








Chemical Lab Technicians

Labor Market Analysis: San Diego County

April 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	MINIMUM EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 <p>Proceed with New Program</p>	  <p>NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING</p> <p>MEDIUM</p> 	  <p>NUMBER OF ANNUAL JOB OPENINGS</p> <p>HIGH</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Bachelor's Degree <input checked="" type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship

The San Diego-Imperial Center of Excellence for Labor Market Research (COE) developed this brief to assist the region's community colleges with strategic planning and program development. According to available labor market information, *Chemical Lab Technicians* in San Diego County have a labor market demand of 325 annual job openings (while average demand for a single occupation in San Diego County is 277 annual job openings), and six educational institutions in San Diego County supply 199 awards for this occupation, suggesting that there is a supply gap in the labor market. Entry-level wages and median wages for this occupation are above the living wage. This brief recommends proceeding with a new program because 1) a high number of annual job openings exist; 2) a supply gap exists for this occupation; and 3) entry-level and median earnings are above the living wage.

Introduction

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Chemical Technicians** (SOC² 19-4031): Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences.
- **Clinical Laboratory Technologists and Technicians** (SOC 29-2010): Perform routine medical laboratory tests for the diagnosis, treatment, and prevention of disease. May work under the supervision of a medical technologist.

For the purpose of this report, these occupations are referred to as *Chemical Lab Technicians*.

¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

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Projected Occupational Demand

Between 2020 and 2025, *Chemical Lab Technicians* are projected to increase by 222 net jobs or five percent (Exhibit 1a). Employers in San Diego County will need to hire 325 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

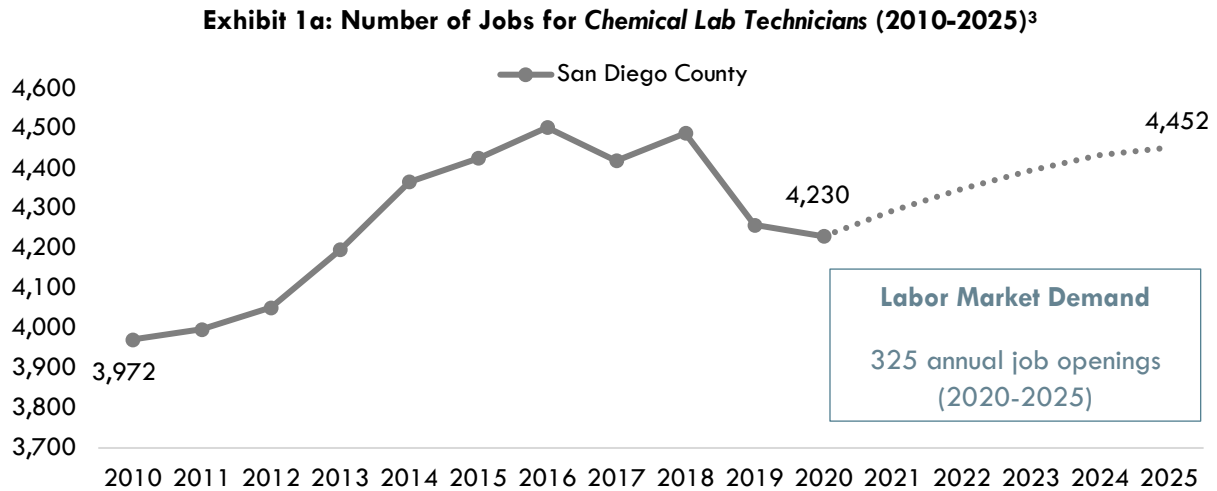


Exhibit 1b breaks down the projected number of jobs change by occupation. “Clinical Laboratory Technologists and Technicians” are projected to have the most labor market demand between 2020 and 2025, with 224 annual job openings (Exhibit 1b).

Exhibit 1b: Number of Jobs for Chemical Lab Occupations in San Diego County (2020-2025)⁴

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020-2025 % Net Jobs Change	Annual Job Openings (Demand)
Clinical Laboratory Technologists and Technicians	3,121	3,331	210	7%	224
Chemical Technicians	1,109	1,121	12	1%	101
Total	4,230	4,452	222	5%	325

³ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

⁴ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

Earnings

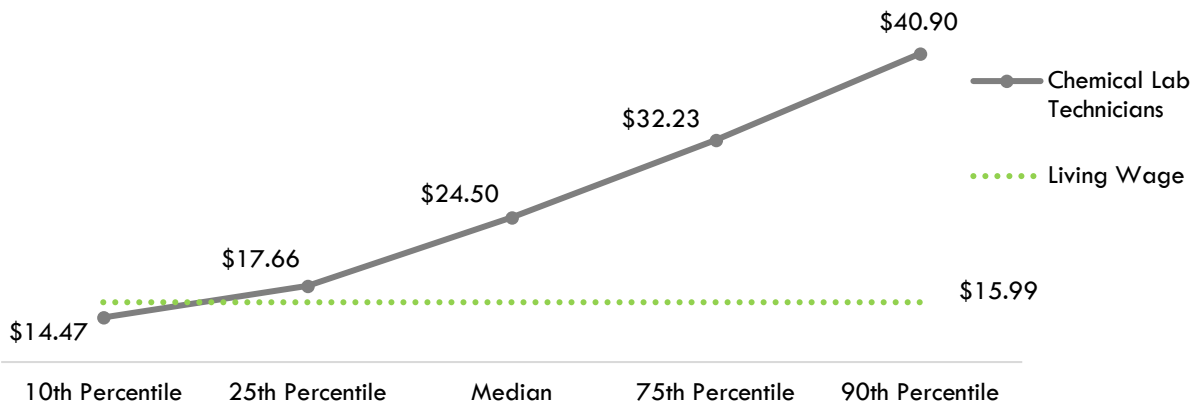
The entry-level hourly earnings for *Chemical Lab Technicians* range from \$17.31 to \$18.01 (Exhibit 2a).

Exhibit 2a: Hourly Earnings for *Chemical Lab Technicians* in San Diego County⁵

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Clinical Laboratory Technologists and Technicians	\$18.01	\$27.61	\$37.84
Chemical Technicians	\$17.31	\$21.40	\$26.61

On average, the entry-level hourly earnings for *Chemical Lab Technicians* are \$17.66; this is more than the living wage for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 2b).⁶

Exhibit 2b: Average Hourly Earnings⁷ for *Chemical Lab Technicians* in San Diego County⁸



⁵ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

⁶ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightccd.org/2018-self-sufficiency-standard.

⁷ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

⁸ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁹ There are **five** TOP codes and **eight** CIP codes related to *Chemical Lab Technicians* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Chemical Lab Technicians*

TOP or CIP Code	TOP or CIP Program Title
TOP 0430.00	Biotechnology and Biomedical Technology
TOP 0934.70	Electron Microscopy
TOP 0954.00	Chemical Technology
TOP 0955.00	Laboratory Science Technology
TOP 1205.00	Medical Laboratory Technology
CIP 15.0401	Biomedical Technology/Technician
CIP 15.0404	Instrumentation Technology/Technician
CIP 15.0499	Electromechanical and Instrumentation and Maintenance Technologies/Technicians, Other
CIP 26.1104	Computational Biology
CIP 41.0101	Biology Technician/Biotechnology Laboratory Technician
CIP 41.0301	Chemical Technology/Technician
CIP 51.1004	Clinical/Medical Laboratory Technician
CIP 51.1005	Clinical Laboratory Science/Medical Technology/Technologist

⁹ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

According to TOP data, five community colleges supply the region with awards for this occupation: MiraCosta College, San Diego City College, San Diego Mesa College, San Diego Miramar College and Southwestern College. According to CIP data, one non-community-college institution supplies the region with awards, National University (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Year 2014-15 through PY2018-19 Average)**

TOP or CIP Code	TOP or CIP Program Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
0430.00	Biotechnology and Biomedical Technology	118	0	118
	• MiraCosta	59	0	
	• San Diego City	0	0	
	• San Diego Mesa	1	0	
	• San Diego Miramar	48	0	
	• Southwestern	10	0	
1205.00	Medical Laboratory Technology	40	0	40
	• San Diego Miramar	32	0	
	• Southwestern	8	0	
51.1005	Clinical Laboratory Science /Medical Technology /Technologist	0	41	41
	• National University	0	41	
			Total	199

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply¹⁰ suggests that there is a **supply gap** for this occupation in San Diego County, with **325** annual openings and **199** awards. Comparatively, there are **2,730** annual openings in California and **816** awards, suggesting that there is also a supply gap across the state¹¹ (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	325	199	126
California	2,730	816	1,914

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

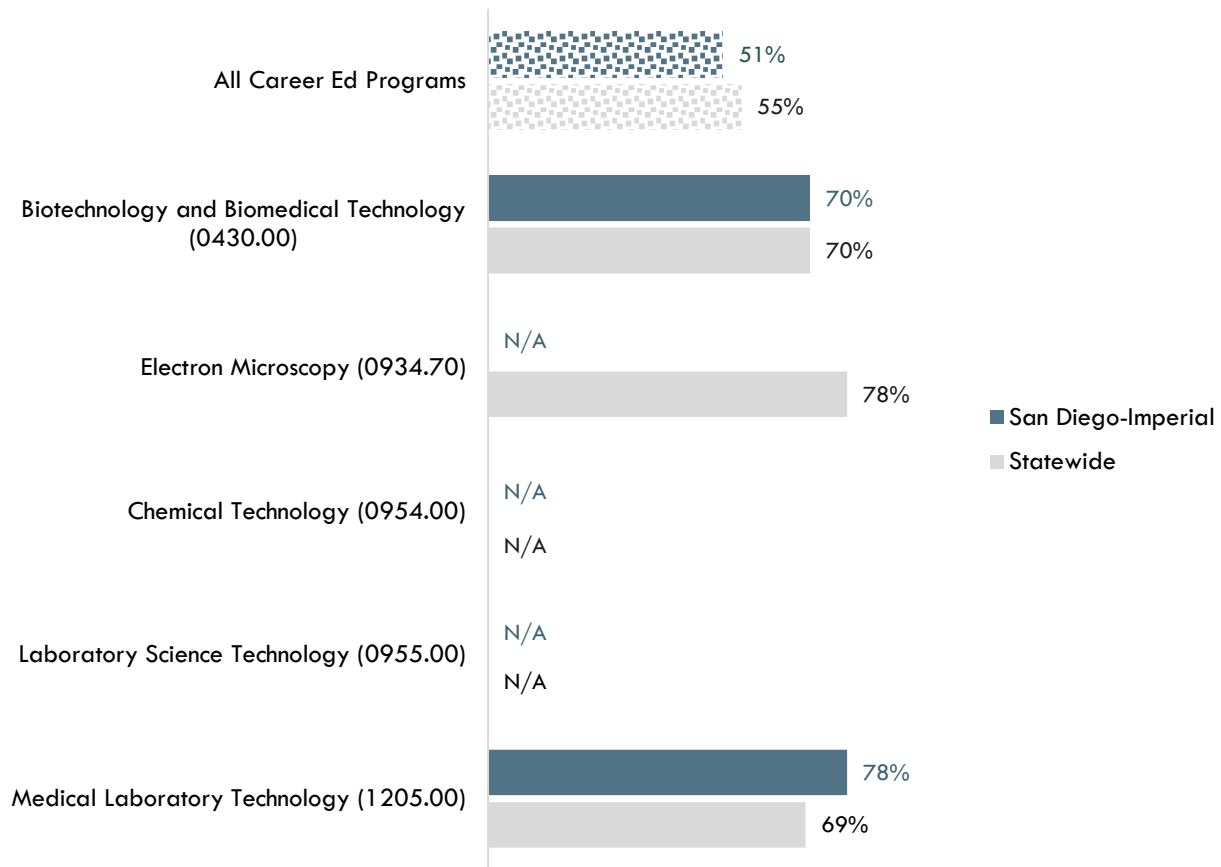
¹⁰ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

¹¹ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 70 to 78 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Chemistry Lab Technicians*, compared to 69 to 78 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).¹²

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2017-18¹³



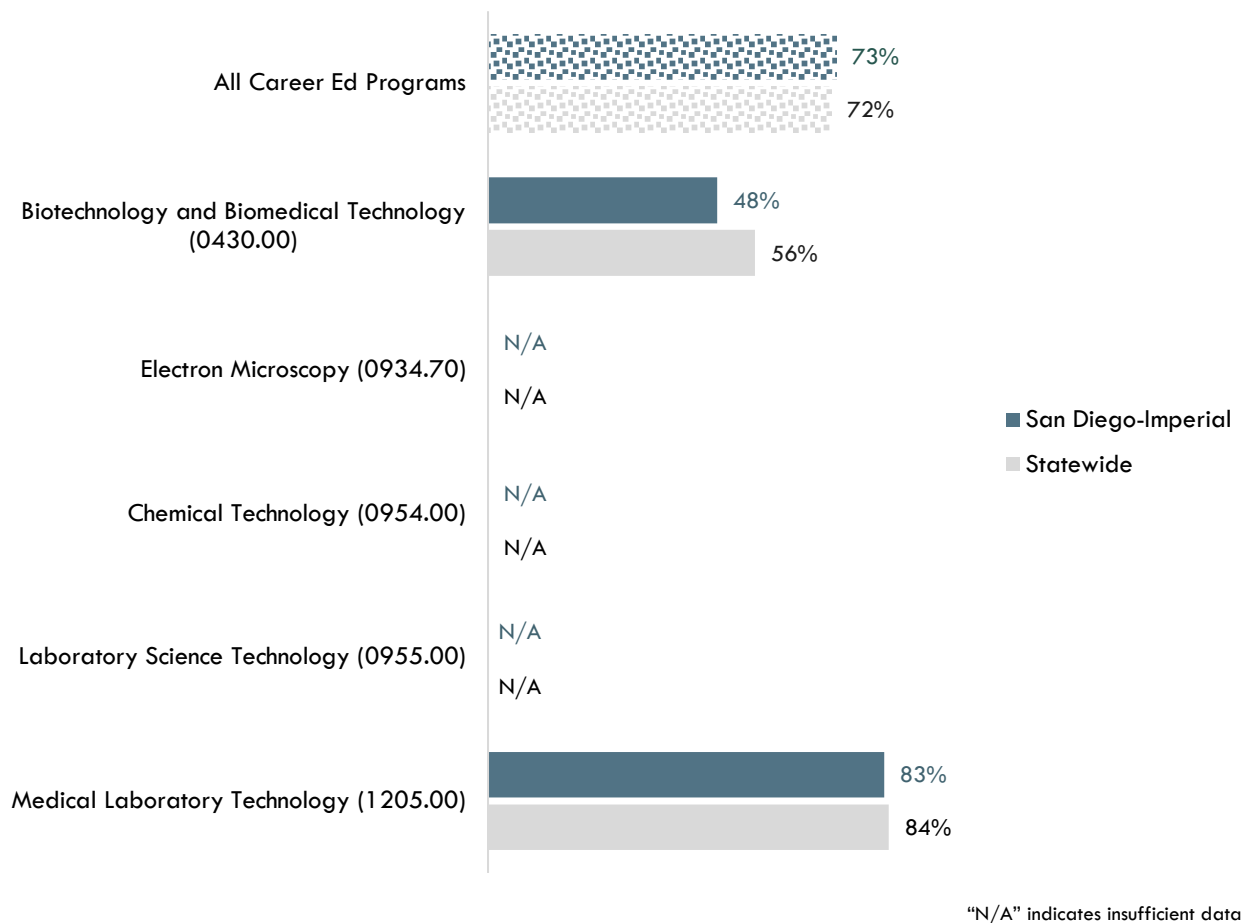
"N/A" indicates insufficient data

¹² "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹³ Among completers and skills builders who exited, the proportion of students who attained a living wage.

According to the California Community Colleges LaunchBoard, 48 to 83 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a program related to *Chemistry Lab Technicians*, compared to 56 to 84 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹⁴

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2016-17¹⁵



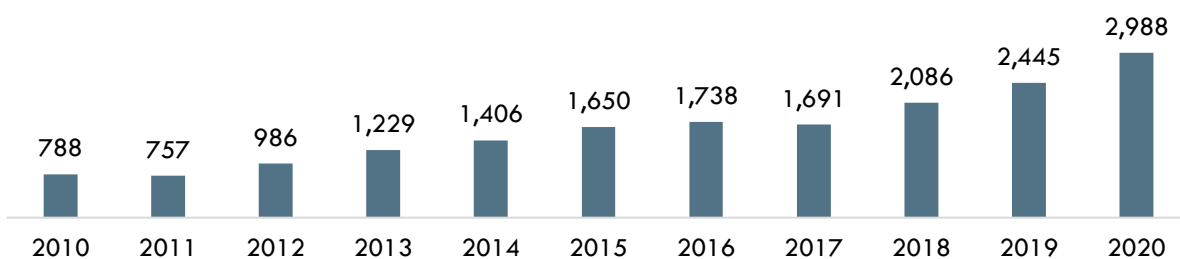
¹⁴ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁵ Most recent year with available data is Program Year 2016-17. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Online Job Postings

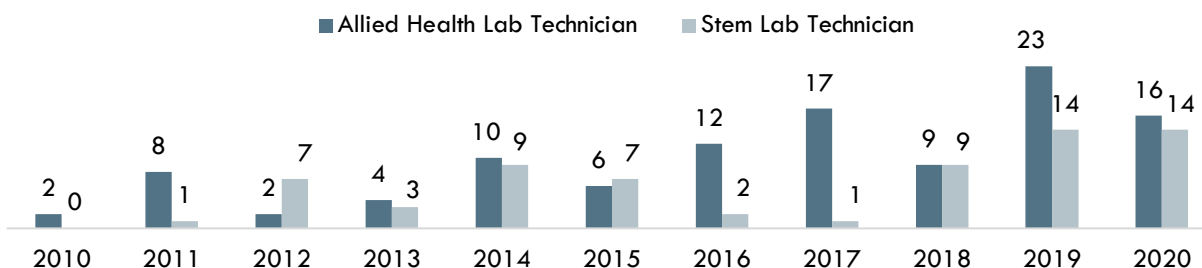
This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2020, there was an average of 1,615 online job postings per year for *Chemical Lab Technicians*¹⁶ in San Diego County (Exhibit 7a). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7a: Number of Online Job Postings for Chemical Lab Technicians in San Diego County (2010-2020)¹⁷



While this brief focuses on *Chemical Lab Technicians*, it also provides additional information from online job postings about the occupation with the keyword “Allied Health Lab Technician,” and with the keyword “Stem Lab Technician.” Between 2010 and 2020, there was an average of 10 online job postings that included the keyword “Allied Health Lab Technician” and six online job postings that included the keyword “Stem Lab Technician” (Exhibit 7b).

Exhibit 7b: Number of Online Job Postings for Chemical Lab Technicians with the Keywords “Allied Health Lab Technician” and “Stem Lab Technician” in San Diego County (2010-2020)¹⁸



¹⁶ To capture online job posting data for Clinical Laboratory Technologists and Technicians (SOC 29-2010), SOC codes Medical and Clinical Laboratories Technologists (29-2011) and Medical and Clinical Laboratories Technicians (29-2012) were used. As of 2020, these occupations were merged into Clinical Laboratory Technologists and Technicians (SOC 29-2010), bls.gov/oes/current/oes292010.htm

¹⁷ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2010-2020.

¹⁸ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2010-2020.

Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for *Chemical Lab Technicians* were the [University of California San Diego](#), [Scripps Health](#), [Prime Healthcare Services](#), [LabCorp](#), and [Sharp Healthcare](#) based on online job postings (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Chemical Lab Technicians*¹⁹

Top Employers	
<ul style="list-style-type: none">• University of California San Diego• Scripps Health• Prime Healthcare Services• LabCorp• Sharp Healthcare	<ul style="list-style-type: none">• Healthcare Travelers• Sanford Burnham Prebys Medical Discovery Institute• San Diego Blood Bank• The Salk Institute for Biological Studies• Ethos Veterinary Health

Education, Skills, and Certifications

The typical entry-level education for “Clinical Laboratory Technologists and Technicians” is a [bachelor’s degree](#), whereas the typical entry-level education for “Chemical Technicians” is an [associate degree](#) (Exhibit 9a).²⁰

Exhibit 9a: National Educational Attainment for *Chemical Lab Technicians*²¹

Occupational Title	Typical Entry-Level Education
Clinical Laboratory Technologists and Technicians	Bachelor's degree
Chemical Technicians	Associate degree

¹⁹ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2018-2020.

²⁰ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

²¹ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

Based on online job postings between January 1, 2018 and December 31, 2020 in San Diego County, employers posted an **associate degree or higher** as the educational requirement for *Chemical Lab Technicians* (Exhibit 9b).²²

Exhibit 9b: Educational Requirements for Chemical Lab Technicians in San Diego County²³

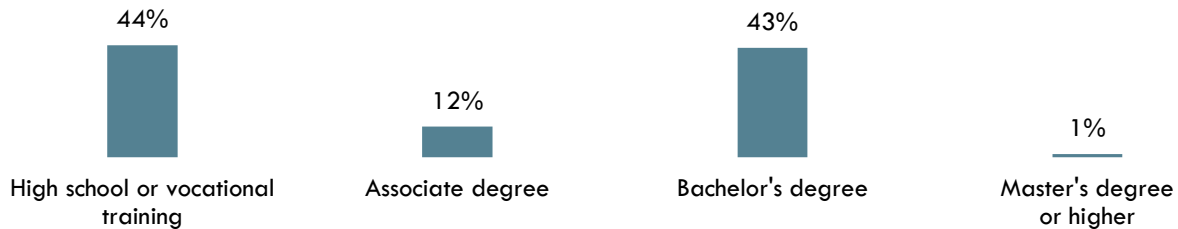


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 10: Top Skills for Chemical Lab Technicians in San Diego County²⁴

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Chemistry • Quality Assurance and Control • Experiments • Biology • Laboratory Equipment • Data Entry • Biochemistry • Microbiology • Customer Contact • Molecular Biology • Phlebotomy • Pathology • Scheduling • Record Keeping • Biotechnology 	<ul style="list-style-type: none"> • Communication Skills • Research • Detail-Oriented • Organizational Skills • Troubleshooting • Computer Literacy • Teamwork / Collaboration • Problem Solving • Physical Abilities • Writing • Multi-Tasking • Preventive Maintenance • Written Communication • Time Management • English 	<ul style="list-style-type: none"> • Microsoft Excel • Microsoft Word • Microsoft PowerPoint • Word Processing • Microsoft Access • Microsoft Outlook • Python • Ansible • SAP • MATLAB • Enterprise Resource Planning • Linux • Adobe Photoshop • Systems Analysis • UNIX

²² Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

²³ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. bls.gov/emp/tables/educational-attainment.htm.

²⁴ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 11: Top Certifications for *Chemical Lab Technicians* in San Diego County²⁵

Top Certifications in Online Job Postings

1. American Society for Clinical Pathology (ASCP) Certification
 2. Certified Medical Laboratory Technician
 3. Phlebotomy Certification
 4. Advanced Cardiac Life Support (ACLS) Certification
 5. Critical Care Registered Nurse (CCRN)
 6. Basic Life Saving (BLS)
 7. American Registry of Radiologic Technologists (ARRT) Certification
 8. Basic Cardiac Life Support Certification
 9. Clinical Laboratory Scientist (CIS)
 10. First Aid CPR AED
 11. Security Clearance
 12. American Heart Association Certification
 13. Registered Vascular Technologist (RVT)
 14. Certified Pharmacy Technician (CPhT)
 15. Certified Cytotechnologist
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²⁵ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

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Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.