** Data/Business Analytics Occupations**

**Labor Market Information Report**

**Foothill College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

February 2019

# Recommendation

Based on all available data, it is difficult to determine if there is an unmet need for Data/Business Analytics workers that community college students in the Bay region are qualified for, since this is an emerging occupation and field. A traditional supply vs. demand “gap analysis” is difficult to perform. The demand is not completely clear (as is outlined in the Introduction section below) and the supply data from the TOP code selected by Foothill College – Business Administration (TOP 0505.00), is a program of study that would be preparing students for not only Data/Business Analytics Occupations, but also for a cluster of occupations more traditionally aligned with Business Administration. Therefore it is impossible to determine what portion of the supply/students from this TOP code would be seeking employment in a Data/Business Analytics occupation (i.e. Business Intelligence Analysts).

This report also provides student outcomes data on employment and earnings for programs on TOP 0505.00 - Business Administration 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.

# Introduction

This report profiles Data/Business Analytics Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new Data/Business Analytics program at Foothill College. The best available occupation aligned with Data/Business Analytics is Business Intelligence Analysts (SOC 15-1199.08).

However, the challenge is that labor market data is not available for the SOC code 15-1199.08 (Business Intelligence Analysts).  It is listed under the "umbrella" SOC code of 15-1199.00 (Computer Occupations, All Other) as one of 12 "emerging occupations", and so the demand for Business Intelligence Analysts would be overstated and not a very accurate expression of demand if labor market data for “Computer Occupations, All Other” was used.

In addition, the education level required for employment as a Business Intelligence Analysts is very high, with 96% of the job postings that list an educational requirement for this occupation listing a Bachelors degree or higher in the job ad. So, many community college students who completed a 12-18 unit Data/Business Analytics certificate, would not be qualified for this occupation, unless they already had a Bachelor’s degree and were looking to add new skills to increase their employability in the labor market. In fact, Foothill College reports that 20% - 30% of their student population already have Bachelors degrees, hence the proposed Data/Business Analytics Certificate could serve this student population who already have a four-year degree.

Job Postings data (from Burning Glass) supports strong demand for Business Intelligence Analysts, with over 11,000 job postings annually in the Bay region and about 4,450 job postings annually in the Silicon Valley sub-region, at all education levels. For the job postings in the Bay region, there are annually 5,595 job postings listed as requiring a Bachelor’s degree or less. Of the job postings in the sub-region, there are annually 1,939 job postings listed as requiring a Bachelor’s degree or less. This seems to indicate demand for Business Intelligence Analysts at this education level, using job postings data.

|  |
| --- |
| * **Computer Occupations, All Other (SOC 15-1199): All** computer occupations not listed separately. Excludes “Computer and Information Systems Managers” (11-3021), “Computer Hardware Engineers” (17-2061), “Electrical and Electronics Engineers” (17-2070), “Computer Science Teachers, Postsecondary” (25-1021), “Multimedia Artists and Animators” (27-1014), “Graphic Designers” (27-1024), “Computer Operators” (43-9011), and “Computer, Automated Teller, and Office Machine Repairs” (49-2011).
 |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 35%* |

# Occupational Demand

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Computer Occupations, All Other | 19,731 | 21,972 | 2,242  | 11% | 9,101 | 1,820 | $26.99  | $53.32  |

*Source: EMSI 2019.1*

**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/Business Analytics Occupations in Silicon Valley Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Computer Occupations, All Other | 7,032 | 7,936 | 904  | 13% | 3,348 | 670 | $26.64  | $58.88  |

*Source: EMSI 2019.1*

**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 (Feb 2018 - Jan 2018)**

| Occupation | Bay Region | Silicon Valley |
| --- | --- | --- |
| Business Intelligence Analysts | 11,134 | 4,447 |

*Source: Burning Glass*

**Table 4. Top Job Titles for Data/Business Analytics Occupations for latest 12 months (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | Silicon Valley | Common Title | Bay | Silicon Valley |
| Data Analyst | 3,807 | 1,178 | Director, Analytics | 54 | 9 |
| Sap Consultant | 773 | 520 | Head, Data, Science | 52 | 24 |
| Business Intelligence Analyst | 659 | 257 | Sap Consultant, Information And Technology Industry | 47 | 36 |
| Business Data Analyst | 367 | 146 | Salesforce Project Manager | 46 | 16 |
| Business Analyst | 333 | 122 | Quantitative Analyst | 45 | 0 |
| Sap Fico Consultant | 175 | 138 | Analytics Manager | 44 | 17 |
| Business Intelligence Manager | 144 | 257 | Business Intelligence Director | 43 | 14 |
| Data Quality Analyst | 144 | 80 | Business Intelligence/Data Warehousing | 43 | 12 |
| Reports Analyst | 116 | 39 | Operations Analyst | 39 | 7 |
| Sap Functional Consultant | 84 | 56 | Senior Sap Consultant | 37 | 25 |
| Sap Abap Consultant | 79 | 63 | Performance Analyst | 36 | 7 |
| Analytics Consultant | 71 | 12 | Data Steward | 35 | 17 |
| Business Consultant | 71 | 33 | Performance Architect | 34 | 25 |
| Data Specialist | 58 | 20 | Analytics Engineer | 33 | 10 |

*Source: Burning Glass*

# Industry Concentration

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2017) | Jobs in Industry (2022) | % Change (2017-22) | % in Industry (2017) |
| Custom Computer Programming Services (541511) | 3,897 | 3,970 | 13% | 19.8% |
| Computer Systems Design Services (541512) | 2,287 | 2,290 | 10% | 11.4% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 1,558 | 1,632 | 34% | 8.2% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 1,605 | 1,583 |  (2%) | 7.9% |
| Software Publishers (511210) | 1,278 | 1,339 | 22% | 6.7% |
| Data Processing, Hosting, and Related Services (518210) | 837 | 901 | 35% | 4.5% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 651 | 685 | 11% | 3.4% |
| Other Computer Related Services (541519) | 580 | 590 | 18% | 2.9% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 299 | 312 |  (4%) | 1.6% |
| Temporary Help Services (561320) | 257 | 256 | 5% | 1.3% |
| Electronic Computer Manufacturing (334111) | 238 | 242 | 3% | 1.2% |
| Administrative Management and General Management Consulting Services (541611) | 225 | 234 | 24% | 1.2% |
| Local Government, Excluding Education and Hospitals (903999) | 205 | 206 | 5% | 1.0% |
| Colleges, Universities, and Professional Schools (611310) | 194 | 196 | 7% | 1.0% |

*Source: EMSI 2019.1*

**Table 6. Top Employers Posting Data/Business Analytics Occupations in Bay Region and Silicon Valley Sub-Region (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | Silicon Valley |
| Deloitte | 130 | Agile Enterprise Solutions, Inc | 25 | Google Inc. | 99 |
| Google Inc. | 122 | Ascent | 24 | Apple Inc. | 98 |
| Wells Fargo | 103 | Infoobjects Inc | 24 | Deloitte | 57 |
| Apple Inc. | 99 | Akorbi Workforce Solutions | 23 | Stanford University | 48 |
| Accenture | 88 | Numeric Technologies | 23 | Wipro | 47 |
| Facebook | 84 | Codeforce 360 | 22 | Tranzeal, Inc | 44 |
| IBM | 83 | Connexions Data Inc | 22 | Intuit | 41 |
| Anthem Blue Cross | 70 | Csi Consultant Specialists Inc | 22 | IBM | 39 |
| Wipro | 61 | Redolent, Inc | 22 | Cisco Systems Incorporated | 36 |
| Blue Cross Blue Shield of California | 57 | Amazon | 21 | Techfetch Com | 34 |
| Stanford University | 53 | BNP Paribas | 21 | Servicenow | 29 |
| Techfetch Com | 53 | Cystems Logic | 21 | Paypal | 27 |
| Intuit | 51 | Gap Inc. | 21 | Intellipro Incorporated | 26 |
| Cisco Systems Incorporated | 47 | Adobe Systems | 20 | Accenture | 25 |
| Tranzeal, Inc | 46 | Cynet Systems | 20 | Anthem Blue Cross | 24 |
| Uber | 41 | Kaiser Permanente | 20 | Numeric Technologies | 22 |
| Republic Bancorp | 37 | Svb Financial Group | 20 | Agile Enterprise Solutions, Inc | 18 |
| Walmart / Sam's | 34 | University Of California San Francisco | 20 | Bramasol Incorporated | 18 |
| Workday, Inc | 34 | Visa | 20 | Vmware Incorporated | 18 |
| Bank of the West | 33 | Cloudious Llc | 19 | Cloudious Llc | 17 |
| Intellipro Incorporated | 32 | Sgic Cloud Technologies Inc | 19 | Connexions Data Inc | 17 |
| Servicenow | 30 | Twitch | 19 | Cystems Logic | 17 |
| Paypal | 28 | Bramasol Incorporated | 18 | Intel Corporation | 17 |
| University California | 27 | Focuskpi Inc | 18 | Sgic Cloud Technologies Inc | 17 |
| K Anand Corporation | 26 | Milestone Technologies Incorporated | 18 | Stanford Health Care | 17 |

***Source: Burning Glass***

# Educational Supply

There are 28 community colleges in the Bay Region issuing 2,199 awards on average annually (last 3 years) on TOP 0505.00 - Business Administration. There are six colleges in the Silicon Valley Sub-Region issuing 726 awards on average annually (last 3 years) on this TOP code.

**Table 7. Awards on TOP 0505.00 - Business Administration in the Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Headcount | Associates | Certificates | Total |
| Berkeley City College  | East Bay |   | 22 |  | 22 |
| Cabrillo College  | Santa Cruz - Monterey |   | 51 |  | 51 |
| Cañada College  | Mid Peninsula | 33 | 38 | 0 | 39 |
| Chabot College  | East Bay |   | 91 |  | 91 |
| City College of San Francisco  | Mid Peninsula |   | 26 |  | 26 |
| College of Alameda  | East Bay |   | 44 | 1 | 45 |
| College of Marin  | North Bay | 149 | 29 |   | 29 |
| College of San Mateo  | Mid Peninsula |   | 79 |  | 79 |
| Contra Costa College  | East Bay | 317 | 4 |  | 4 |
| De Anza College  | Silicon Valley | 3,123 | 255 | 31 | 286 |
| Diablo Valley College  | East Bay | 2,085 | 191 | 22 | 213 |
| Evergreen Valley College  | Silicon Valley |   | 122 |  | 122 |
| Foothill College  | Silicon Valley |  | 75 |  | 75 |
| Gavilan College  | Santa Cruz - Monterey |  | 27 | 1 | 29 |
| Hartnell College  | Santa Cruz - Monterey |  | 65 |  | 65 |
| Laney College  | East Bay |  93  | 92 | 33 | 126 |
| Las Positas College  | East Bay |  | 69 |  | 69 |
| Los Medanos College  | East Bay |  | 51 |  | 51 |
| Merritt College  | East Bay |  | 9 |  | 9 |
| Mission College  | Silicon Valley |  | 52 |  | 52 |
| Monterey Peninsula College  | Santa Cruz - Monterey |  464  | 68 | 3 | 71 |
| Napa Valley College  | North Bay |  | 36 |  | 36 |
| Ohlone College  | East Bay |  | 104 |  | 104 |
| San Jose City College  | Silicon Valley |  | 82 |  | 82 |
| Santa Rosa Junior College  | North Bay |  | 145 |  | 145 |
| Skyline College  | Mid Peninsula |  | 86 | 3 | 89 |
| Solano College  | North Bay |  | 70 | 10 | 80 |
| West Valley College | Silicon Valley |  386  | 103 | 7 | 109 |
| Total |  | **6,650** | **2,087** | **112** | **2,199** |
| Sub-region Total |  | **3,509** | **688** | **37** | **726** |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

# Gap Analysis

Based on all available data, it is difficult to determine if there is an unmet need for Data/Business Analytics workers that community college students in the Bay region are qualified for, since this is an emerging occupation and field. A traditional supply vs. demand “gap analysis” is difficult to perform. The demand is not completely clear (as is outlined in the Introduction section above) and the supply data from the TOP code selected by Foothill College – Business Administration (TOP 0505.00), is a program of study that would be preparing students for not only Data/Business Analytics Occupations, but also for a cluster of occupations more traditionally aligned with Business Administration. So, it is impossible to determine what portion of the supply/students from this TOP code would be seeking employment in a Data/Business Analytics occupation (i.e. Business Intelligence Analysts).

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0505.00 - Business Administration**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | Foothill College (All CTE Programs) | State (0505.00) | Bay (0505.00) | Silicon Valley (0505.00) | Foothill College (0505.00) |
| % Employed Four Quarters After Exit | 74% | 77% | 63% | 67% | 65% | 36% |
| Median Quarterly Earnings Two Quarters After Exit | $23,396 | $28,725 | $15,781 | $17,406 | $17,855 | $15,009 |
| Median % Change in Earnings | 46% | 82% | 44% | 53% | 50% | n/a |
| % of Students Earning a Living Wage | 63% | 76% | 42% | 41% | 42% | n/a |

*Source: Launchboard Pipeline (version available on 2/13/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Data/Business Analytics Occupations in Bay Region (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| SQL | 5,117 | Data Visualization | 973 | Statistical Analysis | 554 |
| Data Analysis | 5,071 | Key Performance Indicators (KPIs) | 944 | Enterprise Resource Planning (ERP) | 544 |
| Tableau | 2,461 | Data Management | 880 | Data Transformation | 543 |
| Python | 2,444 | SAS | 858 | Data Collection | 514 |
| SAP | 2,135 | Big Data | 779 | Apache Hive | 513 |
| Business Intelligence | 1,898 | Apache Hadoop | 742 | Information Systems | 498 |
| Project Management | 1,557 | Machine Learning | 740 | Budgeting | 478 |
| Data Warehousing | 1,340 | Salesforce | 735 | Experiments | 476 |
| Data Science | 1,309 | Data Mining | 733 | Spreadsheets | 451 |
| Business Process | 1,203 | Customer Service | 664 | Process Improvement | 447 |
| Data Quality | 1,152 | Data Modeling | 664 | Scheduling | 437 |
| Economics | 1,095 | R | 613 | Quality Assurance and Control | 430 |
| Oracle | 1,060 | Java | 589 | Product Management | 408 |
| Extraction Transformation & Loading  | 1,034 | Relational Databases | 587 | Stakeholder Management | 408 |
| Business Analysis | 1,027 | Statistics | 565 | SAP BusinessObjects | 406 |

*Source: Burning Glass*

**Table 10. Certifications for Data/Business Analytics Occupations in the Bay Region (Feb 2018 - Jan 2018)**

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.

|  |  |  |  |
| --- | --- | --- | --- |
| Certification | Postings | Certification | Postings |
| Certified Public Accountant (CPA) | 143 | Certified Salesforce Administrator | 10 |
| Project Management Certification | 132 | Financial Risk Manager (FRM) | 10 |
| Project Management Professional (PMP) | 69 | Security Clearance | 10 |
| IT Infrastructure Library (ITIL) Certification | 60 | Certified Administrator | 9 |
| Driver's License | 52 | Epic Certification | 9 |
| SAP Certification | 48 | Six Sigma Black Belt Certification | 9 |
| Six Sigma Certification | 28 | Certificate in Investment Performance Measurement (CIPM) | 8 |
| ITIL Certification | 18 | Certified in Production and Inventory Management (CPIM) | 8 |
| Advanced Programmer Certification | 14 | Financial Accounting Standards Board (FASB) | 8 |
| Chartered Financial Analyst (CFA) | 14 | Lean Six Sigma Certification | 8 |
| SAS Certification | 14 | Advanced Business Application Programming Certification | 7 |
| Certified Scrum Trainer (CST) | 12 | Advanced Business Application Programming Certification (ABAP) | 7 |
| Certified Novell Administrator | 11 | Certified Information Privacy Professional (CIPP) | 7 |
| Certified Information Systems Auditor (CISA) | 10 | Certified ScrumMaster (CSM) | 7 |

*Source: Burning Glass*

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

Note: 43% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |
| --- | --- |
| Education (minimum advertised) | Latest 12 Mos. Postings |
| High school or vocational training | 165 (3%) |
| Associate Degree | 92 (1%) |
| Bachelor’s Degree or Higher | 6,050 (96%) |

*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/](http://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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