

Labor Market Assessment: Agentic AI Software Development Occupations (0707.30 Computer Systems Analysis)

Inland Empire/Desert Center of Excellence, Sept 2025

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FOR LABOR MARKET RESEARCH

INLAND EMPIRE/DESERT

Summary

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

Program LMI Endorsement Criteria		
Supply Gap	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments: There is projected to be 45 annual job openings throughout the Inland Empire/Desert region, which is more than the 40 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 (40).</i>	
Living Wage	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments: All occupations have entry-level hourly wages \$24-429 above the IE/D living wage of 20.42.¹</i>	
Education	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<i>Comments: None of the two occupations have some college or associate degree as their typical entry-level education level, and less than 33% of all workers in the field (14%) have completed some college or an associate degree as their highest level of education. See Exhibit 9 for more details.</i>	

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 a bachelor's degree)
 - Computer Systems Analysts (15-1211)
 - Software Developers (15-1252)

Summary of findings

Demand

- The number of jobs related to the assessed occupations is projected to increase 11% through 2029, with 45 annual job openings (new and replacement jobs).
- Hourly entry-level wages for all occupations are above living wage at the 25th percentile hourly wage ranging from \$44.50 to \$49.25 in IE/D.
- There were 108 online job postings from 37 employers over the past 12 months with the highest postings for software developers and C++ software developers.
- Most job postings for target occupations require a bachelor's degree (96%), followed by a high school diploma or equivalent (2%), and above a bachelor's degree (1%).

Supply

- On average, there were 40 annual awards conferred by educational institutions over the last 3 years in related fields: 0 from community colleges and 40 from other institutions (e.g., 4-year universities, private schools).
- IE/D community college students that exited these programs in the 2022-23 academic year earned a median annual wage of \$43,440 (\$20.89 per hour).
- 47% of 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 Computer Systems Analysis (TOP 0707.30) programs prepare students for employment in systems analysis and design, including the recognition, definition, and improvement of processes through the use of computer technology and methodologies (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by Computer Systems Analysis programs lead to employment in occupations related to computer systems analysis.

Special Note: The purpose of this report is to measure the labor market in the Inland Empire-Desert region for workers with skills and training related to agentic artificial intelligence (AI) development in the computer systems analysis field. The occupations included in this grouping would include positions unrelated to this specific field if left unadjusted. Therefore, to appropriately adjust the occupational estimates, this report is using the following methodology:

- Regional job posting data for all occupations listed above was generated for the past 12 months, unfiltered, with **1,342** total unique job postings.
- Regional job posting data for all occupations listed above was generated for the past 12 months, filtered to only include postings which include at least one of a curated list of specialized skills, with **108** total unique job postings.
- The specialized skills include:
 - o Artificial Intelligence
 - o Artificial Intelligence Development
 - o Artificial Intelligence Systems
 - o Generative Artificial Intelligence
 - o Agentic AI
 - o Generative AI Agents
 - o AI Agents
- Using the two totals, it appears that in the past 12 months 108 out of 1,342 unique job postings (8%) required or preferred skills related to agentic AI development.
- This report will use that 8% ratio to estimate occupational demand for the listed occupations with the intended skills and training.
- Finally, analysis displayed from job posting data will be generated using the filtered dataset of 108 unique postings associated with the above curated list of specialized skills.

Job Demand

In 2024, there were 7,273 jobs in occupations related to computer systems analysis in the IE/D region. Regional employment for this occupation group is projected to increase by 11% through 2029 with 563 job openings projected annually. Exhibit 1 displays the job count, five-year projected job growth, and job openings in the region.

Exhibit 1a. Unadjusted five-year projections for occupations related to computer systems analysis, IE/D Region, 2024-2029

Occupation	SOC	2024 Jobs	2029 Jobs	2024 - 2029 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Computer Systems Analysts	15-1211	2,415	2,588	7%	887	177
Software Developers	15-1252	4,858	5,474	13%	1,929	386
Total		7,273	8,062	11%	2,816	563

SOURCE: LIGHTCAST 2025.3

However, when the 8% adjustment is made the above figures are revised downwards. Now, in 2024, there were 582 jobs in occupations related to agentic AI development in the IE/D region. Regional employment for this occupation group is projected to increase by 11% through 2029 with 45 job openings projected annually. Exhibit 1b displays the adjusted job count, five-year projected job growth, and job openings in the region.

Exhibit 1b. Adjusted five-year projections for occupations related to computer systems analysis, IE/D Region, 2024-2029

Occupation	SOC	2024 Jobs	2029 Jobs	2024 - 2029 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Computer Systems Analysts	15-1211	193	207	7%	71	14
Software Developers	15-1252	389	438	13%	154	31
Total		582	645	11%	225	45

SOURCE: LIGHTCAST 2025.3

Job Postings

The following analysis for occupations related to computer systems analysis 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 computer systems analysis over the last 12 months and the median posting duration. Over the previous 12 months, there were 108 unique job postings for occupations related to computer systems analysis in the region from 37 employers.

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

Job Title	Job Ads	Median Posting Duration
Software Developers	100	26 days
Computer Systems Analysts	8	11 days
Total	108	

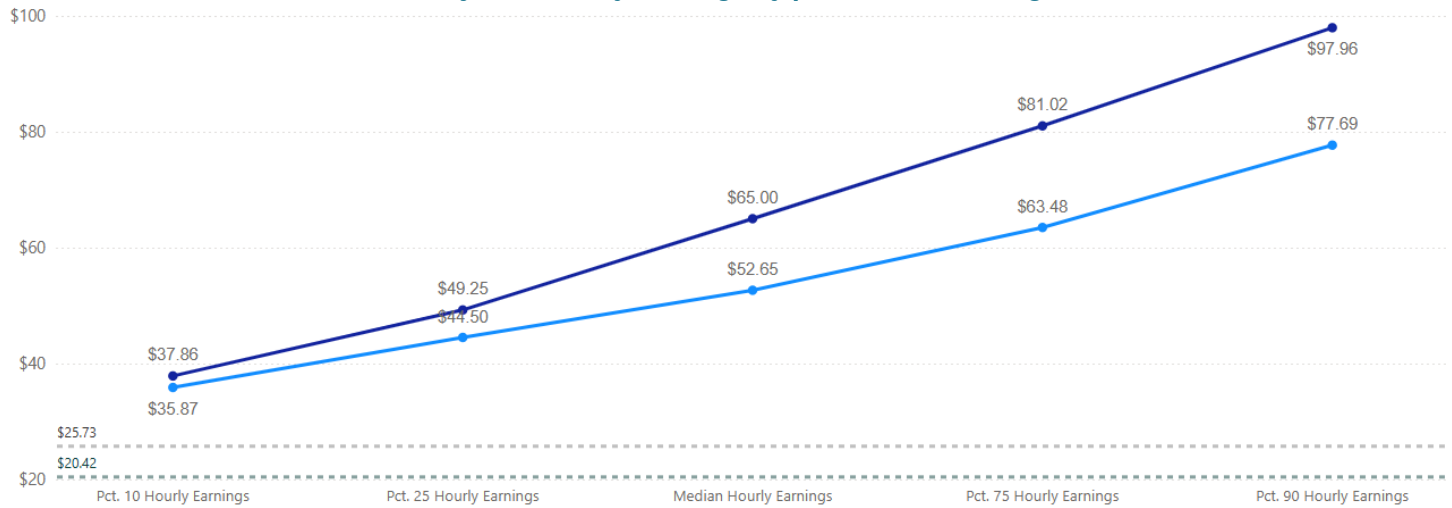
SOURCE: LIGHTCAST 2025.3

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 computer systems analysis 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, 2024



Description	Pct. 10 Hourly Earnings	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings	Pct. 90 Hourly Earnings
Computer Systems Analysts	\$35.87	\$44.50	\$52.65	\$63.48	\$77.69
Software Developers	\$37.86	\$49.25	\$65.00	\$81.02	\$97.96

SOURCE: 2025.3

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). The occupations listed were also above the MIT living wage for an adult with no children (\$25.73) in projected entry-level earnings (see Exhibit 3).

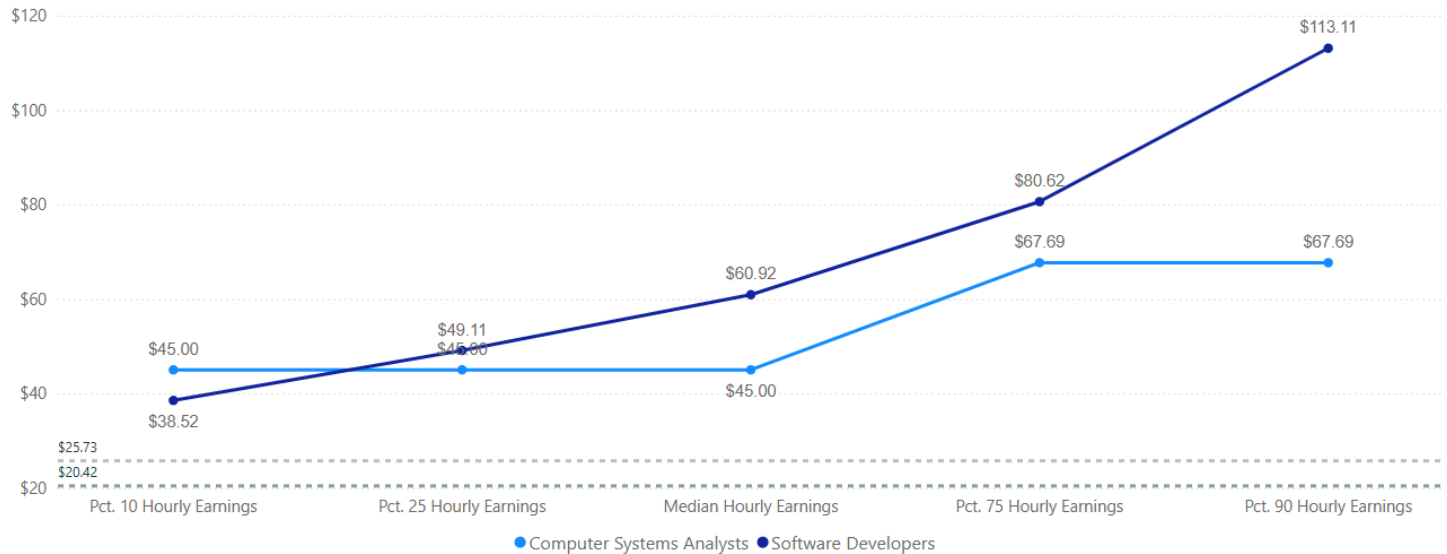
³ The [UW self-sufficiency standard](#) is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference 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 computer systems analysis over the last 12 months. The salary information of online job ad data suggests employers advertise entry level hourly wages between \$45 and \$49.11 (estimated to be equal to an annual salary between \$93,600 and \$102,148).

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



Description	Pct. 10 Hourly Earnings	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings	Pct. 90 Hourly Earnings
Computer Systems Analysts	\$45.00	\$45.00	\$45.00	\$67.69	\$67.69
Software Developers	\$38.52	\$49.11	\$60.92	\$80.62	\$113.11

SOURCE: LIGHTCAST 2025.3

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 computer systems analysis 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, September 2024 – August 2025

Job Title	Unique Postings
Software Engineers	11
C++ Software Developers	10
Application Developers	6
Solutions Architects	6
Principal Architects	5
Solutions Engineers	5
Field Application Engineers	4
Python Software Engineers	4
Developers	3
Principal Software Engineers	3

SOURCE: LIGHTCAST 2025.3

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. Esri and Anywhere Real Estate 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, September 2024 – August 2025

Company	Total/Unique (Sep 2024 - Aug 2025)	Posting Intensity	Median Posting Duration
Esri	105 / 27	4 : 1 	32 days
Anywhere Real Estate	23 / 11	2 : 1 	31 days
Monster Beverage	16 / 8	2 : 1 	36 days
Capgemini	12 / 5	2 : 1 	41 days
Everguard.ai	4 / 4	1 : 1 	10 days
Coral	8 / 4	2 : 1 	35 days
Turing	20 / 4	5 : 1 	9 days
Canonical Group	6 / 3	2 : 1 	59 days
R2 Global	3 / 3	1 : 1 	10 days
Toro	46 / 3	15 : 1 	56 days

SOURCE: LIGHTCAST 2025.3

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, September 2024 – August 2025

Common skills	Total Postings	Skill Growth Relative to Market
Communication	45	Lagging
Problem Solving	41	Growing
Operations	35	Stable
Troubleshooting (Problem Solving)	29	Growing
Leadership	28	Stable
Mathematics	25	Rapidly Growing
Presentations	24	Rapidly Growing
Innovation	21	Rapidly Growing
Planning	18	Growing
Management	16	Stable

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

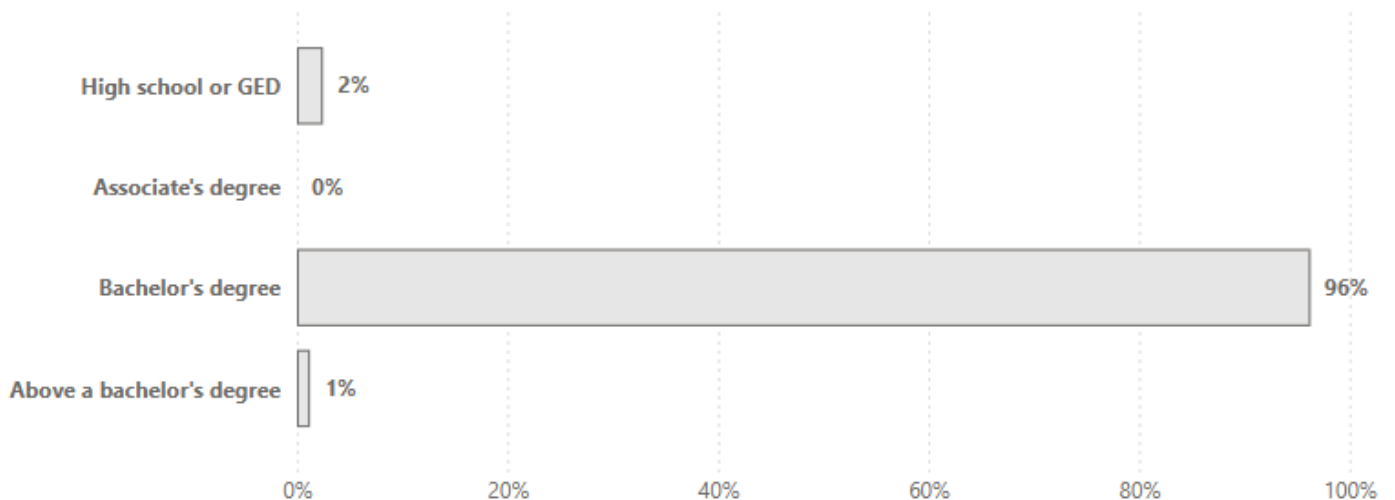
Specialized skills	Total Postings	Skill Growth Relative to Market
Artificial Intelligence	105	Growing
Computer Science	71	Rapidly Growing
Python (Programming Language)	48	Rapidly Growing
SQL (Programming Language)	45	Stable
Agile Methodology	42	Rapidly Growing
Software Development	39	Rapidly Growing
Software Engineering	39	Rapidly Growing
Amazon Web Services	33	Rapidly Growing
Machine Learning	33	Rapidly Growing
Workflow Management	32	Growing

Computer Skills	Total Postings	Skill Growth Relative to Market
Python (Programming Language)	48	Rapidly Growing
SQL (Programming Language)	46	Stable
Amazon Web Services	33	Rapidly Growing
Microsoft Azure	31	Rapidly Growing
Application Programming Interface (API)	29	Growing
ArcGIS (GIS Software)	28	Growing
Java (Programming Language)	26	Growing
Git (Version Control System)	22	Growing
JavaScript (Programming Language)	22	Growing
C++ (Programming Language)	20	Growing

SOURCE: LIGHTCAST 2025.3

Exhibit 8 includes the minimum educational requirements from job postings for this occupational group with bachelor's degree (96%) significantly greater than high school diploma or equivalent (2%) or above a bachelor's degree (1%).

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



SOURCE: LIGHTCAST 2025.3

For the assessed occupations, the Bureau of Labor Statistics (BLS) education attainment data in Exhibit 9 for current professionals in the occupations of interest indicates that between 11% and 20% 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

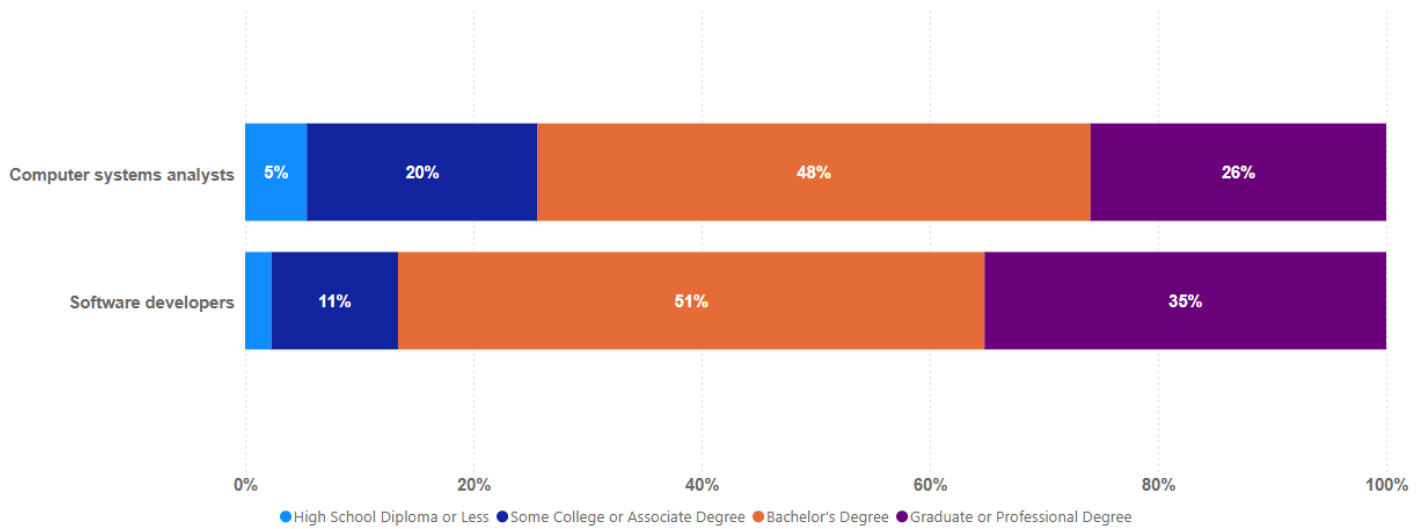
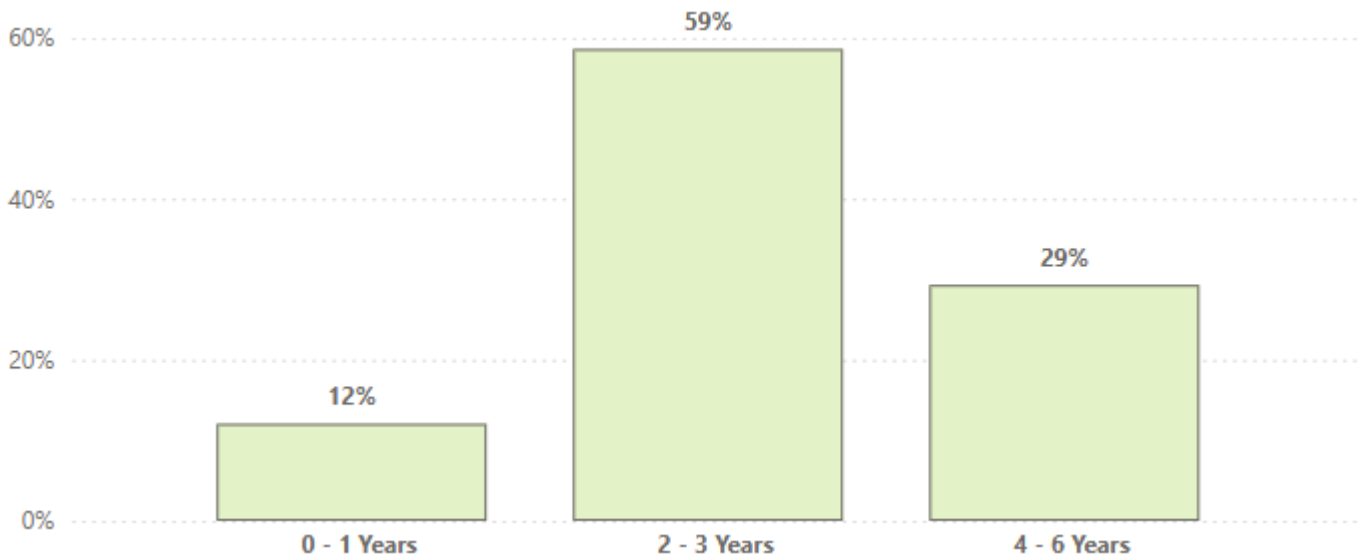


Exhibit 10 displays the work experience typically required from employer job ads for this occupational group. The majority (59%) of employers listing minimum experience requirements sought candidates with 2-3 years of previous work experience.

Exhibit 10 Work experience requirements, IE/D Region, September 2024 – August 2025



Student Completions and Program Outcomes

No student completions for the Computer Systems Analysis (TOP 0707.30) programs were found over the last three academic years (2021-2024). 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: Computer Systems Analysis/Analyst (CIP 11.0501).

In the previous three academic years, two regional non-community college institutions issued an average of 40 awards in relevant programs.

Exhibit 11 Annual average non-community college awards for computer systems analysis programs, IE/D, 2020-2023

CIP	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
11.0501	Computer Systems Analysis/Analyst	DeVry University-California	46	49	23	39
11.0501	Computer Systems Analysis/Analyst	University of Phoenix-California	1	0	0	0
Total			47	49	23	40

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 Computer Systems Analysis strong workforce program outcomes, IE/D & California, AY 2022-23

Program Metric Title	Inland Empire	Statewide
Students	270	1,925
Earned 9+ Career Education Units	46%	35%
Completed Noncredit Workforce Preparation Milestone	-	95%
Earned an Award: Degree or Cert or Attained Appren. Journey Level Status	-	12%
Transferred to a Four-Year Institution: Four-Year Postsecondary Institution	-	8%
Median Annual Earnings	\$43,440	\$52,374
Median Change in Earnings	25%	24%
Attained Living Wage	47%	53%

SOURCE: DATAVISTA

Appendix: Methodology

Community college student outcome information is from DataVista 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 DataVista's Strong Workforce Program Metrics Data Element Dictionary in the Resources section (DataVista, 2025).

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/California . The COE refers to the Self-Sufficiency Wage as a "living wage." 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)	Glasmeier, A. K. (2024). <i>Living wage calculator</i> . Massachusetts Institute of Technology. Accessed on April 14, 2025, https://livingwage.mit.edu/states/06/locations The living wage is derived from MITs 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	DataVista aims to provide up-to-date and useful information on students within the California Community Colleges and its Adult

Education partners. DataVista is a modernization of the supporting architecture and visualization of metrics previously available on the LaunchBoard.

DataVista is a collaboration between the California Community Colleges Chancellor's Office and WestEd, see:
https://datavista.cccco.edu/data_views/swp_report