

# Data Analytics Occupations

# Labor Market Information Report

# Foothill College

## Prepared by the San Francisco Bay Center of Excellence for Labor Market Research

**May 2021**

## Recommendation

Based on all available data, there appears to be an “undersupply” of Data Analytics workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara county). There is a projected annual gap of about 306 students in the Bay region and 93 students in the Silicon Valley Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0509.70 - E-Commerce (business emphasis) 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 Foothill College and in the region.

This report profiles Data Analytics Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new program at Foothill College.

* **Operations Research Analysts (15-2031):** Formulate and apply mathematical modeling and other optimizing methods to develop and interpret information that assists management with decision making, policy formulation, or other managerial functions. May collect and analyze data and develop decision support software, service, or products. May develop and supply optimal time, cost, or logistics networks for program evaluation, review, or implementation.
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 21%

## Occupational Demand

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

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operations Research Analysts | 3,421 | 3,702 | 280 | 8% | 1,847 | 308 | $ 39 | $ 54 |
| **Total** | **3,421** | **3,702** | **281** | **8%** | **1,847** | **308** | **$39** | **$54** |
| Source: EMSI 2021.2 |

**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 Analytics Occupations in Silicon Valley Sub-region**

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operations Research Analysts | 969 | 1,130 | 161 | 17% | 556 | 93 | $ 39 | $ 57 |
| **Total** | **969** | **1,130** | **161** | **17%** | **556** | **93** | **$39** | **$57** |
| Source: EMSI 2021.2 |

**Silicon Valley Sub-Region includes:** Santa Clara County

### Job Postings in Bay Region and Silicon Valley Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (May 2020 - Apr 2021)**

| **Occupation** | **Bay Region** | **Silicon Valley** |
| --- | --- | --- |
| Operations Research Analysts | 10,290 | 2,777 |
| Source: Burning Glass |

**Table 4a. Top Job Titles for Data Analytics Occupations for latest 12 months (May 2020 - Apr 2021) Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Research Assistant | 174 | Scientist II | 65 |
| Research Associate | 159 | Researcher | 56 |
| Operations Analyst | 129 | Operations Analyst III | 46 |
| Business Operations Analyst | 123 | Research Analyst | 44 |
| Business Development Director | 102 | Scientist I | 41 |
| Director, Business Development | 83 | Research Associate I | 40 |
| Research Scientist | 73 | Process Scientist III | 37 |
| Research Associate II | 69 | Research And Development Technician | 35 |
| Researcher III | 68 | Operations Analyst II | 35 |
| Source: Burning Glass |

**Table 4b. Top Job Titles for Data Analytics Occupations for latest 12 months (May 2020 - Apr 2021) Silicon Valley Sub-Region**

| **Title** | **Silicon Valley** | **Title** | **Silicon Valley** |
| --- | --- | --- | --- |
| Research Assistant | 58 | Researcher II | 26 |
| Business Operations Analyst | 54 | Director, Business Development | 23 |
| Operations Analyst | 40 | Research Associate | 22 |
| Researcher III | 36 | Applied Scientist | 21 |
| Operations Analyst III | 34 | Research And Development Technician | 16 |
| Operations Analyst II | 34 | Scientist II | 12 |
| Research Scientist | 32 | Senior Scientist | 11 |
| Researcher | 31 | Senior Operations Analyst | 11 |
| Business Development Director | 29 | Senior Applied Scientist | 11 |
| Source: Burning Glass |

## Industry Concentration

**Table 5. Industries hiring Data Analytics Workers in Bay Region**

| **Industry – 6 Digit NAICS (No. American Industry** **Classification) Codes** | **Jobs in Industry (2019)** | **Jobs in Industry (2024)** | **% Change (2019-24)** | **% Occupation Group in Industry (2019)** |
| --- | --- | --- | --- | --- |
| Custom Computer Programming Services | 337 | 372 | 10% | 9% |
| Corporate, Subsidiary, and Regional Managing Offices | 270 | 236 | -13% | 7% |
| Internet Publishing and Broadcasting and Web Search Portals | 235 | 270 | 15% | 7% |
| Computer Systems Design Services | 190 | 193 | 2% | 5% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) | 123 | 176 | 44% | 5% |
| Electronic Computer Manufacturing | 41 | 165 | 298% | 5% |
| Data Processing, Hosting, and Related Services | 111 | 157 | 41% | 4% |
| Software Publishers | 115 | 144 | 25% | 3% |
| Administrative Management and General Management Consulting Services | 109 | 123 | 12% | 3% |
| Research and Development in Biotechnology (except Nanobiotechnology) | 76 | 125 | 64% | 3% |
| Source: EMSI 2021.2 |

**Table 6. Top Employers Posting Data Analytics Occupations in Bay Region and Silicon Valley Sub-Region (May 2020 - Apr 2021)**

| **Employer** | **Bay** | **Employer** | **Silicon Valley** |
| --- | --- | --- | --- |
| Facebook | 329 | Stanford University | 146 |
| University Of California | 305 | Apple Inc. | 87 |
| Genentech | 273 | Amazon | 82 |
| Thermo Fisher Scientific Inc | 160 | Danaher Corporation | 63 |
| Stanford University | 158 | Nvidia Corporation | 40 |
| Amazon | 140 | IBM | 34 |
| Day & Zimmermann Incorporated | 128 | Google Inc. | 33 |
| Danaher Corporation | 88 | Paypal | 31 |
| Apple Inc. | 87 | Cisco Systems Incorporated | 29 |
| Lawrence Berkeley National Laboratory | 79 | Samsung America, Inc. | 28 |
| Source: Burning Glass |

## Educational Supply

There is one (1) community college in the Bay Region issuing 2 awards on average annually (last 3 years ending 2018-19) on TOP 0509.70 - E-Commerce (business emphasis). In the Silicon Valley Sub-Region, there are no community colleges that issued awards on average annually (last 3 years) on this TOP code.

**Table 7. Community College Awards on TOP 0509.70 - E-Commerce (business emphasis) in Bay Region**

| **College** | **Subregion** | **Certificate Low** | **Total** |
| --- | --- | --- | --- |
| Santa Rosa | North Bay | 2 | 2 |
| **Total** |  | **2** | **2** |
| Source: Data Mart |

*Note: The annual average for awards is 2016-17 to 2018-19.*

## Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 308 annual openings for the Data Analytics occupational cluster and 2 annual (3-year average) awards for an annual undersupply of 306 students. In the Silicon Valley Sub-Region, there is also a gap with 93 annual openings and no annual (3-year average) awards for an annual undersupply of 93 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0509.70 - E-Commerce (business emphasis)**

| **Metric Outcomes** | **Bay****All CTE Program** | **Foothill****All CTE Program** | **State 0509.70** | **Bay 0509.70** | **Silicon Valley 0509.70** | **Foothill 0509.70** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 75% | 88% | 55% | N/A | N/A | N/A |
| Median Annual Earnings for SWP Exiting Students | $44,575 | $63,206 | $31,043 | $34,283 | N/A | N/A |
| Median Change in Earnings for SWP Exiting Students | 31% | 63% | 56% | 41% | N/A | N/A |
| Exiting Students Who Attained the Living Wage | 52% | 67% | 51% | N/A | N/A | N/A |
| Source: Launchboard Strong Workforce Program from version 2017-18. |

## Skills, Certifications and Education

**Table 9. Top Skills for Data Analytics Occupations in Bay Region (May 2020 - Apr 2021)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| Experiments | 2,064 | Chemistry | 709 |
| Data Analysis | 1,701 | Customer Service | 680 |
| Python | 1,340 | Scheduling | 640 |
| Molecular Biology | 1,219 | Data Science | 632 |
| Biology | 1,216 | Immunology | 625 |
| Project Management | 1,215 | Cancer knowledge | 578 |
| Biochemistry | 1,147 | Quality Assurance and Control | 564 |
| Business Development | 1,100 | Salesforce | 547 |
| Product Development | 943 | Cell Culturing | 533 |
| Machine Learning | 933 | Assay Development | 532 |
| Biotechnology | 889 | Business Operations | 531 |
| SQL | 849 | Cell Biology | 531 |
| Operations Analysis | 844 | Experimental Design | 507 |
| Budgeting | 736 | C++ | 504 |
| Source: Burning Glass |

**Table 10. Certifications for Data Analytics Occupations in Bay Region (May 2020 - Apr 2021)**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Driver's License | 152 | Certified Scrum Professional (CSP) | 11 |
| Security Clearance | 71 | Hazwoper | 10 |
| Project Management Certification | 71 | Clinical Laboratory Scientist (ClS) | 9 |
| Certified Animal Laboratory Technician | 60 | Certified Meeting Planner | 9 |
| Project Management Professional (PMP) | 18 | Laboratory Animal Technologist (LATG) | 8 |
| Series 7 | 16 | Certified Protection Professional (CPP) | 8 |
| IT Infrastructure Library (ITIL) Certification | 16 | Certified Payroll Professional (CPP) | 8 |
| Certified Institutional Review Board (IRB) Professional | 15 | Series 63 | 7 |
| Certified Information Systems Security Professional (CISSP) | 12 | SANS/GIAC Certification | 7 |
| Six Sigma Certification | 11 | Phlebotomy Certification | 7 |
| Source: Burning Glass |

*Note: 94% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.*

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

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| Associate's degree | 262 | 3% |
| Bachelor's degree | 5,539 | 67% |
| Master's degree | 984 | 12% |
| Doctoral degree | 1,497 | 18% |
| Source: Burning Glass |

## Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

## Sources

O\*Net Online
Labor Insight/Jobs (Burning Glass)
Economic Modeling Specialists International (EMSI)
CTE LaunchBoard www.calpassplus.org/Launchboard/
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
Living Insight Center for Community Economic Development
Chancellor’s Office MIS system

## Contacts

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