



Summary

Program LMI Endorsement	All LMI Criteria Met	Some LMI Criteria Met (Proceed with Caution)	LMI Criteria NOT Met
	✓	<input type="checkbox"/>	<input type="checkbox"/>

Program LMI Endorsement Criteria		
Supply Gap	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> There is <i>projected</i> to be 161 annual job openings throughout the Inland Empire/Desert region, which is more than the 2 annual average awards conferred by educational institutions over the last 3 years . Supply data includes both community college awards (0) and non-community college awards (2).	
Living Wage	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> The entry-level hourly wages for this occupation (\$23.73) are \$3 above the IE/D living wage of 20.42. ¹	
Education	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> The typical entry-level education for this occupation is a bachelor's degree , but more than 33% of all workers in the field (37%) have completed some college or an associate degree as their highest level of educational attainment. See Exhibit 9 for more details.	

The Inland Empire/ Desert (IE/D) Center of Excellence for Labor Market Research (IE/D COE) reviewed the following occupations to prepare this report:

- Above Middle-Skill (typically require training/education at or above bachelor's degree)
 - Clinical Laboratory Technologists and Technicians (29-2018)

Summary of findings

Demand

- The number of jobs related to the assessed occupation is projected to increase 20% through 2028, with 161 annual job openings (new and replacement jobs).
- Hourly entry-level wages for all occupations are above living wage at the 25th percentile hourly wage, estimated to be \$23.73 in IE/D.
- There were 591 online job postings from 203 employers over the past 12 months with the highest postings for Laboratory Technicians and Laboratory Assistants.
- Most job postings for target occupations require a high school diploma or equivalent (55%) followed by a bachelor's degree (31%), associate degree (13%), and above a bachelor's degree (0%).

Supply

- On average, there were 2 annual awards conferred by educational institutions over the last 3 years in related fields: 0 from community colleges and 2 from other institutions (e.g., 4-year universities, private schools).
- California community college students that exited these programs in the 2022-23 academic year earned a median annual wage of \$43,508 (\$20.92 per hour).
- 36% of California students that exited their program in 2022-23 reported that they are now earning a living wage.

¹ The [UW self-sufficiency standard](#) is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

Introduction

California Community College Biotechnology and Biomedical Technology (TOP 0430.00) programs prepare students for employment using the theories, operations, and technical skills used to assist researchers and engineers engaged in developing or manufacturing biological, biotechnical, or medical systems or products (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by Biotechnology and Biomedical Technology programs lead to employment in occupations related to biotech.

Job Demand

In 2023, there were 1,464 jobs in occupations related to biotech in the IE/D region. Regional employment for this occupation group is projected to increase by 20% through 2028 with 161 job openings projected annually. Exhibit 1 displays the job count, five-year projected job growth, and job openings in the region.

Exhibit 1. Five-year projections for occupations related to biotech, IE/D Region, 2023-2028

Occupation	SOC	2023 Jobs	2028 Jobs	2023 - 2028 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Clinical Laboratory Technologists and Technicians	29-2018	1,464	1,762	20%	803	161

SOURCE: LIGHTCAST 2025.1

Job Postings

The following analysis for occupations related to biotech using online job posting data.

Important note: The data produced in this section were generated by leveraging online job posting data sourced from Lightcast, which is the labor market analytics software tool COEs use to produce these briefs. The job posting data is collected from scraping online job boards such as LinkedIn, Indeed, Glassdoor and many others. The process Lightcast uses to assemble this data does have some limitations due to methods that recruitment professionals sometimes use (e.g., posting one job to fill multiple positions). For example, the number of jobs posted is not necessarily the same as the number of job vacancies.² While not perfect, Lightcast leverages machine learning and other AI technologies to enrich, deduplicate and aggregate this information to make it a meaningful dataset.

Exhibit 2 displays the number of job ads posted for occupations related to biotech over the last 12 months and the median posting duration. Over the previous 12 months, there were 591 unique job postings for occupations related to biotech in the region from 203 employers.

Exhibit 2. Job ads and posting duration, IE/D Region, May 2024 – Apr 2025

Job Title	Job Ads	Median Posting Duration
Clinical Laboratory Technologists and Technicians	591	24 days

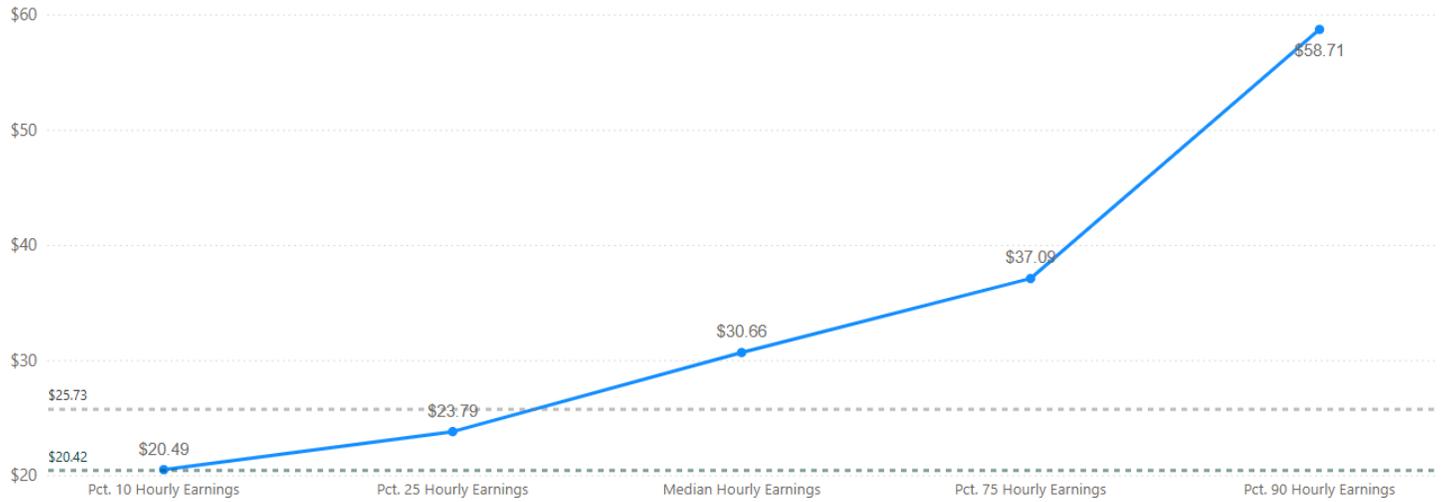
SOURCE: LIGHTCAST 2025.1

² "Job Posting Analytics (JPA) Methodology." Lightcast Knowledge Base, <https://kb.lightcast.io/en/articles/6957446-job-posting-analytics-jpa-methodology>

Earnings

Exhibit 3 displays the hourly earnings for occupations related to biotech compared to both the UW Self-Sufficiency Standard for the IE/D of \$20.42³ and the MIT IE/D living wage of \$25.73.⁴

Exhibit 3. Projected hourly earnings by percentile, IE/D Region, 2023



Description	Pct. 10 Hourly Earnings	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings	Pct. 90 Hourly Earnings
Clinical Laboratory Technologists and Technicians	\$20.49	\$23.79	\$30.66	\$37.09	\$58.71

SOURCE: 2025.1

All projected entry-level earnings (that is, the earnings of the lowest paid 25% of employees in the IE/D) were above the UW Self-Sufficiency Standard for the IE/D (see Exhibit 3). However, the occupation’s entry-level earnings were below the MIT living wage for an adult with no children (\$25.73) in projected entry-level earnings (see Exhibit 3).

³ The [UW self-sufficiency standard](#) is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

⁴ *ibid.*

Advertised Salary from Online Job Ads

Exhibit 4 displays the regional online advertised salaries for the occupations related to biotech over the last 12 months. The salary information of online job ad data suggests employers advertise entry level hourly wages of approximately \$20.92.

Exhibit 4. Hourly earnings of job postings by percentile, IE/D Region, May 2024 – Apr 2025



SOURCE: LIGHTCAST 2025.1

Online Job Advertisements: top job titles, skills, education & work experience.

Exhibit 5 displays the job titles most frequently used in job postings for the occupations related to biotech over the last 12 months. Assessing the top advertised job titles may provide insight into the types of positions sought by employers.

Exhibit 5. Job titles most frequently used in job ads, IE/D Region, May 2024 – Apr 2025

Job Title	Unique Postings
Laboratory Technicians	97
Laboratory Assistants	48
Laboratory Technologists	28
Medical Laboratory Technicians	20
Medical Laboratory Technologists	19
Quality Control Laboratory Technicians	18
Clinical Laboratory Technicians	17
Data Processing Technicians	12
Clinical Laboratory Assistants	11
Specimen Accessioners	11

SOURCE: LIGHTCAST 2025.1

Exhibit 6 displays the employers posting the most job ads for this occupational group during the last 12 months. Showing employer names can provide insight into where students may find employment after completing a program and may inform job development and other employer engagement targets for faculty and staff involved in related programs. Loma Linda University and Kaiser Permanente had the highest unique job posts for this occupational group in the last 12 months. Posting intensity is the ratio of total job posts to unique job posts which are deduplicated. A higher posting intensity can represent the level of effort and activity the organization is putting into hiring for that position. The following report comes directly from Lightcast’s Job Posting Analytics dashboard.

Exhibit 6. Employers posting the most job ads, IE/D Region, May 2024 – Apr 2025

Company	Total/Unique (Apr 2024 - Mar 2025)	Posting Intensity	Median Posting Duration
Loma Linda University	253 / 81	3 : 1 	16 days
Kaiser Permanente	81 / 16	5 : 1 	34 days
Eisenhower Health	28 / 15	2 : 1 	18 days
San Antonio Regional Hospital	90 / 12	8 : 1 	27 days
ScionHealth	57 / 12	5 : 1 	22 days
Norman Regional Hospital	30 / 11	3 : 1 	38 days
Labcorp	112 / 11	10 : 1 	12 days
Prime Healthcare Services	39 / 9	4 : 1 	17 days
Desert Regional Medical Center	29 / 9	3 : 1 	25 days
Octapharma	27 / 9	3 : 1 	13 days

SOURCE: LIGHTCAST 2025.1

Exhibit 7 displays the top common, specialized and computer skills that were included in the job postings over the last 12 months. Today’s demand is an important indicator of which skills employers are looking for in the current market. Analyzing skills from a historical perspective as well as projecting the future needs of employers may provide insight into how the job posting skills demand compares to the market as a whole. Rapidly growing skills are those that are increasing in demand at a faster rate than the market as a whole.⁵

Exhibit 7. Top 10 in-demand skills from employer job ads, IE/D Region, May 2024 – Apr 2025

Common skills	Total Postings	Skill Growth Relative to Market
Communication	168	Lagging
Detail Oriented	155	Stable
Troubleshooting (Problem Solving)	155	Growing
Quality Control	136	Growing
English Language	123	Growing
Writing	103	Growing
Management	89	Stable
Customer Service	78	Stable
Operations	70	Stable
Analytical Skills	65	Lagging

⁵ “What are Lightcast Skill Projects”, Lightcast Knowledge base, <https://kb.lightcast.io/en/articles/8496296-what-are-lightcast-skill-projections>

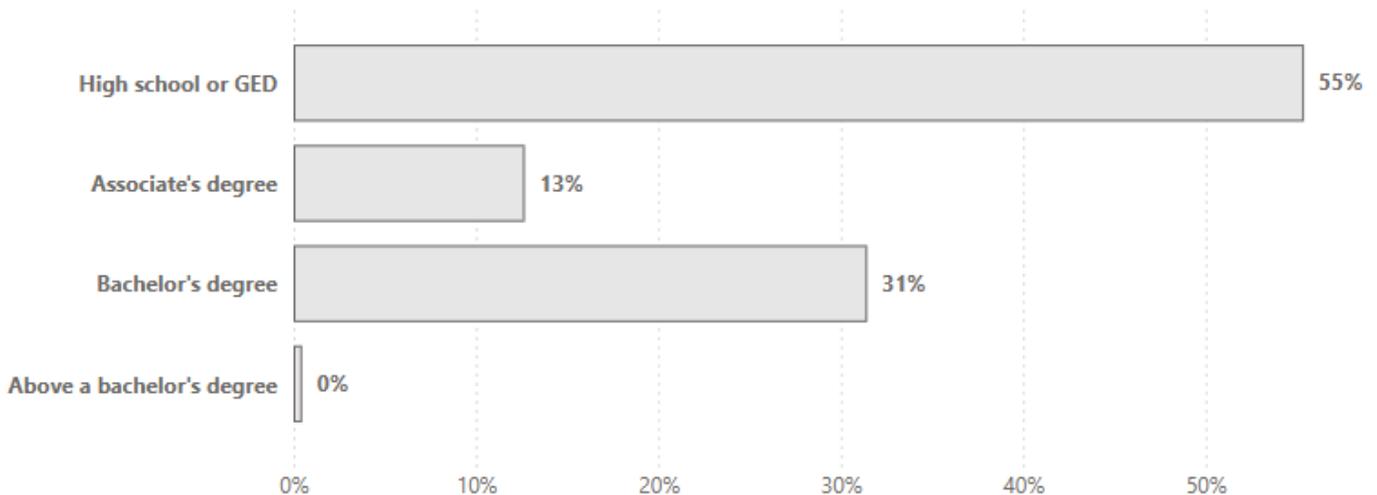
Specialized skills	Total Postings	Skill Growth Relative to Market
Medical Laboratory	182	Rapidly Growing
Laboratory Equipment	163	Growing
Chemistry	116	Growing
Clinical Laboratory Science	107	Growing
Standard Operating Procedure	94	Growing
Biology	93	Rapidly Growing
Microbiology	90	Growing
Laboratory Testing	89	Growing
Laboratory Procedures	82	Growing
Laboratory Experience	77	Growing

Computer Skills	Total Postings	Skill Growth Relative to Market
Microsoft Excel	42	Growing
Microsoft Office	36	Growing
Microsoft Outlook	22	Rapidly Growing
Microsoft Word	21	Stable
Laboratory Information Management Systems	20	Growing
Microsoft PowerPoint	15	Rapidly Growing
Operating Systems	8	Rapidly Growing
SAP Applications	8	Rapidly Growing
Spreadsheets	6	Rapidly Growing
Microsoft Access	5	Lagging

SOURCE: LIGHTCAST 2025.1

Exhibit 8 includes the minimum educational requirements from job postings for this occupational group with high school diploma or equivalent (55%) significantly greater than bachelor's degree (31%) or associate degree (13%) or above a bachelor's degree (0%).

Exhibit 8 Minimum educational requirements in job postings for this occupational group, IE/D Region, May 2024 – Apr 2025



SOURCE: LIGHTCAST 2025.1

For the assessed occupation, the Bureau of Labor Statistics (BLS) education attainment data in Exhibit 9 for current professionals in the occupations of interest indicates that 37% of workers have completed some college or an associate degree as their highest level of education.

Exhibit 9 National-level Education Attainment for the Occupational Group

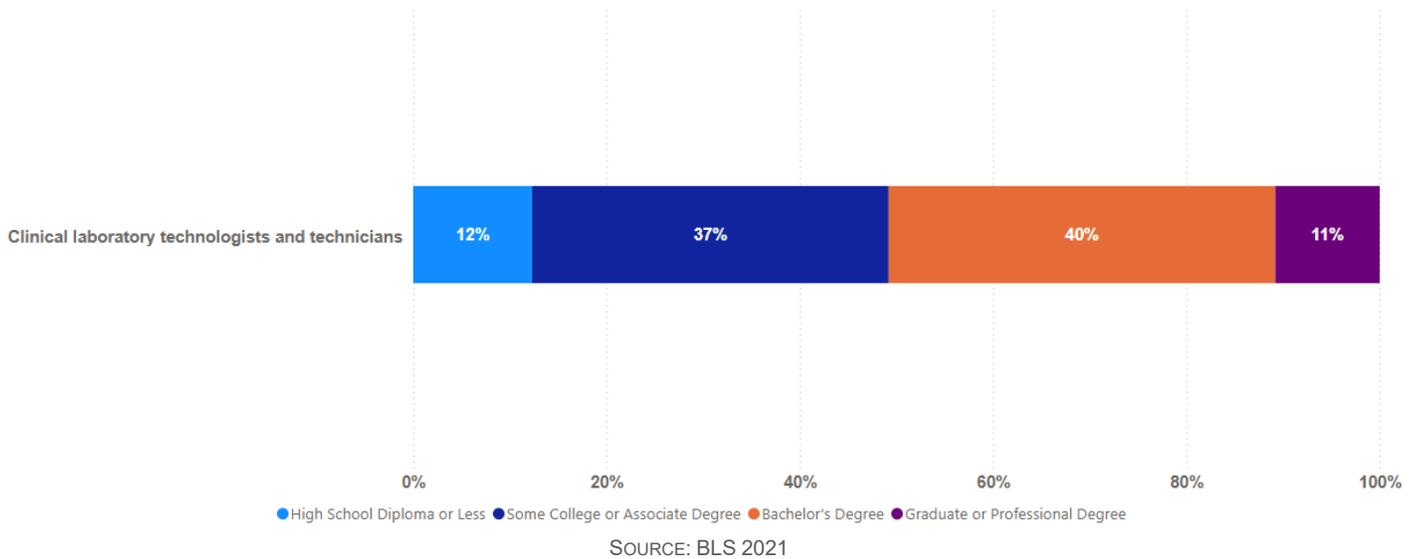
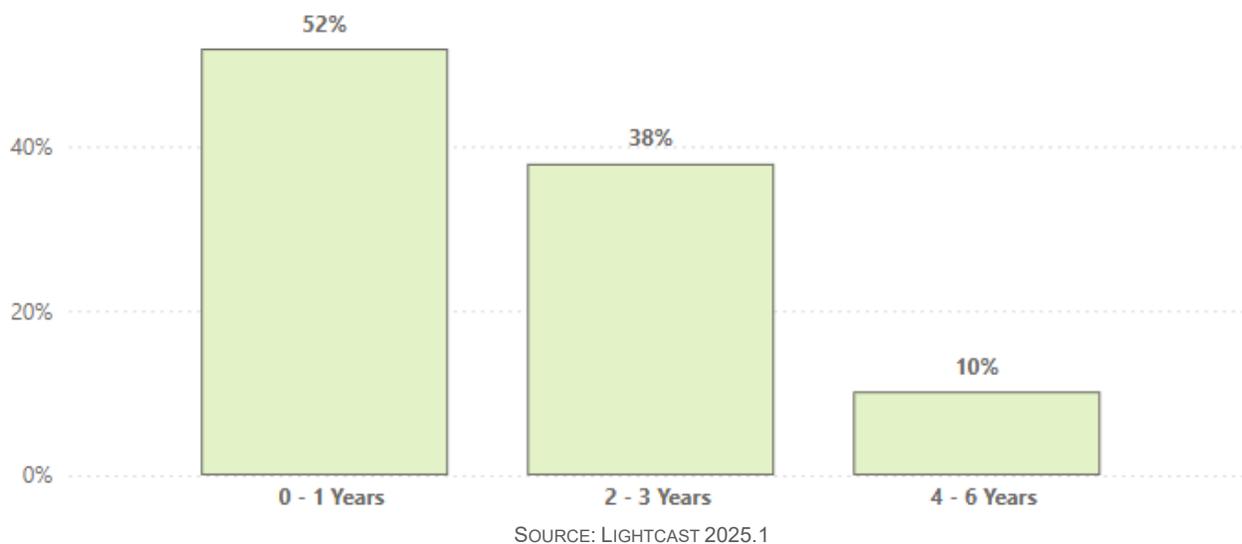


Exhibit 10 displays the work experience typically required from employer job ads for this occupational group. The majority (52%) of employers listing minimum experience requirements sought candidates with 0-1 years of previous work experience.

Exhibit 10 Work experience requirements, IE/D Region, May 2024 – Apr 2025



Student Completions and Program Outcomes

No student completions for the Biotechnology and Biomedical Technology (TOP 0430.00) programs were found over the last three academic years (2020-2023). Based on the lack of data, it appears that in the previous three academic years, 0 regional community colleges issued an average of 0 awards in relevant programs.

Non-Community College Supply

Exhibit 11 displays award completion data available for these IE/D non-community college programs: Biomedical Technology/Technician (CIP 15.0401).

However, student award completion data was not found in the IE/D for other related non-community college programs: Computational Biology (CIP 26.1104); Biology/Biotechnology Technology/Technician (CIP 41.0101).

In the previous three academic years, one regional non-community college institution issued an average of 2 awards in relevant programs.

Exhibit 11 Annual average non-community college awards for biotech programs, IE/D, 2019-2022

CIP	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
15.0401	Biomedical Technology/Technician	DeVry University-California	2	1	2	2

SOURCE: IPEDS

Strong Workforce Program Outcomes

California SWP program outcome data may provide useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 12.

Exhibit 12 Biotechnology and Biomedical Technology strong workforce program outcomes, IE/D & California, 2022-23

Program Metric Title	Inland Empire	Statewide
Students		2,481
Earned 9+ Career Education Units		21%
Completed Noncredit Workforce Preparation Milestone		72%
Earned an Award: Degree or Cert or Attained Appren. Journey Level Status		14%
Transferred to a Four-Year Institution: Four-Year Postsecondary Institution		5%
Median Annual Earnings		\$43,508
Median Change in Earnings		35%
Attained Living Wage		36%

SOURCE: LAUNCHBOARD

Appendix: Methodology

Exhibit 12 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2020 and 2023 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2023a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS) administered by Santa Rosa Junior College (LaunchBoard, 2023a).

Appendix: References

Type of Data	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment. https://lightcast.io/
Living Wage (UW)	Center for Women's Welfare, University of Washington. (2024). The self-sufficiency standard for California 2024. http://www.selfsufficiencystandard.org/ . This calculation measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. The living wage for one adult in San Bernardino County is \$20.07 per hour (\$42,392 annually). The living wage for one adult in Riverside County is \$20.76 per hour (\$43,854 annually). The average living wage to represent Inland Empire/Desert is \$20.42 per hour (\$43,123 annually).
Living Wage (MIT)	The living wage is derived from MIT's Living Wage Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: https://livingwage.mit.edu/pages/methodology The living wage for one adult in San Bernardino County is \$25.17 per hour (\$52,353.60 annually). The living wage for one adult in Riverside County is \$26.30 per hour (\$54,704 annually). The average living wage to represent Inland Empire/Desert is \$25.74 per hour (53,539.20 annually)
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions

Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx
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