



# Labor Market Analysis for Program Recommendation

## Data Science and Analytics Occupations

### Berkeley City College

Prepared by the Bay Region Center of Excellence for Labor Market Research

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#### Recommendation

Based on all available data, there appears to be an “undersupply” of Data Science and Analytics workers compared to the demand for this cluster of occupations in the Bay Region and in the East Bay Sub-Region (Alameda, Contra Costa counties). There is a projected annual gap of about 3,943 students in the Bay Region and 657 students in the East Bay Sub-Region. This includes both middle-skill and above-middle skills occupations, meaning some jobs require a bachelor’s degree or higher. This certificate is designed for individuals with and without bachelor’s degrees.

#### Introduction

This report provides student outcomes data on employment and earnings for TOP 0707.20 - Database Design and Administration programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Berkeley City College and in the region.

This report includes occupations with two different skill levels. The occupations classified as middle-skill occupations require a certificate, or an associate degree, or it may require a bachelor’s degree, but 33% or fewer of current workers in these roles hold one. In contrast, above middle-skill occupations require a bachelor’s degree or higher.

- **Computer Network Architects (15-1241):** Design and implement computer and information networks, such as local area networks (LAN), wide area networks (WAN), intranets, extranets, and other data communications networks. Perform network modeling, analysis, and planning, including analysis of capacity needs for network infrastructures. May also design network and computer security measures. May research and recommend network and data communications hardware and software.  
Typical Entry-Level Educational: Bachelor’s degree  
Skill Level: Middle-Skill  
Work Experience Required: 5 years or more  
Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 37%
- **Database Administrators (15-1242):** Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. Identify, investigate, and resolve database performance issues, database capacity, and database scalability. May plan, coordinate, and implement security measures to safeguard computer databases.  
Typical Entry-Level Educational: Bachelor’s degree  
Skill Level: Above Middle-Skill  
Work Experience Required: None  
Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 18%

- Network and Computer Systems Administrators (15-1244):** Install, configure, and maintain an organization's local area network (LAN), wide area network (WAN), data communications network, operating systems, and physical and virtual servers. Perform system monitoring and verify the integrity and availability of hardware, network, and server resources and systems. Review system and application logs and verify completion of scheduled jobs, including system backups. Analyze network and server resource consumption and control user access. Install and upgrade software and maintain software licenses. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software.
  - Typical Entry-Level Educational: Bachelor's degree
  - Skill Level: Middle-Skill
  - Work Experience Required: None
  - Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 37%
- Computer Occupations, All Other (15-1299):** All computer occupations not listed separately.
  - Typical Entry-Level Educational: Bachelor's degree
  - Skill Level: Above Middle-Skill
  - Work Experience Required: None
  - Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 35%
- Statistical Assistants (43-9111):** Compile and compute data according to statistical formulas for use in statistical studies. May perform actuarial computations and compile charts and graphs for use by actuaries. Includes actuarial clerks.
  - Typical Entry-Level Educational: Bachelor's degree
  - Skill Level: Middle-Skill
  - Work Experience Required: None
  - Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 36%

## Occupational Demand

**Table 1. Employment Outlook for Data Science and Analytics Occupations in the Bay Region**

Occupation	2023 Jobs	2028 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Wage	Median Hourly Wage
Computer Network Architects	7,562	7,713	151	2%	2,308	462	\$60	\$80
Database Administrators	2,773	2,929	156	6%	997	199	\$39	\$61
Network and Computer Systems Administrators	9,753	10,160	408	4%	3,270	654	\$46	\$61
Computer Occupations, All Other	40,971	39,655	-1,316	-3%	13,337	2,667	\$47	\$70
Statistical Assistants	121	132	11	9%	67	13	\$26	\$34
<b>Total</b>	<b>61,180</b>	<b>60,589</b>	<b>-591</b>	<b>-1%</b>	<b>19,979</b>	<b>3,995</b>	<b>\$48</b>	<b>\$69</b>

Source: Lightcast 2025.1

The Bay Region includes: Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Data Science and Analytics Occupations in the East Bay Sub-Region**

Occupation	2023 Jobs	2028 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Wage	Median Hourly Wage
Computer Network Architects	1,376	1,291	-85	-6%	347	69	\$57	\$73
Database Administrators	599	596	-3	-1%	176	35	\$32	\$52
Network and Computer Systems Administrators	2,104	2,060	-44	-2%	573	115	\$42	\$55
Computer Occupations, All Other	7,172	6,992	-180	-3%	2,215	443	\$38	\$57
Statistical Assistants	12	14	2	16%	0	0	\$24	\$28
<b>Total</b>	<b>11,263</b>	<b>10,953</b>	<b>-310</b>	<b>-3%</b>	<b>3,311</b>	<b>662</b>	<b>\$41</b>	<b>\$58</b>

Source: Lightcast 2025.1

East Bay Sub-Region includes: Alameda, Contra Costa Counties

### Job Postings in the Bay Region and East Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for the latest 12 months**

Occupation	Bay Region	East Bay
Computer Occupations, All Other	21,501	3,544
Computer Network Architects	5,036	732
Database Administrators	3,943	655
Network and Computer Systems Administrators	1,984	423

Source: Lightcast 2025.2; "Job Posting Analytics." Jun. 2024 - May. 2025

**Table 4a. Top Job Titles in Job Postings for Data Science and Analytics Occupations in the Bay Region**

Title	Bay	Title	Bay
Data Engineers	1,217	Google Cloud Architects	292
Platform Software Engineers	1,189	Cloud Software Engineers	277
Network Engineers	576	Infrastructure Software Engineers	257
Site Reliability Engineers	566	Infrastructure Engineers	241
Systems Engineers	557	Principal Software Engineers	234
Firmware Engineers	554	Data Center Technicians	221
Systems Administrators	337	IT Project Managers	207
Platform Engineers	316	Data Platform Engineers	202
Security Engineers	313	Automation Engineers	195

Source: Lightcast 2025.2; "Job Posting Analytics." Jun. 2024 - May. 2025

**Table 4b. Top Job Titles in Job Posting for Data Science and Analytics Occupations in the East Bay Sub-Region**

Title	East Bay	Title	East Bay
Data Engineers	181	IT Managers	49
Systems Engineers	150	Product Owners	41
Network Engineers	124	Platform Engineers	38
Systems Administrators	87	Database Administrators	37
Firmware Engineers	67	Automation Engineers	33
IT Project Managers	61	Cloud Engineers	33
Platform Software Engineers	61	Document Control Specialists	33
Scrum Masters	56	Infrastructure Engineers	29
Site Reliability Engineers	52	Salesforce Administrators	28

Source: Lightcast 2025.2; "Job Posting Analytics." Jun. 2024 - May. 2025

## Industry Concentration

**Table 5. Industries Hiring for Data Science and Analytics Occupations in the Bay Region**

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2023)	Jobs in Industry (2028)	% Change (2023-28)	% Occupation Group in Industry (2023)
Custom Computer Programming Services	10,390	10,889	5%	17%
Computer Systems Design Services	4,653	4,843	4%	8%
Data Processing, Hosting, and Related Services	3,465	3,894	12%	6%
Federal Government, Civilian, Excluding Postal Service	2,663	2,843	7%	5%
Software Publishers	2,864	2,894	1%	5%
Electronic Computer Manufacturing	4,657	2,473	-47%	5%
Corporate, Subsidiary, and Regional Managing Offices	1,987	2,620	32%	4%
Web Search Portals and All Other Information Services	2,100	2,160	3%	4%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	1,557	1,692	9%	3%
Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	1,380	1,310	-5%	2%

Source: Lightcast 2025.2

**Table 6. Top Employers Posting Data Science and Analytics Occupations in the Bay Region and the East Bay Sub-Region**

Employer	Bay	Employer	East Bay
Apple	1,562	PG&E	131
Google	1,202	Accenture	108
Nvidia	659	Tesla	97
Amazon	515	Meta	94
Palo Alto Networks	497	Robert Half	83
Tiktok	452	Insight Global	82

Source: Lightcast 2025.2; "Job Posting Analytics." Jun. 2024 - May. 2025

### Educational Supply

There are three community colleges in the Bay Region issuing 10 awards on average annually (last 3 years ending 2023-24) on TOP 0707.20 - Database Design and Administration. In the East Bay Sub-Region, there is one community college that issued 5 awards on average annually (last 3 years) on this TOP code.

There is one other CTE educational institution in the Bay Region issuing 42 awards on average annually (last 3 years ending 2022-23) on CIP 30.7001- Data Science, General. There is no other CTE educational institution in the East Bay Sub-Region issuing awards on average annually (last 3 years) on this CIP code.

**Table 7a. Community College Awards on TOP 0707.20 - Database Design and Administration in the Bay Region**

College	Subregion	Associate Degree	Low unit Certificate	Total
Deanza	Silicon Valley	2	2	4
Ohlone	East Bay	0	5	5
San Francisco	Mid-Peninsula	0	1	1
<b>Total</b>	<b>-</b>	<b>2</b>	<b>8</b>	<b>10</b>

Source: Data Mart

Note: The annual average for awards is 2021-22 to 2023-24.

**Table 7b. Other CTE Institutions Awards on CIP 30.7001- Data Science, General in the Bay Region**

College	Subregion	Certificate	Total
Naval Postgraduate School	SC-Monterey	42	42
<b>Total</b>	<b>-</b>	<b>42</b>	<b>42</b>

Source: Data Mart

Note: The annual average for awards is 2020-21 to 2022-23.

### Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay Region with 3,995 annual openings for the Data Science and Analytics occupational cluster and 52 annual (3-year average) awards for an annual undersupply of 3,943 students. In the East Bay Sub-Region, there is also a gap with 662 annual openings and 5 annual (3-year average) awards for an annual undersupply of 657 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0707.20 - Database Design and Administration**

Metric Outcomes	Bay All CTE Program	Berkeley City College All CTE Program	State 0707.20	Bay 0707.20	East Bay 0707.20	Berkeley City College 0707.20
Students with a Job Closely Related to Their Field of Study	74%	60%	71%	74%	NA	NA
Median Annual Earnings for SWP Exiting Students	\$53,090	\$38,994	\$72,112	\$86,016	\$80,260	NA
Median Change in Earnings for SWP Exiting Students	24%	12%	15%	18%	40%	NA
Exiting Students Who Attained the Living Wage	54%	43%	73%	73%	86%	NA

Source: Launchboard Strong Workforce Program Median of 2018 to 2021.

## Skills, Certifications and Education

**Table 9. Top Skills in Job Postings for Data Science and Analytics Occupations in the Bay Region**

Skill	Posting	Skill	Posting
Computer Science	12,555	Scripting	4,427
Python (Programming Language)	10,996	Debugging	4,149
Automation	7,777	Kubernetes	4,041
Scalability	6,973	SQL (Programming Language)	4,039
Amazon Web Services	6,186	Workflow Management	3,996
Software Engineering	6,127	C++ (Programming Language)	3,897
Project Management	5,190	Java (Programming Language)	3,783
Software Development	4,857	Agile Methodology	3,741
Linux	4,529	Artificial Intelligence	3,618
Microsoft Azure	4,462	Machine Learning	3,366

Source: Lightcast 2025.2; "Job Posting Analytics." Jun. 2024 - May. 2025

**Table 10. Certifications in Job Postings for Data Science and Analytics Occupations in the Bay Region**

Certification	Posting	Certification	Posting
Project Management Professional Certification	769	GIAC Certifications	370

Source: Lightcast 2025.2; "Job Posting Analytics." Jun. 2024 - May. 2025

**Table 11. Education Requirements for Data Science and Analytics Occupations in the Bay Region**

Education Level	Job Postings	% of Total
High school or GED	664	2%
Associate degree	777	3%
Bachelor's degree & higher	28,817	95%

Source: Lightcast 2025.2; "Job Posting Analytics." Jun. 2024 - May. 2025

Note: 39% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample.

## Methodology

Occupations for this report were identified by use of job descriptions and skills listed in O\*Net. Labor demand data is sourced from Lightcast occupation and job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CCCC Data Mart and CTE Launchboard.

Middle-skill occupations as those typically requiring more than a high school diploma, but less than a bachelor's degree—except in cases where a bachelor's degree is required, but more than one-third of the workforce has less than a bachelor's degree.

## Sources

O\*Net Online

Lightcast

CTE LaunchBoard [www.calpassplus.org](http://www.calpassplus.org)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

CCCCO Data Mart

## Contacts

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