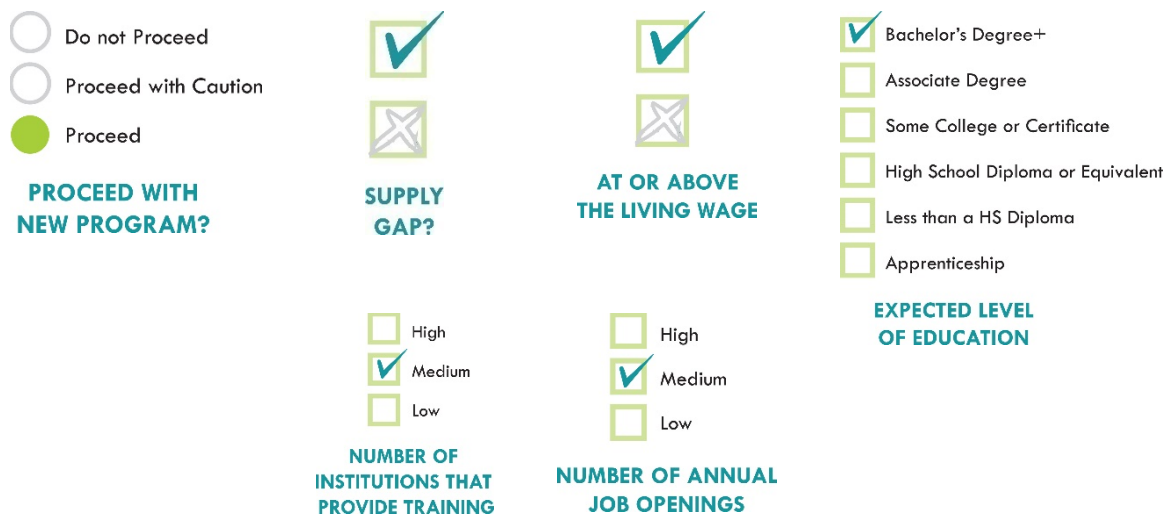


Inspectors, Testers, Sorters, Samplers, and Weighers (Including Quality Control Analysts)

Labor Market Analysis: San Diego County

April 2021

Summary



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, *Inspectors, Testers, Sorters, Samplers, and Weighers* in San Diego County have a labor market demand of 577 annual job openings (while average demand for a single occupation in San Diego County is 277 annual job openings). An occupation commonly associated with, or similar to, *Inspectors, Testers, Sorters, Samplers, and Weighers* is "Quality Control Analysts." While labor market demand cannot be determined for *Quality Control Analysts*, the number of online job postings for the occupation increased by 48 percent between 2018 and 2019, suggesting that employers may have had difficulty filling positions. Additionally, six educational institutions in San Diego County supply 205 awards for this occupation, suggesting that there is a supply gap in the labor market. Entry-level and median wages for this occupation are above the living wage. The COE recommends that the colleges proceed with developing a new program for this occupation because 1) its entry-level and median earnings are above the living wage and 2) a supply gap exists for this occupation. Colleges should also note that **employers typically require a bachelor's degree as the minimum educational requirement for**

Quality Control Analysts, while *Inspectors, Testers, Sorters, Samplers, and Weighers* typically require a high school diploma or higher.

Introduction

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

- **Inspectors, Testers, Sorters, Samplers, and Weighers (SOC 51-9061):** Inspect, test, sort, sample, or weigh nonagricultural raw materials or processed, machined, fabricated, or assembled parts or products for defects, wear, and deviations from specifications. May use precision measuring instruments and complex test equipment.

While this brief primarily focuses on *Inspectors, Testers, Sorters, Samplers, and Weighers*, it also provides additional information from online job postings for a related occupation that is not commonly analyzed in labor market research.²

- **Quality Control Analysts (SOC 19-4099.01):** Conduct tests to determine quality of raw materials, bulk intermediate and finished products. May conduct stability sample tests. Sample reported job titles include:
 - Lab Analyst
 - Lab Technician
 - Laboratory Analyst
 - Quality Assurance Auditor
 - Quality Assurance Lab Technician
 - Quality Control Technician

Quality Control Analysts exist in most industries: “Accommodation and Food Services,” “Agriculture, Forestry, Fishing and Hunting,” “Construction,” “Retail Trade,” “Manufacturing,” “Wholesale Trade,” etc. For this report, *Quality Control Analysts* online job postings within the “Manufacturing” and “Health Care” industries are analyzed in the “Online Job Postings” section below for comparison.

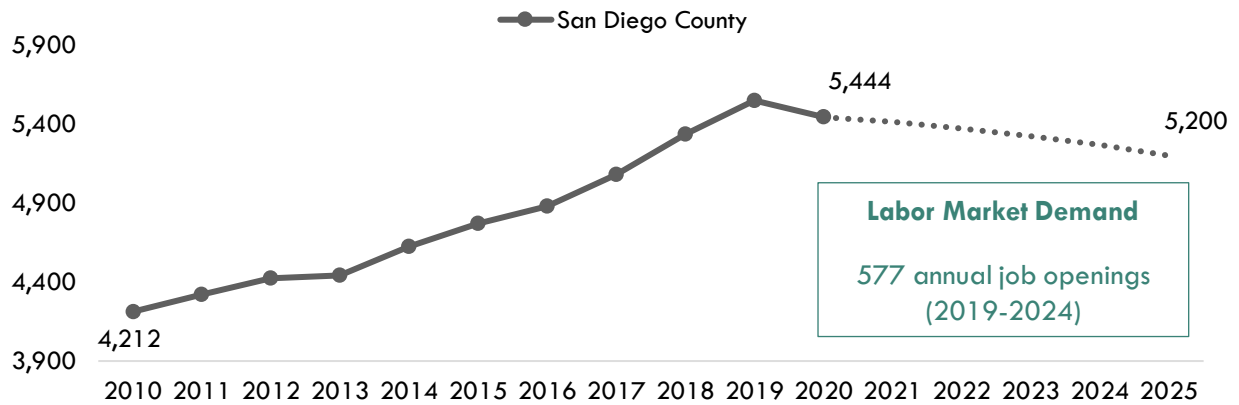
¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. bls.gov/soc.

² The Centers of Excellence for Labor Market Research (COE) and other labor market researchers typically analyze six-digit occupational codes from the SOC-O*NET system (onetonline.org/help/online/search#code). Six-digit codes are more common and have more data, whereas eight-digit codes are less common and typically have insufficient data to analyze. However, data for eight-digit codes exist in online job postings and were included in this brief.

Projected Occupational Demand

Between 2020 and 2025, *Inspectors, Testers, Sorters, Samplers, and Weighers* are projected to decrease by 244 net jobs or four percent (Exhibit 1). Employers in San Diego County will need to hire 577 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

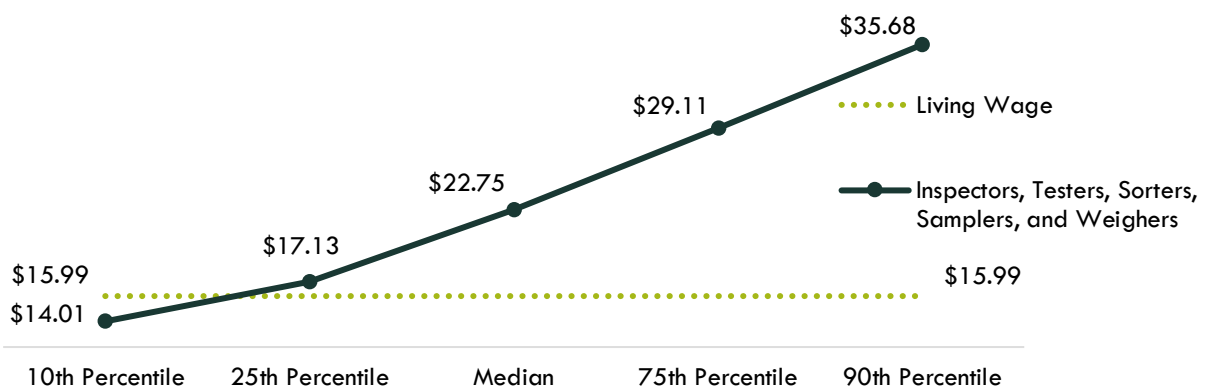
Exhibit 1: Number of Jobs for *Inspectors, Testers, Sorters, Samplers, and Weighers* (2010-2025)³



Earnings

Inspectors, Testers, Sorters, Samplers, and Weighers receive entry-level hourly earnings of \$17.13; this is more than the living wage for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 2).⁴

Exhibit 2: Hourly Earnings⁵ for *Inspectors, Testers, Sorters, Samplers, and Weighers* in San Diego County⁶



³ Emsi 2021.01; QCEW, Non-QCEW, Self-Employed.

⁴ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightccd.org/2018-self-sufficiency-standard.

⁵ 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.

⁶ Emsi 2021.01; 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.⁷ There are **four** TOP codes and **12** CIP codes related to *Inspectors, Testers, Sorters, Samplers, and Weighers* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Inspectors, Testers, Sorters, Samplers, and Weighers*

<i>Inspectors, Testers, Sorters, Samplers, and Weighers</i>
TOP 0430.00: Biotechnology and Biomedical Technology
TOP 0955.00: Laboratory Science Technology
TOP 0956.00: Manufacturing and Industrial Technology
TOP 0956.80: Industrial Quality Control
CIP 15.0401: Biomedical Technology/Technician
CIP 15.0405: Robotics Technology/Technician
CIP 15.0406: Automation Engineer Technology/Technician
CIP 15.0611: Metallurgical Technology/Technician
CIP 15.0613: Manufacturing Engineering Technology/Technician
CIP 15.0702: Quality Control Technology/Technician
CIP 15.0803: Automotive Engineering Technology/Technician
CIP 15.0805: Mechanical Engineering/Mechanical Technology/Technician
CIP 26.1104: Computational Biology
CIP 41.0101: Biology Technician/Biotechnology Laboratory Technician
CIP 41.0301: Chemical Technology/Technician
CIP 50.0404: Industrial and Product Design

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, **Newschool of Architecture and Design** (Exhibit 4).

⁷ 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).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Year 2016-17 through PY19-20 Average)**

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0430.00	Biotechnology and Biomedical Technology	177	0	177
	• MiraCosta	112	0	
	• San Diego Mesa	1	0	
	• San Diego Miramar	61	0	
	• Southwestern	3	0	
0956.00	Manufacturing and Industrial Technology	14	0	14
	• San Diego City	14	0	
50.0404	Industrial and Product Design	0	14	14
	• Newschool of Architecture and Design	0	14	
			Total	205

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁸ suggests that there is a **supply gap** for this occupation in San Diego County, with **577** annual openings and **205** awards. Comparatively, there are **6,270** annual openings in California and **1,356** awards, suggesting that there is a supply gap across the state⁹ (Exhibit 5).

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

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	577	205	372
California	6,270	1,356	4,914

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.

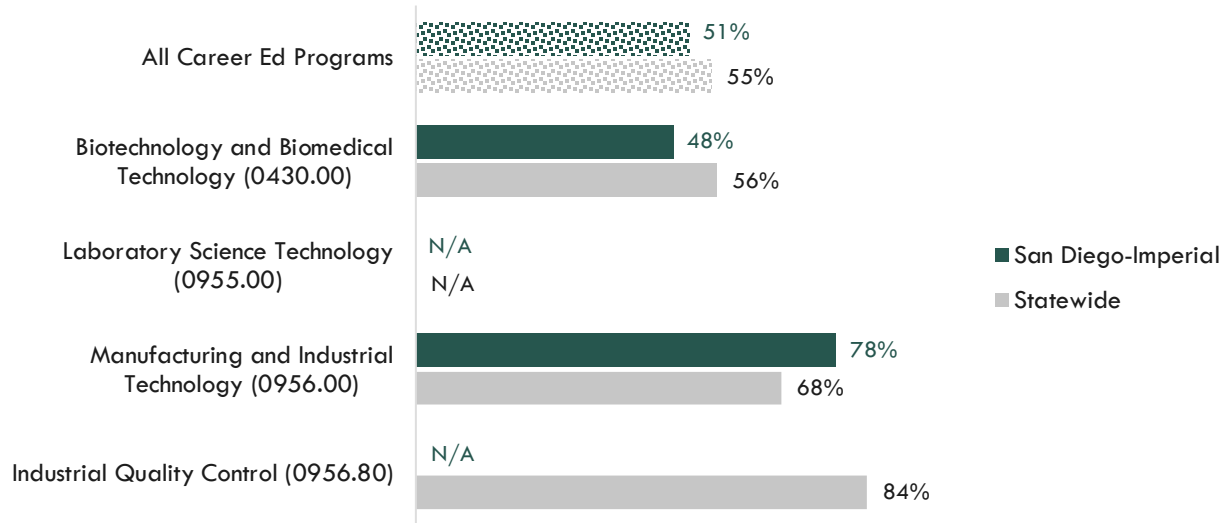
⁸ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

⁹ "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, 48 to 78 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Inspectors, Testers, Sorters, Samplers, and Weighers*, compared to 56 to 84 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).

Exhibit 6a: Proportion of Students Who Earned a Living Wage by Program, PY2017-18¹⁰

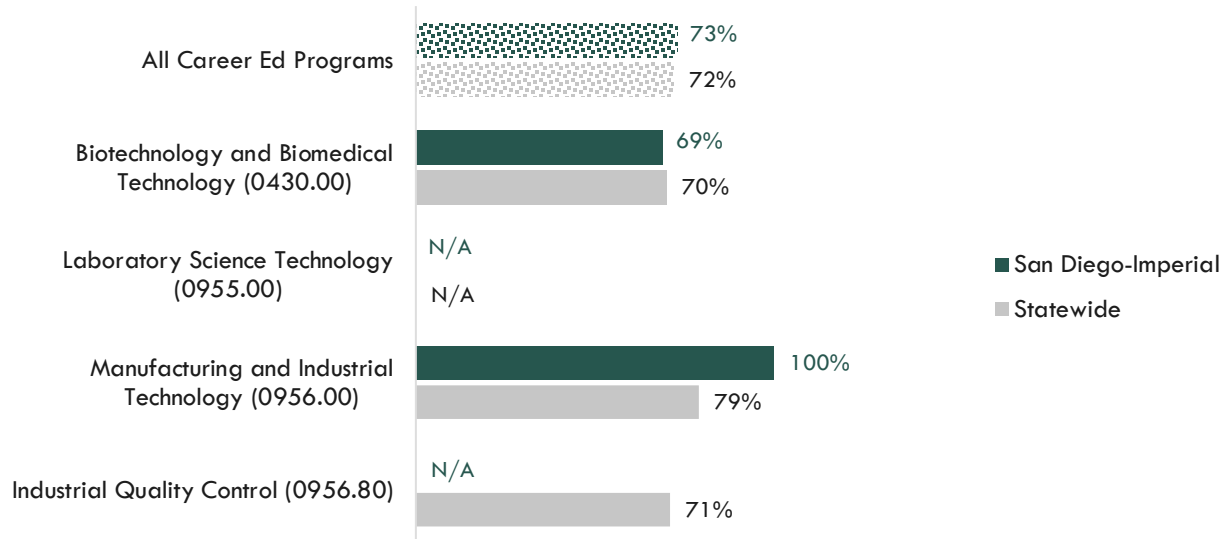


"N/A" indicates insufficient data

¹⁰ Among completers and skills builders who exited, the proportion of students who attained a living wage.

According to the California Community Colleges LaunchBoard, 69 to 100 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a related program, compared to 70 to 79 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2016-17¹¹



"N/A" indicates insufficient data

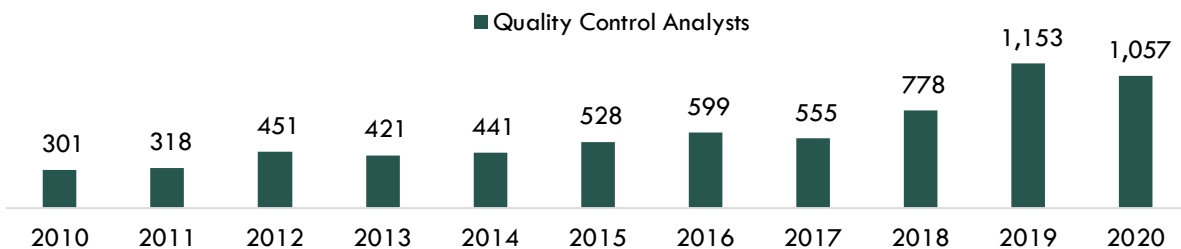
¹¹ Most recent year with available data is Program Year 2016-17. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Online Job Postings for *Quality Control Analysts*

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. An occupation commonly associated with, or similar to, Inspectors, Testers, Sorters, Samplers, and Weighers is “Quality Control Analysts.” This section explores online job postings for this occupation because it does not have traditional labor market information like *Inspectors, Testers, Sorters, Samplers, and Weighers*. Because this occupation is employed in multiple industries, this section also examines data by industry, where available.

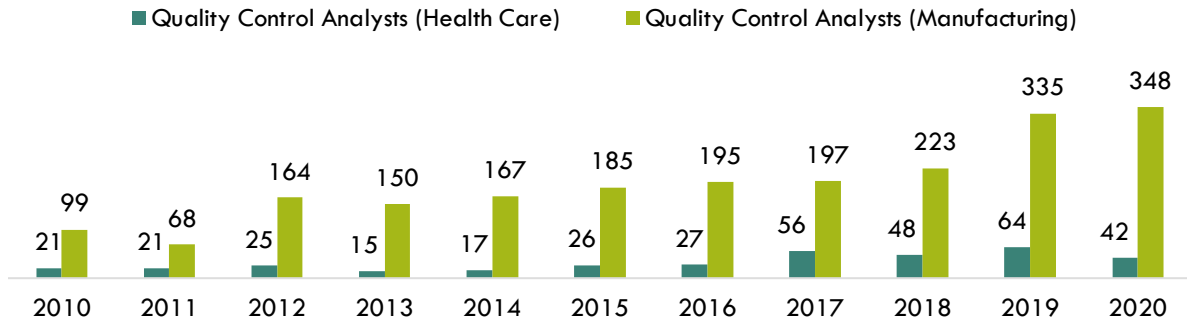
While labor market demand cannot be determined for *Quality Control Analysts*, between 2010 and 2020, there was an average of 600 online job postings per year for the occupation in San Diego County (Exhibit 7a). Additionally, the number of online job postings for the occupation increased by 48 percent between 2018 and 2019 (Exhibit 7a). Please note that online job postings do not equal labor market demand; demand is represented by annual job openings (see Exhibit 1). 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 *Quality Control Analysts* in San Diego County (2010-2020)



Between 2010 and 2020, there was an average of 33 online job postings for *Quality Control Analysts* within the “Health Care” industry and an average of 194 online job postings for *Quality Control Analysts* within the “Manufacturing” industry (Exhibit 7b).

Exhibit 7b: Number of Online Job Postings for Quality Control Analysts within “Health Care” and “Manufacturing” Industries in San Diego County (2010-2020)



Top Employers and Industries

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for this occupation were [Simply Biotech](#), [University of California San Diego](#), [Northrop Grumman](#), [Biophase Solutions](#), and [Natural Alternatives International](#) based on online job postings (Exhibit 8).

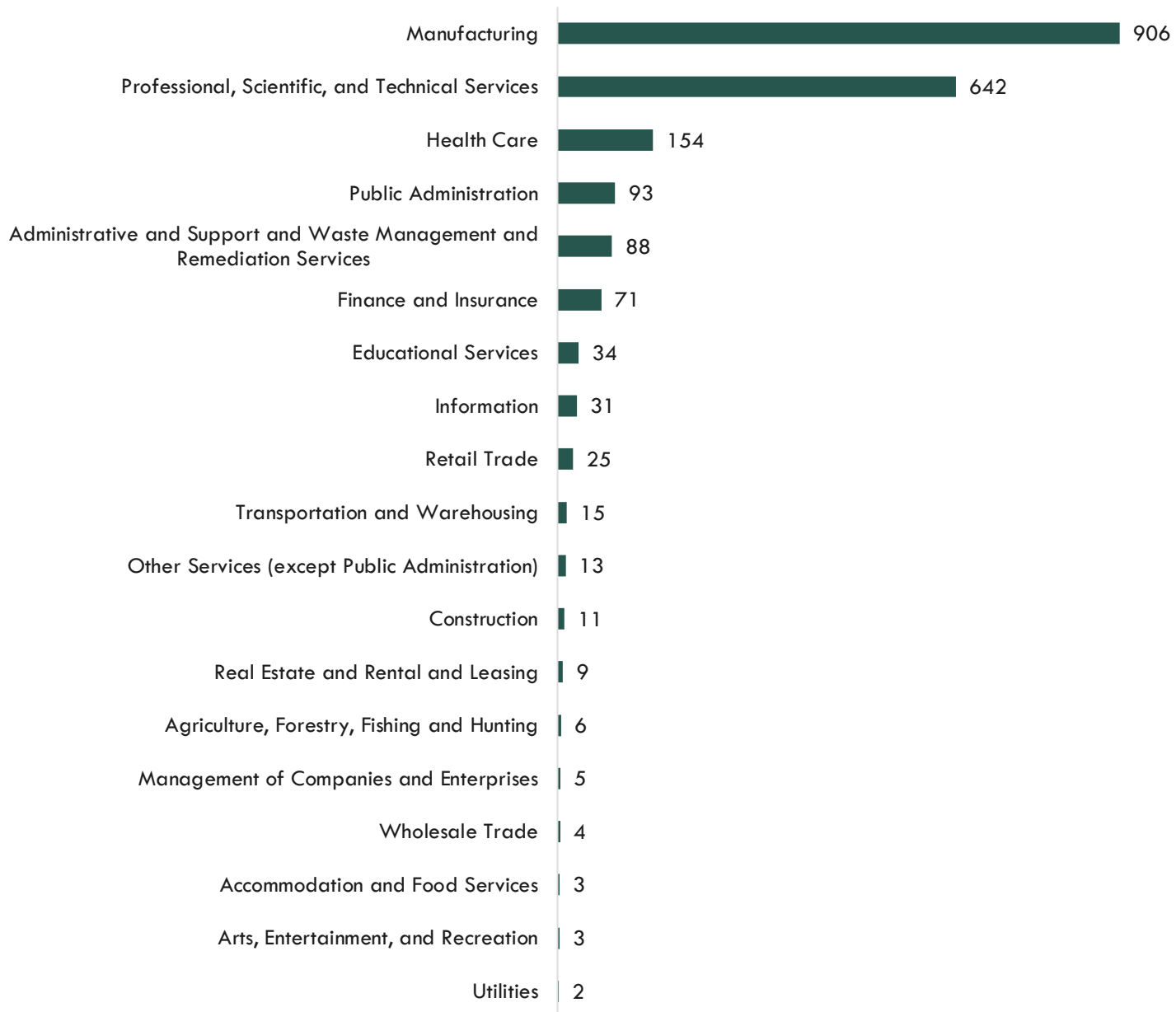
Exhibit 8: Top Employers in San Diego County for Quality Control Analysts¹²

Top Employers	
<ul style="list-style-type: none"> • Simply Biotech • University of California San Diego • Northrop Grumman • Biophase Solutions Incorporated • Natural Alternatives International Incorporated 	<ul style="list-style-type: none"> • General Atomics • Illumina Incorporated • Avexis Inc. • Alere Incorporated • Becton Dickinson

¹² Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2018-2020.

Between January 1, 2018 and December 31, 2020, the industries with the greatest number of online job postings are Manufacturing; Professional, Scientific, and Technical Services; Health Care; Public Administration; and Administrative and Support and Waste Management and Remediation Services (Exhibit 9).

Exhibit 9: Number of Online Job Postings for Quality Control Analysts by Industry in San Diego County¹³



¹³ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, Certifications, and Wages

Based on online job postings between January 1, 2018 and December 31, 2020 in San Diego County, the top listed educational requirement for *Quality Control Analysts* is a **bachelor's degree** (Exhibit 10).¹⁴

Exhibit 10: Educational Requirements for Quality Control Analysts in San Diego County¹⁵

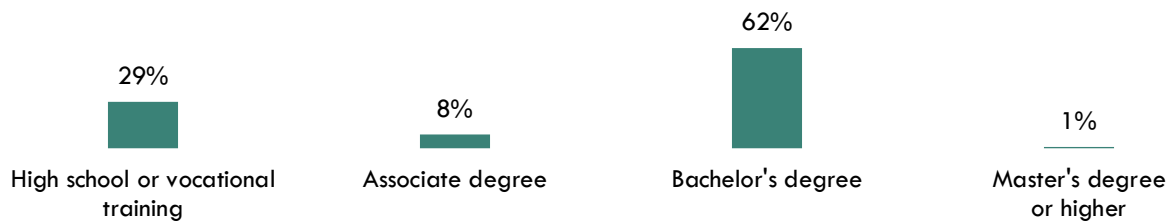


Exhibit 11 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 11: Top Skills for Quality Control Analysts in San Diego County¹⁶

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> Quality Assurance and Control Quality Management Good Manufacturing Practices Chemistry Batch Records Biology Calibration Biotechnology Good Laboratory Practices Packaging Data Analysis Scheduling Biochemistry Data Entry Internal Auditing 	<ul style="list-style-type: none"> Communication Skills Detail-Oriented Organizational Skills Problem Solving Microsoft Word Teamwork / Collaboration Writing Computer Literacy Physical Abilities Written Communication Troubleshooting Planning Multi-Tasking Verbal / Oral Communication English 	<ul style="list-style-type: none"> Microsoft Excel Microsoft Word Microsoft PowerPoint Word Processing Enterprise Resource Planning Microsoft Outlook SAP Microsoft Access Microsoft Visio Microsoft SharePoint Adobe Acrobat Salesforce Microsoft Project Software Engineering Adobe Photoshop

¹⁴ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

¹⁵ "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.

¹⁶ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 12 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 12: Top 15 Certifications for Quality Control Analysts in San Diego County¹⁷

Top Certifications in Online Job Postings
1. Security Clearance
2. American Society For Quality (ASQ) Certification
3. OSHA Safety 10 Hour
4. Certified Quality Auditor (CQA)
5. Certified Quality Engineer (CQE)
6. Six Sigma Certification
7. Certified Quality Technician (CQT)
8. Certified Hipaa Professional
9. Certified Pharmacy Technician
10. Six Sigma Green Belt Certification
11. Registered Nurse
12. Certified Outpatient Coding (COC)
13. Six Sigma Black Belt Certification
14. CompTIA Security+
15. Certified Quality Improvement Associate (CQIA)

Between January 1, 2018 and December 31, 2020, *Quality Control Analysts* within the “Health Care” industry had the highest entry-level and median earnings (Exhibit 13).

Exhibit 13: Hourly Earnings for Quality Control Analysts and Quality Control Analysts within “Health Care” and “Manufacturing” industries in San Diego County¹⁸

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Quality Control Analysts (Health Care)	\$20.87	\$24.74	\$32.14
Quality Control Analysts	\$19.11	\$23.42	\$30.15
Quality Control Analysts (Manufacturing)	\$18.14	\$21.40	\$28.85

¹⁷ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2018-2020.

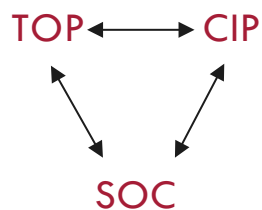
¹⁸ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2018-2020.

Appendix A: Methodology and Crosswalks

To determine if there is a supply gap (demand > supply) for occupations in this study, the San Diego-Imperial Center of Excellence for Labor Market Research (COE) examined occupational and programmatic data from available sources. Occupational data is derived from the Standard Occupational Classification (SOC)¹⁹ system. For each occupation or SOC code, labor market demand is generally defined as the “number of annual job openings.” Annual job openings include:

- Job Growth: An employer experiences increased demand for products and hires new employees to increase production. If job growth is zero or negative, then any and all openings are due to replacement needs.
- Replacement Needs: An employer hires replacement workers for employees who leave the workforce or change occupations. Replacement rates are derived from national 10-year, occupation-specific percentages published by the U.S. BLS’s Employment Projections program.

The San Diego-Imperial COE then cross-referenced the SOC (occupational) codes with Classification of Instructional Programs (CIP) and Taxonomy of Programs (TOP) codes to compare labor market demand with educational or program supply. The following diagram illustrates this process:

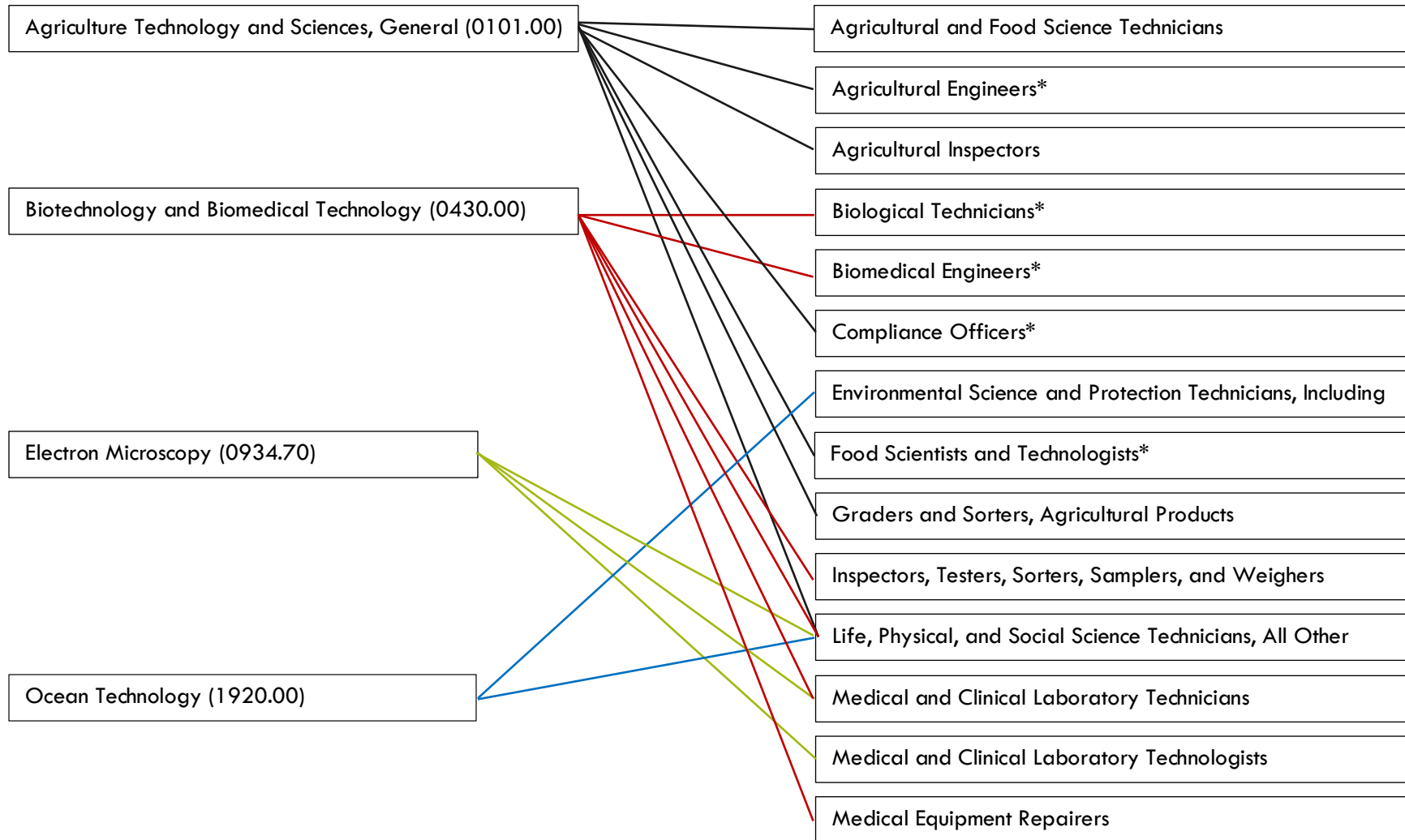


The COE determined educational supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a “supply table” with this information, which is the source of the program supply data for this report. TOP data comes from the California 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), also known as IPEDS. TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. Institutions outside of the California community college system do not use TOP codes in their reporting systems.

¹⁹ SOC is a federal statistical standard used by EDD, BLS and other federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. The San Diego-Imperial COE analyzed SOC data using Emsi, a software program that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS), and other government agencies.

Because a TOP/CIP code may train for more than one occupation, simply aggregating all supply from all related codes may overestimate supply for an occupation. Therefore, the COE de-duplicated TOP codes that trained for more than one occupation to avoid counting the program supply more than once. Doing so provides a more accurate representation of the supply gaps in the region by occupation. This de-duplication process is presented in Exhibit A on the following page.

Exhibit A: TOP-SOC Crosswalk for *Inspectors, Testers, Sorters, Samplers, and Weighers*



*These occupations are not generally considered "middle-skill jobs" (which require more than a high school diploma but less than a four-year degree) in the traditional, statewide COE crosswalk. Therefore, the San Diego-Imperial COE used TOP codes most similar to CIP codes generally associated with these occupations.

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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.