



Data Analytics TOP: 0702.00 Computer Information Systems

June 2020

Prepared by the South Central Coast Center of Excellence for Labor
Market Research

Program Recommendation

This report was compiled by the South Central Coast¹ Center of Excellence to provide regional labor market data for the program recommendation – Data Analytics. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Key Findings

- In the South Central Coast region, **the number of jobs related to Data Analytics are expected to increase**, over the next five years, for all selected occupations.
- All three occupations under Data Analytics are anticipated to experience a **low risk of automation** over the next five years.
- In 2018 there were 1,081 regional completions in programs related to the occupations identified for this analysis of Data Analytics and 303 openings, indicating an **oversupply**.
- Typical entry-level education for all three occupations under Data Analytics is a **Bachelor's degree**.
- Completers of Computer Information Systems programs (0702.00) from the 2015-2016 academic year had a **median annual wage upon completion** of \$32,002.
- 75% of students are **employed within a year** after completing a program.
- 58% of students are **earning a living wage**.

¹ The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

Occupation Codes and Descriptions

Currently, there are three occupations in the standard occupational classification (SOC) system that were identified as related to Data Analytics for this analysis. The occupation titles and descriptions, as well as reported job titles, are included in Exhibit 1.

Exhibit 1 – Occupation, description, and sample job titles

SOC Code	Title	Description	Sample of Reported Job Titles
15-1121	Computer Systems Analysts	Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software.	Applications Analyst, Business Analyst, Business Systems Analyst, Computer Analyst, Computer Systems Analyst, Computer Systems Consultant, Information Systems Analyst (ISA), Information Technology Analyst (IT Analyst), Systems Analyst
15-1122	Information Security Analysts	Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses.	Data Security Administrator, Information Security Officer, Information Security Specialist, Information Systems Security Analyst, Information Systems Security Officer, Information Technology Security Analyst (IT Security Analyst), Information Technology Specialist, Network Security Analyst, Security Analyst, Systems Analyst
15-2031	Operations Research Analysts	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.	Advanced Analytics Associate, Analytical Strategist, Business Analytics Director, Business Insight and Analytics Manager, Decision Analyst, Operations Research Analyst, Operations Research Director, Operations Research Group Manager, Operations Research Manager, Optimization Analyst

Source: O*NET Online

Current and Future Employment

In the South Central Coast region, the number of jobs related to Data Analytics are expected to increase over the next five years, for all related occupations.

Exhibit 2 – Five-year projections for Data Analytics in the South Central Coast region

SOC	Occupation	2018 Jobs	2023 Jobs	2018-2023 Change	2018-2023 % Change
15-1121	Computer Systems Analysts	2,138	2,361	223	10%
15-1122	Information Security Analysts	526	617	91	17%
15-2031	Operations Research Analysts	414	478	64	15%

Source: Economic Modeling Specialists International (EMSI)

Earnings

In the South Central Coast region, the average wage for the listed occupations is \$46.05 per hour.

Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings are represented by the 25th percentile of wages, median hourly earnings are represented by the 50th percentile of wages, and experienced hourly earnings are represented by the 75th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for Data Analytics in the South Central Coast region

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
15-1121	Computer Systems Analysts	\$34.16	\$45.98	\$59.29
15-1122	Information Security Analysts	\$22.78	\$54.10	\$72.95
15-2031	Operations Research Analysts	\$32.08	\$41.57	\$55.20

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is employing data analysts, and what they are looking for in potential candidates. To identify job postings related to Data Analytics the following standard occupational classifications were used:

15-1121	Computer Systems Analysts
15-1122	Information Security Analysts
15-2031	Operations Research Analysts

Top Occupations

In 2018, there were 1,581 employer postings for occupations related to Data Analytics.

Exhibit 4 – Top occupations in job postings and risk of automation tables

SOC Code	Occupation	Job Postings, Full Year 2018
15-1121	Computer Systems Analysts	694
15-2031	Operations Research Analysts	460
15-1122	Information Security Analysts	427

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
15-1121	Computer Systems Analysts	Low
15-2031	Operations Research Analysts	Low
15-1122	Information Security Analysts	Low

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top job titles for employers posting ads for jobs related to Data Analytics are listed in Exhibit 5. Business Systems Analyst is mentioned as the job title in 9% of all relevant job postings (136 postings).

Exhibit 5 –Job titles

Title	Job Postings, Full Year 2018
Business Systems Analyst	136
Systems Analyst	115
Security Analyst	47
Security Engineer	45
Operations Analyst	43

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the Data Analytics field. The top employer posting job ads was Amgen. The top worksite cities in the region for these occupations were Thousand Oaks, Santa Barbara, Lompoc, Santa Clarita, and Ventura

Exhibit 6 – Top employers (n=1,581)

Employer	Job Postings, Full Year 2018
Amgen	155
Anthem Blue Cross	147
Bank of America	33
CACI	31
Raytheon	28

Source: Labor Insight/Jobs (Burning Glass)

Skills

Information Systems is the most sought after skill for employers hiring for jobs related to Data Analytics.

Exhibit 7 –Job skills (n=1,464)

Skills	Job Postings, Full Year 2018
Information Systems	301
Project Management	296
Systems Analysis	259
Information Security	251
Business Process	191
SQL	188
Business Systems Analysis	185

Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Exhibit 8 shows the industries with most Data Analytics postings in the South Central Coast. Note: 23% of records have been excluded because they do not include an industry. As a result, the chart below may not be representative of the full sample.

Exhibit 8 – Industries employing the most in the Data Analytics field, 2018

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Manufacturing	351	28.4%
Professional, Scientific, and Technical Services	278	22.5%
Finance and Insurance	245	19.8%
Health Care and Social Assistance	73	5.9%
Administrative and Support and Waste Management and Remediation Services	65	5.3%

Source: Labor Insight/Jobs (Burning Glass)

Education and Training

Exhibit 9 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

Exhibit 9 – Education and training requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training
15-1121	Computer Systems Analysts	Bachelor’s degree	None
15-1122	Information Security Analysts	Bachelor’s degree	None
15-2031	Operations Research Analysts	Bachelor’s degree	None

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

Regional Completions and Openings

There were 1,081 regional completions (2018) and 303 regional openings (2018) in the South Central Coast region in programs related to the occupations identified as related to Data Analytics.

Exhibit 10 – Completions and Openings

12 Regional Institutions had Related Programs (2018)	1,081 Regional Completions (2018)	303 Annual Openings (2018)
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Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2018)
11.0701	Computer Science	517
14.0901	Computer Engineering, General	177
11.1003	Computer and Information Systems Security/Information Assurance	126
52.1301	Management Science	116
11.0901	Computer Systems Networking and Telecommunications	79
11.0103	Information Technology	28
11.0101	Computer and Information Sciences, General	17
11.1001	Network and System Administration/Administrator	11
11.0201	Computer Programming/Programmer, General	10

Source: Economic Modeling Specialists International (EMSI)

Completions by Institution (2018)

Top Schools (2018)	Completions (2018)
California Polytechnic State University – San Luis Obispo	371
University of California – Santa Barbara	270
Oxnard College	69
Moorpark College	64
California State University – Channel Islands	61
California Lutheran University	53
College of the Canyons	47
Antelope Valley College	39
Allan Hancock College	33
Santa Barbara City College	33

Source: Economic Modeling Specialists International (EMSI)

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Computer Information Systems Program (TOP: 0702.00) in the South Central Coast region for the 2015-16 academic year.

- The median annual wage for students after exiting is \$32,002.
- 73% of students are employed within a year after completing a program.
- 58% of students are earning a living wage.
- Most Common middle-skills jobs for this program are:
 - Computer User Support Specialist

Source: CTE LaunchBoard

Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represent the labor market demand for relevant positions requested as related to Data Analytics under Computer Information Systems (0702.00). Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional institutions. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions. All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; 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 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.