retail Sales Workers	27
Quality Control Analysts	24
Management Analysts	23
Secretaries and Administrative Assistants	20

Jobs postings top job titles, Greater Sac region, 12 months (through Oct. 2022)

All industries, 7 key occupations (n=114)

Job Title	Job Postings
Mold/Asbestos Analyst - Eurofins Emlab P&K	5
Cytotechnologist I	4
Laboratory Technician	4
Sample Control Technician I - Eurofins Test America	4
Laboratory Analyst II	3
Laboratory Assistant	3
Laboratory Technician/Assistant - Eurofins Emlab P&K	3
Quality Control Analyst	3
Specimen Technician I	3
Driver/Technician - Medical	2
Head Of Quality	2
Laboratory Coordinator	2
Lcms Prep Laboratory Technician I- Multiple Shifts	2
Medical Laboratory Technician	2
Pcr Laboratory Analyst	2
Quality Analyst	2
Quality Assurance Assistant	2
Quality Assurance Coordinator	2

All industries, all occupations (n=2,149)

Job Title	Job Postings
Phlebotomist I	42
Phlebotomist	29
Phlebotomist II - Float	15
Representative Ps I Phleb	11
Field Service Technician I	10
Phlebotomist II	10
Production Associate I	9
Building Inspector	8
Plans Examiner	8
Production Planner	8
Regulatory Affairs Consultant/Project Manager	8
Retail Key Holder Pt	8
Senior Sales And Business Analyst	8
Territory Manager	8
Associate Sales Representative - Ics - , Or	7
Customer Service Representative	7
Medically Trained Mobile Phlebotomist Pt	7
Mobile Phlebotomist Pt	7
Representative, Ps I Phleb	7

Jobs postings top skills, Greater Sac region, 12 months (through Oct. 2022)

All industries, 7 key occupations (n=114)

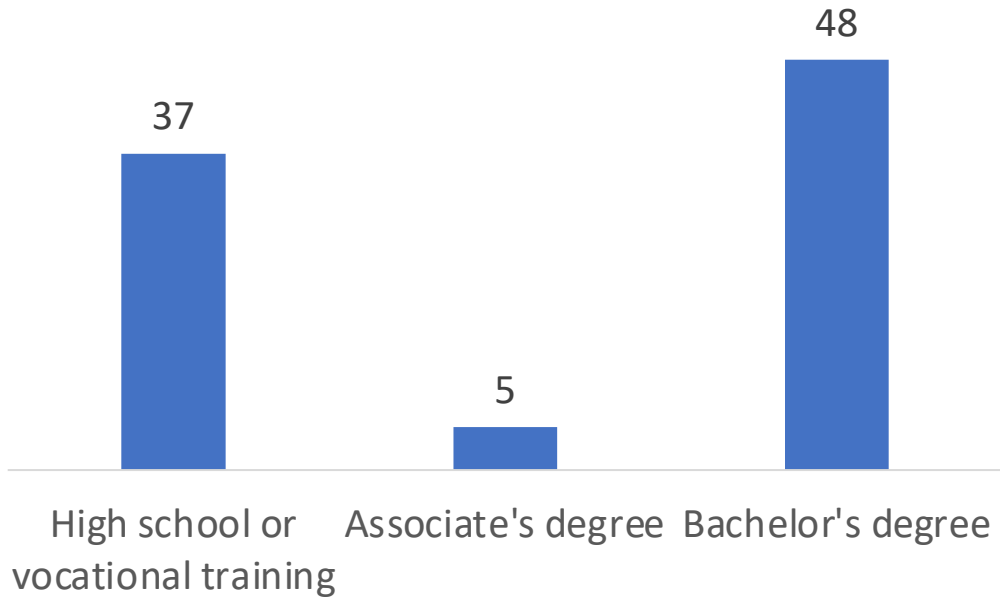
Skill	Skill Postings
Quality Assurance and Control	62
Data Entry	27
Good Manufacturing Practices (GMP)	24
Quality Management	23
Specimen Processing	22
Vaccination	22
Chemistry	21
Current Good Manufacturing Practices (CGMP)	20
SAP	20
Biology	19
Laboratory Testing	18
Scheduling	16
Technical Support	16
Cytology	14
ISO Standards	13
Laboratory Equipment	13
Pipettes	12
Test Ordering	12
Project Management	11

All industries, all occupations (n=2,149)

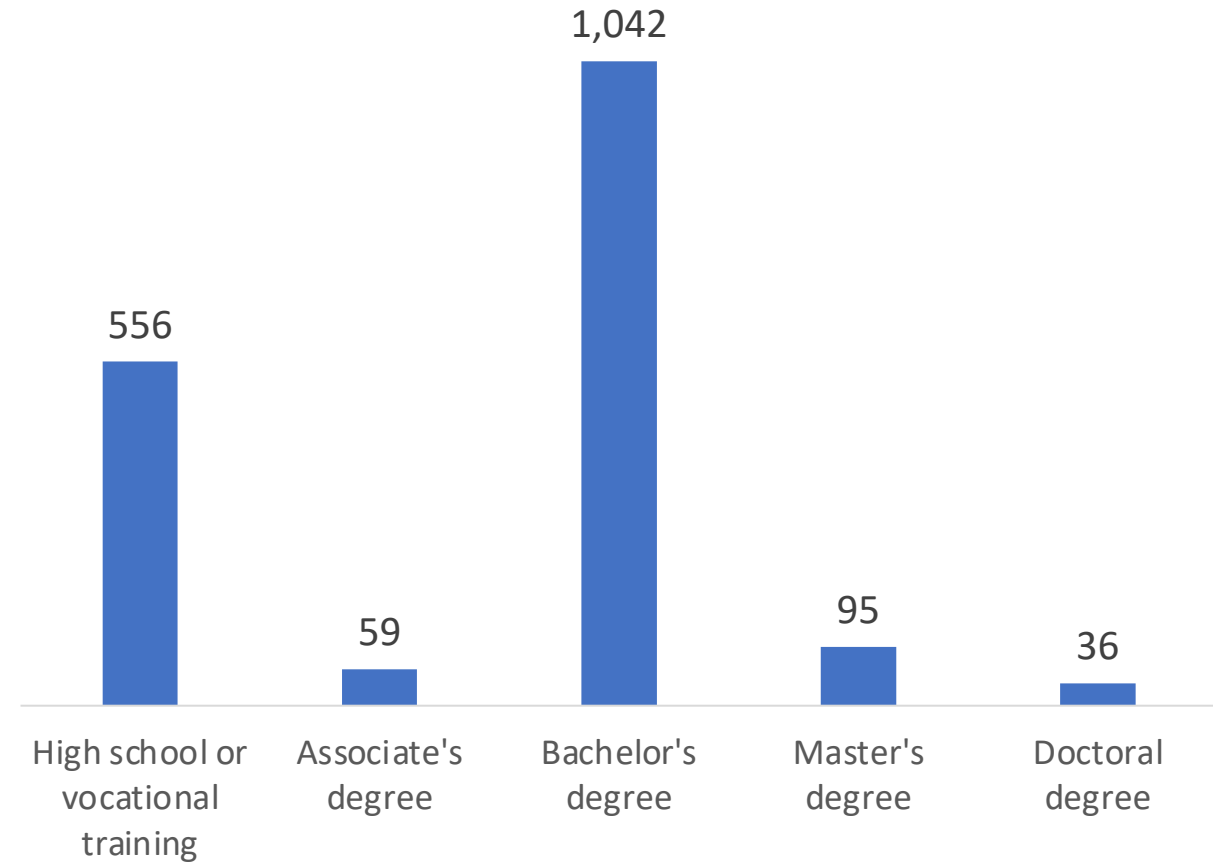
Skill	Skill Postings
Customer Service	472
Sales	397
Vaccination	369
Budgeting	312
Project Management	302
Quality Assurance and Control	298
Customer Contact	265
Data Entry	262
Scheduling	232
Phlebotomy	214
Customer Billing	212
Chemistry	190
Biotechnology	186
Retail Industry Knowledge	184
Business Planning	160
Sales Goals	159
Vaccines	158
Business Development	156
Specimen Collection	155

Jobs postings Education cited, prev. 12 months (through Oct. 2022)

All industries, 7 key occupations (n=114)



All industries, all occupations (n=2,149)



Companies most frequently in the Top 5 of employers in the jobs postings in the past 5 Years

Agricultural Feedstock & Industrial Biosciences

- Marrone Bio Innovations
- Mosaic
- Nutrien
- J.R. Simplot Company (new to postings)

Bioscience-Related Distribution

- ProMedica
- McKesson
- Stryker
- Cardinal Health

Drugs & Pharmaceuticals

- Johnson & Johnson
- Takeda Pharmaceutical Company

Medical Devices & Equipment

- Thermo Fisher Scientific
- Smile Brands
- Agilent Technologies
- Medtronic

Research, Testing, & Medical Laboratories

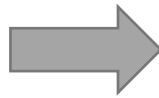
- Bayer
- Quest Diagnostics
- IQVIA
- Eurofins (new to postings)

Biotechnology and life sciences education and training programs analysis

Biotech & Life Sciences programs and awards

Average annual awards

- ❖ Sacramento City College
 - Chemical Technology
 - A.S. and certificates
 - TOP 0955.00 Laboratory Science Technology



Sequence of certificates in Chemical Technician – Beginning, Intermediate, Advanced; targets f, lab tech roles in food and beverage, water treatment, environmental monitoring, pharmaceuticals

3 associate
6 certificates

- ❖ American River College
 - Biotechnology and Biomedical Technology
 - A.S. and certificate
 - TOP 0430.00 (same name)



Prepares for entry-level work in bioscience industry for R&D, production, testing, and diagnostics. Industry targets: biotech, pharmaceutical, and hospitals and agency labs.

10 associate
4 certificates

- ❖ Folsom Lake College
 - Medical Laboratory Technology
 - A.S. degree; pre-clinical certificate
 - TOP 1205.00 (same name)



Prepares for work in medical laboratories, trains to the Medical Laboratory Technology license exam; for medical lab technician, lab assistant, or research technician

11 associate

Biotech & Life Sciences awards and annual openings

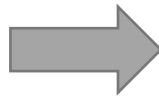
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3 associate
6 certificates

- ❖ American River College
 - Biotechnology and Biomedical Technology
 - A.S. and certificate
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10 associate
4 certificates

- ❖ Folsom Lake College
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11 associate

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	6,025	669

Key takeaways

Key takeaways

- >>> Sacramento region industry growth rates and earnings on par with California, Employment and LQ smaller, industry concentration stronger in R&D (Greater Sac)
- >>> Focused “Skilled technical workforce” is small for 5 segments, but related occupations across industries have hundreds of annual openings.
- >>> wages for “entry-level” middle skill occupations – \$19 - \$31 per hour, with median at \$25 per hour \$25 per hour
- >>> 3 core programs in Sac region at Sacramento City College (Chem Tech); Folsom Lake College (Medical Laboratory Technology); and American River College (biotechnology)
- >>> Data indicates that there is significant, related employment in other industries beyond biotech and life sciences (hospitals, labs, agencies), and that there are many middle skill jobs in biotech beyond “skilled technical workforce”
- >>> Small numbers of awards invites further investigation for opportunity- supply – demand gap appears large

For more information on the research, please contact

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