SAN DIEGO & IMPERIAL COUNTIES
COMMUNITY COLLEGES

Chemistry Laboratory Occupations

Labor Market Analysis: San Diego County — December 2025

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED LEVEL(S) OF EDUCATION
Proceed with Caution	☑	☐	☐ Doctorate Degree ☐ Master's Degree ☐ Bachelor's Degree ☐ Associate Degree ☑ Some College or Certificate ☑ HS Diploma or Equivalent ☐ Less Than a HS Diploma ☐ Apprenticeship
SUPPORT FOR PROGRAM MODIFICATION?	**NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING**	**NUMBER OF ANNUAL JOB OPENINGS**	
☑	LOW	LOW	

The San Diego & Imperial Center of Excellence (COE) developed this brief to assist the region's community colleges with strategic planning and program development. *Chemistry Laboratory Occupations* include "Chemical Equipment Operators and Tenders" and "Chemical Technicians." According to available data, *Chemistry Laboratory Occupations* in San Diego County have a labor market demand of 182 annual job openings (while average demand for a single occupation in San Diego County is 289 annual job openings), and no institutions supply awards for these occupations. Entry-level wages are below the living wage. This brief recommends that the colleges proceed with caution when developing a new program for these occupations and supports a program modification because 1) there is a supply gap in San Diego County, 2) no institution in San Diego County trains for these occupations, however, 3) entry-level wages are below 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 Equipment Operators and Tenders** (SOC 51-9011): Operate or tend equipment to control chemical changes or reactions in the processing of industrial or consumer products. Equipment used includes devulcanizers, steam-jacketed kettles, and reactor vessels.
- **Chemical Technicians** (SOC 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.

For the purpose of this report, these occupations are referred to as *Chemistry Laboratory Occupations*.

Projected Occupational Demand

Between 2024 and 2029, businesses in San Diego County will need to hire 182 employees annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example (Exhibit 1). Most of this labor market demand comes from Chemical Technicians, which are projected to have the most annual job openings with 95 openings each year between 2024 and 2029.

Exhibit 1: Number of Jobs for *Chemistry Laboratory Occupations* (2024-2029)[2]

Occupational Title	2024 Jobs	2029 Jobs	2024 - 2029 Net Jobs Change	2024 - 2029 % Net Jobs Change	Annual Job Openings (Demand)
Chemical Technicians	806	807	1	0%	95
Chemical Equipment Operators and Tenders	820	835	15	2%	87
Total	1,626	1,642	16	1%	182

[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. https://www.bls.gov/soc/.
[2] Lightcast 2025.04; QCEW, Non-QCEW, Self-Employed.

Earnings

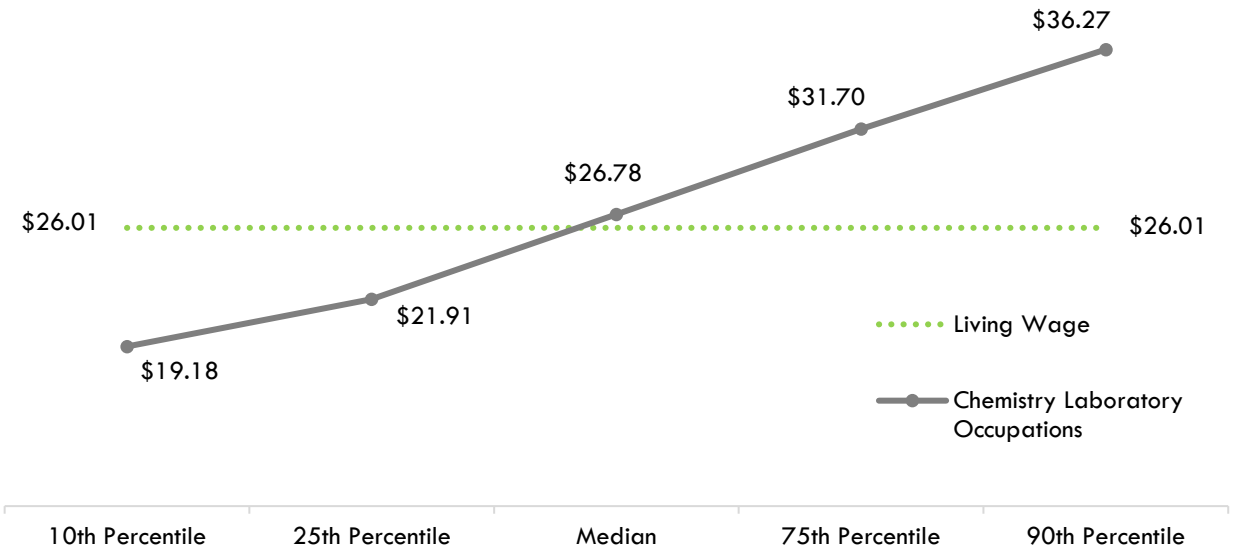
According to traditional[3] labor market information (LMI), entry-level hourly earnings for *Chemistry Laboratory Occupations* range from $21.72 to $22.10 (Exhibit 2).

Exhibit 2: Hourly Earnings for *Chemistry Laboratory Occupations* in San Diego County[4]

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Chemical Equipment Operators and Tenders	$22.10	$28.04	$31.56
Chemical Technicians	$21.72	$25.52	$31.83

On average, the entry-level hourly earnings for employed *Chemistry Laboratory Occupations* are $21.91—or $45,572.80 annual salary[5]; this is less than the living wage for a single adult in San Diego County, which is $26.01 per hour (Exhibit 3). [6]

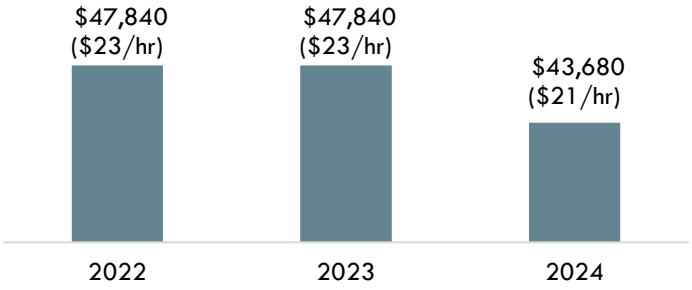
Exhibit 3: Hourly Earnings[7] for *Chemistry Laboratory Occupations* in San Diego County[8]



[3] Traditional LMI is generally historical data captured by the U.S. Bureau of Labor Statistics (BLS) or the California Employment Development Department (EDD). It does not account for recent technological, economic, or legislative changes that may affect labor market demand and wages.
[4] Lightcast 2025.04; QCEW, Non-QCEW, Self-Employed.
[5] Annualized salaries assume a full-time position with 2,080 hours. Multiplying the hourly wage with 2,080 yields the annual salary.
[6] Center for Women's Welfare, University of Washington. (2024). The self-sufficiency standard for California 2024. selfsufficiencystandard.org/California.
[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] Lightcast 2025.04; QCEW, Non-QCEW, Self-Employed.

In online job postings, however, employers advertised between $21 to $23 per hour between January 1, 2022 and December 30, 2024 for *Chemistry Laboratory Occupations* in San Diego County (Exhibit 4).[9] This indicates that employer-advertised wages have remained relatively stable before experiencing a slight decline.

Exhibit 4: Entry-Level Advertised Salaries in Online Job Postings for *Chemistry Laboratory Occupations* in San Diego County (2022-2024)



Expected Level of Education

According to traditional LMI (data reported to EDD and BLS), *Chemistry Laboratory Occupations* have a national educational attainment ranging from a high school diploma or equivalent to an associate degree (Exhibit 5).[10]

Exhibit 5: National Educational Attainment for *Chemistry Laboratory Occupations*[11]

Occupational Title	Typical Entry-Level Education
Chemical Technicians	Associate degree
Chemical Equipment Operators and Tenders	High school diploma or equivalent

[9] Lightcast 2025.04; "Job Posting Analytics." 2022-2024.
[10] Lightcast 2025.04; QCEW, Non-QCEW, Self-Employed.
[11] Lightcast 2025.04; QCEW, Non-QCEW, Self-Employed.

Similarly, online job postings between January 1, 2022 and December 31, 2024 in San Diego County had a high school diploma or equivalent as the most requested educational requirement for *Chemistry Laboratory Occupations;* however, employers also expected the following certifications (Exhibit 6).[12]

Exhibit 6: Top Certifications for *Chemistry Laboratory Occupations* in San Diego County in Online Job Postings (2022-2024)[13]

1. Security Clearance
2. 10-Hour OSHA General Industry Card
3. Secret Clearance
4. Clinical Laboratory Scientist License (CLS)
5. Cardiopulmonary Resuscitation (CPR) Certification

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. There are two TOP codes and two CIP codes related to *Chemistry Laboratory Occupations* (Exhibit 7).

Exhibit 7: Related TOP and CIP Codes for *Chemistry Laboratory Occupations*[14]

TOP or CIP Code	TOP or CIP Program Title
TOP 0954.00	Chemical Technology
TOP 0955.00	Laboratory Science Technology
CIP 41.0301	Chemical Technology/Technician
CIP 41.0303	Chemical Process Technology

[12] Lightcast 2025.04; "Job Posting Analytics." 2022-2024.
[13] Lightcast 2025.04; "Job Posting Analytics." 2022-2024.
[14] This brief uses a conservative estimate of program supply and only calculates awards from the TOP code listed in Exhibit 7.

According to TOP and CIP data, no community college or non-community college supplies the region with awards for these occupations (Exhibit 8).

Exhibit 8: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2020-21 Through Program Year 2023-24 Average)

TOP6 or CIP Code	TOP6 or CIP Program Title	3-Yr Annual Average CC Awards (PY21-22 to PY23-24)	Other Educational Institutions 3-Yr Annual Average Awards (PY20-21 to PY22-23)	Total Average Supply (PY20-21 to PY22-24)
0954.00	Chemical Technology	**0**	**0**	**0**
0955.00	Laboratory Science Technology	**0**	**0**	**0**
			Total	**0**

Demand vs. Supply

Comparing labor demand with labor supply[15] suggests that there is a supply gap for these occupations in San Diego County, with 182 annual openings and zero awards. Comparatively, there are 1,423 annual openings in California and 55 awards, suggesting that there is a supply gap across the state (Exhibit 9).[16]

Exhibit 9: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	**Supply** (Annual Awards)	**Supply Gap or Oversupply**
San Diego	182	0	**182**
California	1,423	55	**1,368**

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.

[15] Labor supply can be found from two different sources: Lightcast or the California Community Colleges Chancellor's Office MIS Data Mart. Lightcast uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.
[16] "Supply and Demand," Centers of Excellence Student Outcomes, coeccc.net/our-resources.

Student Outcomes and Regional Comparisons

According to the California Community Colleges DataVista, no regional or statewide outcomes data were reported for students that earned a living wage after completing a program related to *Chemistry Laboratory Occupations*. As a result, comparisons to San Diego-Imperial or statewide Career Education outcomes cannot be made (Exhibit 10).[17]

Exhibit 10: Percentage of Students Who Earned a Living Wage by Program, PY2022-23[18]

"N/A" indicates insufficient data

According to the California Community Colleges DataVista, no regional or statewide outcomes data were reported for students that obtained a job closely related to their field of study after completing a program related to *Chemistry Laboratory Occupations*. As a result, comparisons to San Diego-Imperial or statewide Career Education outcomes cannot be made (Exhibit 11).[19]

Exhibit 11: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2021-22[20]

"N/A" indicates insufficient data

[17] DataVista, California Community Colleges, datavista.cccco.edu/.
[18] Most recent year with available data is Program Year 2022-23. Among completers and skills builders who exited, the percentage of students who attained a living wage.
[19] DataVista, California Community Colleges, datavista.cccco.edu/.
[20] Most recent year with available data is Program Year 2021-22. 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.

Employers

Between January 1, 2022 and December 31, 2024, the top five employers in San Diego County for *Chemistry Laboratory Occupations* were Calpine, Airswift, Sterigenics, Thermo Fisher Scientific, and Fusion Medical Staffing based on online job postings (Exhibit 12).

Exhibit 12: Top Employers for *Chemistry Laboratory Occupations* in San Diego County[21]

Top Employers	
• Calpine • Airswift • Sterigenics • Thermo Fisher Scientific • Fusion Medical Staffing	• Kforce • Grossmont-Cuyamaca Community College District • Danaher • Ajinomoto • Kelly Services

Skills

Exhibit 13 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2022 and December 31, 2024.

Exhibit 13: Top Skills for *Chemistry Laboratory Occupations* in San Diego County[22]

Specialized Skills	Soft Skills	Software Skills
• Chemistry • Standard Operating Procedure • Laboratory Equipment • Good Manufacturing Practices • Control Systems • Quality Management Systems • Analytical Chemistry • Biology • Continuous Improvement Process • Calibration • Auditing • Pharmaceuticals	• Operations • Communication • Troubleshooting • Management • Detail Oriented • Problem Solving • Research • Lifting Ability • Mathematics • English Language • Cleanliness • Computer Literacy • Customer Service • Writing	• Microsoft Office • Microsoft Excel

[21] Lightcast 2025.04; "Job Posting Analytics." 2022-2024.
[22] Lightcast 2025.04; "Job Posting Analytics." 2022-2024.

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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.