



Labor Market Analysis: 0709.00 – World Wide Web Administration

Full Stack Web Developer – Certificate requiring 16 to fewer than 30 semester units

Los Angeles Center of Excellence, January 2025

Program Endorsement:	Endorsed: All Criteria Met <input type="checkbox"/>	Endorsed: Some Criteria Met <input checked="" type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Living Wage: (Entry-Level, 25 th)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Education:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Emerging Occupation(s)			
Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	

SUMMARY

This report analyzes whether local labor market demand is being met by community college programs aligned with the identified target occupations¹ or whether a shortage of workers exists. Labor market demand is measured by annual job openings while education supply is measured by the number of awards (degrees and certificates) conferred on average each year.

Based on the available data, there appears to be a supply gap for the four identified target occupations in the region. While entry-level wages exceed the self-sufficiency standard wage in Los Angeles County, the Bureau of Labor Statistics (BLS) lists a bachelor's degree as the typical entry-level education.

Recommendation: Due to two of three program endorsement criteria being met, the Los Angeles Center of Excellence for Labor Market Research (LA COE) endorses this proposed program.

Key Findings

Supply Gap

- 5,532 annual job openings are projected in the region through 2028. This number is greater than the three-year average of 1,182 awards conferred by educational institutions in the region.
 - Over the past 12 months, there were **1,996 online job postings for the target occupations that also listed “full stack” as a specialized skill**. The highest number of job postings were for Full Stack developers, Full Stack software engineers, Full Stack engineers, software developers, and Full Stack Java developers.

¹ Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree. The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

Living Wage

- All four occupations have entry-level wages **above** Los Angeles County's self-sufficiency standard hourly wage (\$24.03/hour).²

Educational Attainment

- A bachelor's degree is the typical entry-level education for the target occupations in this report, according to the Bureau of Labor Statistics (BLS).
- 13%-29% of workers in the field have completed an associate degree or less educational attainment, according to national educational attainment data.
 - Between 71% and 87% of current workers in the field have completed a bachelor's degree or more education.

Community college supply

- 28 community colleges issued awards related to web development in the greater LA/OC region.
- 849 awards (degrees and certificates) were conferred on average each year between 2021 and 2023.

Other postsecondary supply

- 14 educational institutions in the LA/OC region have conferred awards in programs related to web development over the past three years.
- 333 awards were conferred on average each year by other postsecondary institutions throughout the greater LA/OC region between 2020 and 2022.

TARGET OCCUPATIONS

LA COE prepared this report to provide regional labor market and postsecondary supply data related to four target occupations. Although the occupations in this report typically require a bachelor's degree, they are included in this report because community colleges in the region offer training programs for these pathway occupations. [For full occupation descriptions, please see Appendix.](#)

- **Computer Programmers (15-1251)**³
- **Software Developers (15-1252)**⁴
- **Web Developers (15-1254)**⁵
- **Web and Digital Interface Designers (15-1255)**⁶

OCCUPATIONAL DEMAND

Exhibit 1 shows the five-year occupational demand projections for these web developer occupations. In the greater Los Angeles/Orange County region, the number of jobs related to

² Center for Women's Welfare, University of Washington. (2024). *The self-sufficiency standard for California 2024*. <http://selfsufficiencystandard.org/California>.

³ [Computer Programmers \(bls.gov\)](#)

⁴ [Software Developers, Quality Assurance Analysts, and Testers \(bls.gov\)](#)

⁵ [Web Developers and Digital Designers \(bls.gov\)](#)

⁶ [Ibid.](#)

these occupations is projected to increase by 5% through 2028. There will be more than 5,500 job openings per year through 2028 due to job growth and replacements. The majority of jobs in 2023 for these web developer occupations (69%) were located in Los Angeles County.

Exhibit 1: Current employment and occupational demand, Los Angeles and Orange counties⁷

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
Los Angeles	54,848	58,018	3,170	6%	3,869
Orange	24,674	25,800	1,126	5%	1,663
Total	79,521	83,818	4,296	5%	5,532

Detailed Occupation Data

Exhibit 2 displays the current employment and projected occupational demand for each of the target occupations in Los Angeles County. Positive scores for automation resilience⁸ reflect a lower-than-average threat of the occupation(s) being replaced by automation, while negative scores reflect a greater-than-average risk of automation. The average percentage of workers aged 55+ across all occupations in the Los Angeles/Orange County region is 26%; occupations with a larger share of workers aged 55 and older typically have greater replacement needs to offset the amount of impending retirements. On average, 81% of workers across all occupations in California are employed full-time.

Exhibit 2: Detailed employment and occupational demand, Los Angeles County⁹

Occupation	2023 Jobs	2028 Jobs	5-Yr % Change	Annual Openings	Automation Resilience	% Aged 55 and older	% Full Time Workers
Computer Programmers	4,787	4,416	(8%)	278	16.7	22%	100%
Software Developers	40,381	43,518	8%	2,843	19.8	14%	99%
Web Developers	2,926	3,057	4%	212	11.6	9%	100%
Web and Digital Interface Designers	6,754	7,027	4%	536	11.6	8%	82%
Total	54,848	58,018	6%	3,869	-	-	-

⁷ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

⁸ Automation risk is calculated based on the percentage of time spent on high-risk compared to low-risk work, the number of high-risk jobs in compatible occupations, and the overall industry automation risk.

⁹ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

WAGES

The labor market endorsement in this report considers the entry-level hourly wages for these web developer occupations in Los Angeles County as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the greater Los Angeles/Orange County region.

Los Angeles County

All four occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$24.03 in Los Angeles County). Typical entry-level hourly wages are in a range between \$28.19 and \$58.84. (Exhibit 3). Experienced workers can expect to earn wages between \$62.63 and \$84.39.

Exhibit 3: Earnings for occupations in Los Angeles County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Computer Programmers	\$36.91	\$51.90	\$68.94	\$108,000
Software Developers	\$58.84	\$74.13	\$84.39	\$154,200
Web Developers	\$28.19	\$44.64	\$62.63	\$92,900
Web and Digital Interface Designers	\$32.03	\$46.47	\$70.36	\$96,700

*Rounded to the nearest \$100

Orange County

The majority, 95%, of annual openings for web developer occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$27.13 in Orange County). Typical entry-level hourly wages are in a range between \$26.13 and \$57.29 (Exhibit 4).

Three occupations have entry-level wages above the self-sufficiency standard wage:

- *Software developers, \$57.29*
- *Computer programmers, \$35.75*
- *Web and digital interface designers, \$30.03*

Experienced workers can expect to earn wages between \$66.49 and \$82.08, which are higher than the self-sufficiency standard.

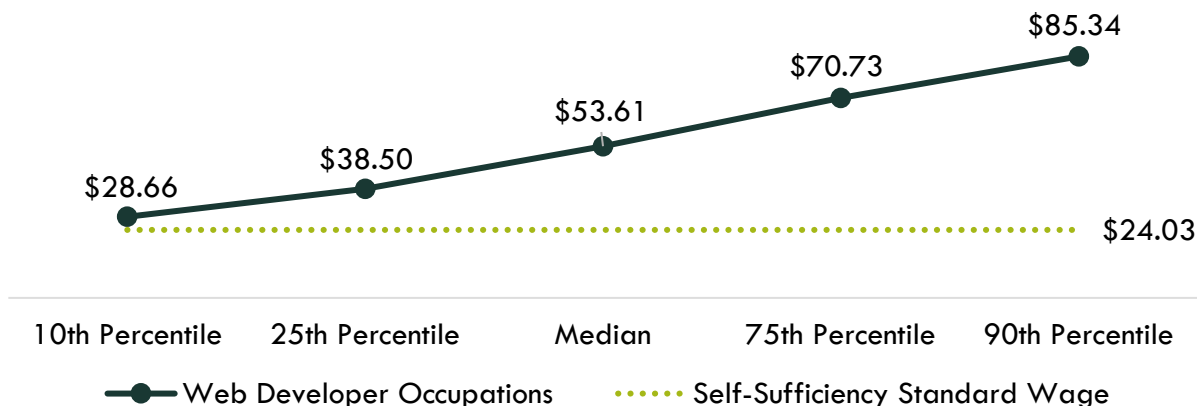
Exhibit 4: Earnings for occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Computer Programmers	\$35.75	\$50.18	\$66.58	\$104,400
Software Developers	\$57.29	\$72.12	\$82.08	\$150,000
Web Developers	\$26.13	\$41.92	\$59.23	\$87,200
Web and Digital Interface Designers	\$30.03	\$43.67	\$66.49	\$90,800

*Rounded to the nearest \$100

Across the greater Los Angeles and Orange County region, the average entry-level hourly earnings for the occupations in this report are \$38.50; this is above the living wage for one single adult in Los Angeles County (\$24.03). Exhibit 5 shows the average hourly wage for the occupations in this report, for entry-level to experienced workers.

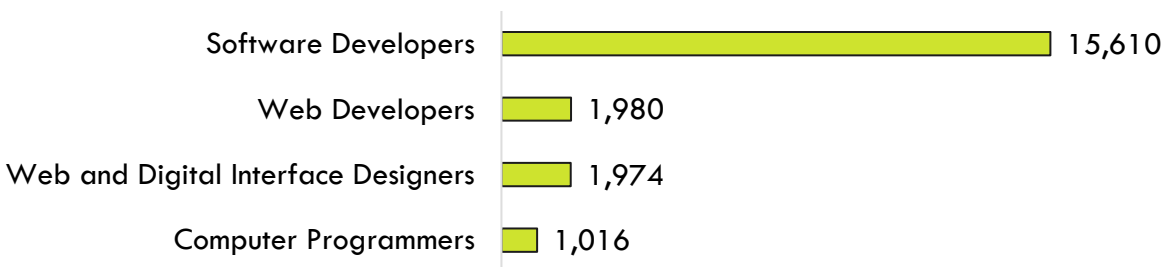
Exhibit 5: Average hourly earnings for web developer occupations, Los Angeles and Orange counties



JOB POSTINGS BY OCCUPATIONS

There were 20,580 online job postings related to web developers listed in the past 12 months in Los Angeles and Orange counties. Exhibit 6 displays the number of job postings by occupation. The majority of job postings (76%) were for *software developers*, followed by *web developers* (10%) and *web and digital interface designers* (10%).

Exhibit 6: Job postings by occupation (last 12 months), Los Angeles and Orange counties



Job postings were analyzed for the most common job titles, skills, and employers associated with the target occupations in this report (Exhibit 7).

Exhibit 7: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> Software engineers 	<ul style="list-style-type: none"> Computer science 	<ul style="list-style-type: none"> Amazon

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> Principal software engineers Embedded software engineers DevOps engineers Software developers Solutions architects Full Stack developers 	<ul style="list-style-type: none"> Software engineering Software development Python (programming language) JavaScript (programming language) Amazon web services Agile methodology 	<ul style="list-style-type: none"> Insight Global* Raytheon Technologies Disney Jobot* Northrop Grumman Motion Recruitment* Anduril Industries SpaceX

*Staffing companies

In the greater Los Angeles/Orange County region, 58% of the web developer job postings listed a minimum educational requirement. Exhibit 8 details the number and percentage of job postings by educational level.

Exhibit 8: Education levels requested in job postings for web developer occupations, Los Angeles and Orange counties

Education Level	Job Postings	% of Job Postings
Bachelor's degree	11,101	93%
Associate degree	433	4%
High school diploma or vocational training	432	4%

JOB POSTINGS BY SKILL

Of the 20,580 web developer job postings, 1,996 mentioned “Full Stack” as a specialized skill. Job postings were analyzed for the most common job titles, skills, and employers associated with the target occupations in this report (Exhibit 9).

Exhibit 9: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> Full Stack developers Full Stack software engineers Full Stack engineers Software engineers Full Stack Java developers .NET Full Stack developers Full Stack web developers 	<ul style="list-style-type: none"> Full Stack development JavaScript (programming language) React.js (JavaScript library) Computer science Application programming interface (API) 	<ul style="list-style-type: none"> SpaceX Disney Insight Global* CyberCoders* INSPYR Solutions* Jobot* Motion Recruitment*

EDUCATIONAL ATTAINMENT

The Bureau of Labor Statistics (BLS) lists a bachelor's degree as the typical entry-level education for the four target occupations in this report (Exhibit 10). Furthermore, the national-level data indicates between 13% and 29% of workers in the field have completed an associate degree or less education as their highest level of educational attainment, while between 71% and 87% have completed a bachelor's degree or more education. The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

Exhibit 10: Entry-level education preferred by employers nationally, Bureau of Labor Statistics

Occupation	Education Level
Computer programmers	Bachelor's degree
Software developers	Bachelor's degree
Web developers	Bachelor's degree
Web and digital interface designers	Bachelor's degree

EDUCATIONAL SUPPLY

Community College Supply

Exhibit 11 shows the annual and three-year average number of awards conferred by community colleges in programs that have historically trained for the occupations of interest. The colleges with the most completions in the region are Orange Coast, Mt. San Antonio, and Santa Monica.

Exhibit 11: Regional community college awards (certificates and degrees), 2021-2023

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
0614.30	Website Design and Development	Citrus	-	1	-	0
		LA Pierce	4	5	-	3
		Long Beach	-	-	6	2
		Mt San Antonio	6	1	-	2
		Pasadena	1	7	3	4
		Santa Monica	3	2	5	3
		West LA	-	3	4	2
		LA Subtotal	14	19	18	17
		Coastline	1	-	4	2
		Fullerton	1	2	-	1
		Irvine	5	4	1	3
		Orange Coast	7	13	8	9
		Saddleback	7	4	6	6
		Santa Ana	1	-	-	0

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
		Santiago Canyon	6	5	2	4
		OC Subtotal	28	28	21	26
		Supply Subtotal/Average	42	47	39	43
0702.00	Computer Information Systems	Citrus	4	6	2	4
		Compton	-	12	4	5
		East LA	23	11	23	19
		El Camino	11	28	19	19
		Glendale	6	8	11	8
		LA City	4	3	4	4
		LA Harbor	-	1	2	1
		LA Mission	1	1	-	1
		LA Southwest	-	21	20	14
		LA Trade-Tech	15	17	35	22
		Long Beach	3	-	6	3
		Mt San Antonio	6	68	41	38
		Rio Hondo	6	15	14	12
		Santa Monica	-	-	2	1
		West LA	9	14	8	10
		LA Subtotal	88	205	191	161
		Coastline	-	2	7	3
		Fullerton	31	49	48	43
		Irvine	-	-	1	0
		Orange Coast	-	1	-	0
		Saddleback	1	-	1	1
		Santa Ana	16	18	8	14
		Santiago Canyon	1	1	5	2
		OC Subtotal	49	71	70	63
		Supply Subtotal/Average	137	276	261	225
0707.00	Computer Software Development	LA City	-	1	-	0
		LA Harbor	-	2	2	1
		LA Mission	-	2	-	1
		LA Pierce	4	7	7	6
		Santa Monica	1	1	2	1
		West LA	-	6	1	2
		LA Subtotal	5	19	12	12

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
		Golden West	6	4	1	4
		Orange Coast	2	-	-	1
		Saddleback	10	15	16	14
		OC Subtotal	18	19	17	18
	Supply Subtotal/Average		23	38	29	30
0707.10	Computer Programming	Cerritos	3	7	2	4
		Citrus	3	9	7	6
		East LA	1	-	1	1
		LA City	8	10	19	12
		LA Harbor	2	4	6	4
		LA Mission	7	7	6	7
		LA Pierce	5	5	7	6
		LA Southwest	2	2	3	2
		LA Valley	13	8	15	12
		Long Beach	3	7	4	5
		Mt San Antonio	83	125	65	91
		Pasadena	23	23	37	28
		Santa Monica	65	71	55	64
		LA Subtotal	218	278	227	241
		Coastline	-	1	2	1
		Cypress	6	5	5	5
		Fullerton	24	28	32	28
		Orange Coast	206	160	250	205
		Santiago Canyon	2	2	3	2
		OC Subtotal	238	196	292	242
	Supply Subtotal/Average		456	474	519	483
0709.00	World Wide Web Administration	Cerritos	-	3	3	2
		Glendale	10	7	2	6
		LA Pierce	2	-	2	1
		Long Beach	34	44	39	39
		Mt San Antonio	-	-	4	1
		Santa Monica	16	-	3	6
		West LA	6	7	8	7
		LA Subtotal	68	61	61	63
		Fullerton	1	-	-	0

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
		Saddleback	2	3	3	3
		OC Subtotal	3	3	3	3
		Supply Subtotal/Average	71	64	64	66
0709.10	E-Commerce (technology emphasis)	East LA	1	2	1	1
		LA Subtotal	1	2	1	1
		Saddleback	-	2	2	1
		OC Subtotal	-	2	2	1
		Supply Subtotal/Average	1	4	3	3
		Supply Total/Average	730	903	915	849

Other Postsecondary Supply

For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for web developers. Exhibit 12 shows the number of awards conferred by these institutions in relevant programs. Due to different data collection periods, the most recent data is from 2020 to 2022. Between 2020 and 2022, other postsecondary college institutions in the region conferred an average of 333 bachelor's and sub-baccalaureate awards. Sub-baccalaureate awards include associate degrees, postsecondary awards, and other academic awards that typically take fewer than four years to complete. Of the awards in Exhibit 12, 52% are bachelor's degrees (173 awards) and 48% are sub-baccalaureate awards (160 awards).

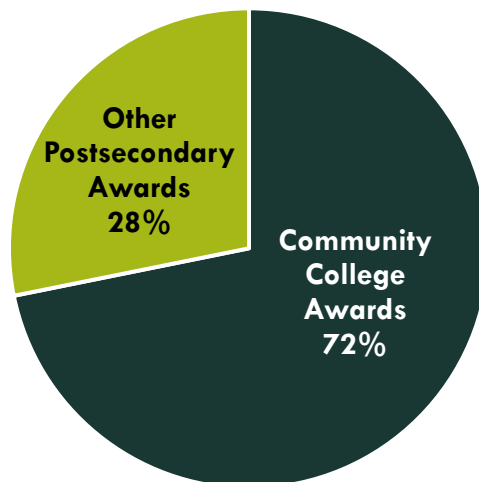
Exhibit 12: Other regional postsecondary awards, 2020-2022

CIP Code	Program	Postsecondary Institution	2019-20 Awards	2020-21 Awards	2021-22 Awards	3-Year Average
11.0103	Information Technology	Brand College	13	17	18	16
		CA Intercontinental Univ.	2	-	-	1
		CSU-Dominguez Hills	4	10	17	10
		CSU-Los Angeles	134	111	90	112
		CSU-Northridge	29	51	45	42
		Platt College-Anaheim	15	17	12	15
		Platt College-LA	12	6	3	7
		University of La Verne	2	3	15	7
		Univ. of Massachusetts Global	-	-	1	0
		Westcliff University	-	-	1	0
11.0201	Computer Programming/ Programmer, General	ABCO Technology	46	34	14	31
		Platt College-Anaheim	4	-	-	1

CIP Code	Program	Postsecondary Institution	2019-20 Awards	2020-21 Awards	2021-22 Awards	3-Year Average
11.0801	Web Page, Digital/Multimedia and Information Resources Design	LA Pacific College	-	4	6	3
11.1003	Computer and Information Systems Security/Auditing/Information Assurance	InterCoast Colleges-West Covina	-	-	2	1
		Learnet Academy	5	4	3	4
11.1004	Web/Multimedia Management and Webmaster	ABCO Technology	37	35	161	78
		LA Pacific College	1	1	-	1
15.1202	Computer/Computer Systems Technology/Technician	Learnet Academy	4	2	2	3
52.0208	E-Commerce/Electronic Commerce	University of La Verne	4	1	-	2
Supply Total/Average			312	296	390	333

Exhibit 13 shows the proportion of community college awards conferred in the greater Los Angeles/Orange County region compared to the number of other postsecondary awards for the programs in this report. The majority of awards conferred in these programs are awarded by community colleges in the greater Los Angeles/Orange County region.

Exhibit 13: Percentage of community college awards compared to other postsecondary institution awards in the Los Angeles/Orange County region



APPENDIX: OCCUPATION DESCRIPTIONS

LA COE prepared this report to provide regional labor market supply and demand data related to these target occupations:

- **Computer Programmers (15-1251)** Create, modify, and test the code and scripts that allow computer applications to run. Work from specifications drawn up by software and web developers or other individuals. May develop and write computer programs to store, locate, and retrieve specific documents, data, and information.¹⁰
- **Software Developers (15-1252)** Research, design, and develop computer and network software or specialized utility programs. Analyze user needs and develop software solutions, applying principles and techniques of computer science, engineering, and mathematical analysis. Update software or enhance existing software capabilities. May work with computer hardware engineers to integrate hardware and software systems, and develop specifications and performance requirements. May maintain databases within an application area, working individually or coordinating database development as part of a team.¹¹
- **Web Developers (15-1254)** Develop and implement websites, web applications, application databases, and interactive web interfaces. Evaluate code to ensure that it is properly structured, meets industry standards, and is compatible with browsers and devices. Optimize website performance, scalability, and server-side code and processes. May develop website infrastructure and integrate websites with other computer applications.¹²
- **Web and Digital Interface Designers (15-1255)** Design digital user interfaces or websites. Develop and test layouts, interfaces, functionality, and navigation menus to ensure compatibility and usability across browsers or devices. May use web framework applications as well as client-side code and processes. May evaluate web design following web and accessibility standards, and may analyze web use metrics and optimize websites for marketability and search engine ranking. May design and test interfaces that facilitate the human-computer interaction and maximize the usability of digital devices, websites, and software with a focus on aesthetics and design. May create graphics used in websites and manage website content and links.¹³

¹⁰ [Computer Programmers \(bls.gov\)](https://www.bls.gov/occupations/computer-programmers)

¹¹ [Software Developers, Quality Assurance Analysts, and Testers \(bls.gov\)](https://www.bls.gov/occupations/software-developers-quality-assurance-analysts-and-testers)

¹² [Web Developers and Digital Designers \(bls.gov\)](https://www.bls.gov/occupations/web-developers-and-digital-designers)

¹³ [Ibid.](#)

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DATA SOURCES

POWERED BY



- O*NET Online
- Lightcast (formerly Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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