

Labor Market Analysis: 0709.10/E-Commerce (Technology emphasis)

E-Commerce Developer (Associate of Science; Certificate requiring 16 to >30 semester units)

E-Commerce Foundations (Certificate requiring 16 to >30 semester units)

0614.30/Website Design and Development

Website Developer (Certificate requiring 16 to >30 semester units)

Los Angeles Center of Excellence, March 2023

Summary

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, 25th)	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"/>

The Los Angeles Center of Excellence for Labor Market Research (LA COE) prepared this report to provide regional labor market supply and demand data related to five e-commerce occupations:

- **Market Research Analysts and Marketing Specialists (13-1161)** Research conditions in local, regional, national, or online markets. Gather information to determine potential sales of a product or service, or plan a marketing or advertising campaign. May gather information on competitors, prices, sales, and methods of marketing and distribution. May employ search marketing tactics, analyze web metrics, and develop recommendations to increase search engine ranking and visibility to target markets.¹
- **Computer Systems Analysts (15-1211)** Analyze science, engineering, business, and other data processing problems to develop and implement solutions to complex applications problems, system administration issues, or network concerns. Perform systems management and integration functions, improve existing computer systems, and review computer system capabilities, workflow, and schedule limitations. May analyze or recommend commercially available software.²
- **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.³

¹ [Market Research Analysts : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/occupational-outlook-handbook/)

² [Computer Systems Analysts : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/occupational-outlook-handbook/)

³ [Web Developers and Digital Designers : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/occupational-outlook-handbook/)

- **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.⁴
- **Graphic Designers (27-1024)** Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.⁵

Although some of the occupations in this report typically require a bachelor's degree and are not traditionally considered middle-skill⁶, community college programs have historically trained students for entry-level jobs in this field or provided the foundational knowledge necessary for other programs that further students' education level. This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data, there appears to be a supply gap for these e-commerce occupations in the region. While entry-level wages exceed the self-sufficiency standard wage in both Los Angeles and Orange counties, the Bureau of Labor Statistics (BLS) lists a bachelor's degree as the typical entry-level education. **Therefore, due to some of the criteria being met, the LA COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, **12,055 jobs are projected to be available annually** in the region due to new job growth and replacements, **which is more than the three-year average of 1,058 awards conferred** by educational institutions in the region.
- **Living Wage Criteria** – Within Los Angeles County, **all five e-commerce occupations** in this report have **entry-level wages above the self-sufficiency standard hourly wage** (\$18.10/hour).⁷

⁴ [Web Developers and Digital Designers : Occupational Outlook Handbook : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/occupational-outlook-handbook/)

⁵ [Graphic Designers : Occupational Outlook Handbook : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/occupational-outlook-handbook/)

⁶ 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.

⁷ Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: <http://selfsufficiencystandard.org/california>.

- **Educational Criteria** – The Bureau of Labor Statistics (BLS) lists a **bachelor's degree** as the **typical entry-level education** for the e-commerce occupations in this report.
 - The national-level educational attainment data indicates **between 21% and 33% of workers in the field have completed some college/associate degree or less education**. Three occupations in this report have 30% or more workers in the field who have completed some college/associate degree or less education: *web developers* (30%), *web and digital interface designers* (30%), and *graphic designers* (33%).

Supply:

- There are **24 community colleges** in the greater LA/OC region that issue awards related to e-commerce, conferring an average of **382 awards annually** between 2018 and 2021.
- Between 2017 and 2020, there was an average of **676 awards conferred annually** in related training programs by non-community college institutions throughout the greater LA/OC region.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for these e-commerce occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 11% through 2026. There will be more than 12,000 job openings per year through 2026 due to job growth and replacements.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties⁸

Geography	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	Annual Openings
Los Angeles	79,546	88,780	9,234	12%	9,307
Orange	24,465	26,951	2,486	10%	2,748
Total	104,011	115,731	11,721	11%	12,055

Wages

The labor market endorsement in this report considers the entry-level hourly wages for these e-commerce 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 LA/OC region. Detailed wage information, by county, is included in Appendix A.

⁸ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Los Angeles County—All five e-commerce occupations in this report have entry-level wages above the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$18.30 and \$37.95. Experienced workers can expect to earn wages between \$40.32 and \$65.63.

Exhibit 2: Earnings for Occupations in LA County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Market Research Analysts and Marketing Specialists (13-1161)	\$22.87	\$33.21	\$47.60	\$69,100
Computer Systems Analysts (15-1211)	\$37.95	\$49.88	\$65.63	\$103,800
Web Developers (15-1254)	\$20.49	\$34.19	\$47.06	\$71,100
Web and Digital Interface Designers (15-1255)	\$21.10	\$33.58	\$52.52	\$69,900
Graphic Designers (27-1024)	\$18.30	\$27.79	\$40.32	\$57,800

*rounded to the nearest \$100

Orange County—All five e-commerce occupations in this report have entry-level wages above the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$21.98 and \$37.51. Experienced workers can expect to earn wages between \$37.93 and \$63.18.

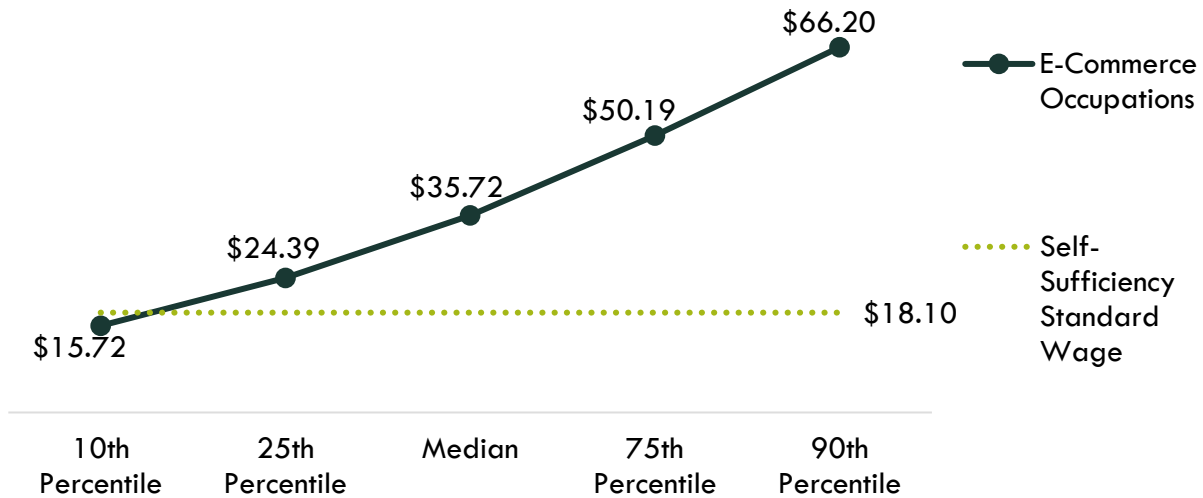
Exhibit 3: Earnings for Occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Market Research Analysts and Marketing Specialists (13-1161)	\$23.13	\$32.80	\$45.81	\$68,200
Computer Systems Analysts (15-1211)	\$37.51	\$48.51	\$63.18	\$100,900
Web Developers (15-1254)	\$21.98	\$34.26	\$46.00	\$71,300
Web and Digital Interface Designers (15-1255)	\$22.33	\$34.54	\$51.84	\$71,800
Graphic Designers (27-1024)	\$22.34	\$29.03	\$37.93	\$60,400

*rounded to the nearest \$100

On average, the entry-level earnings for the occupations in this report are \$24.39; this is above the living wage for one single adult in Los Angeles County (\$18.10). Exhibit 4 shows the average wage for the occupations in this report, from entry-level to experienced workers.

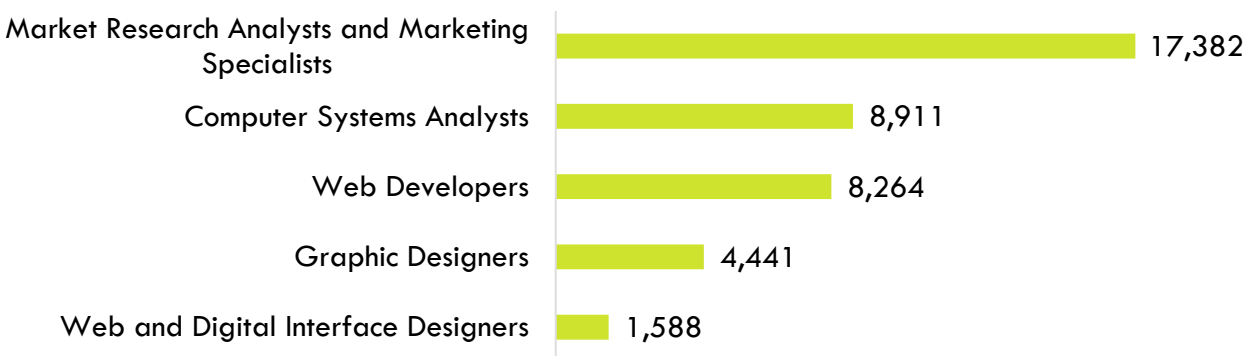
Exhibit 4: Average Hourly Earnings for E-Commerce Occupations in LA/OC



Job Postings

There were 40,586 online job postings related to e-commerce listed in the past 12 months. Exhibit 5 displays the number of job postings by occupation. The majority of job postings (43%) were for *market research analysts and marketing specialists*, followed by *computer systems analysts* (22%) and *web developers* (20%). The highest number of job postings were for graphic designers, marketing coordinators, business systems analysts, social media managers, and marketing assistants. The top skills were marketing, social media, Adobe Photoshop, computer science, and graphic design. The top three employers, by number of job postings, in the region were CyberCoders (staffing company), Jobot (staffing company), and Boeing.

Exhibit 5: Job postings by occupation (last 12 months)



Educational Attainment

The Bureau of Labor Statistics (BLS) lists a bachelor’s degree as the typical entry-level education for each of the five e-commerce occupations in this report. The national-level educational attainment data indicates between 21% and 33% of workers in the field have completed some college/associate degree or less education. Three occupations in this report have 30% or more workers in the field who have completed some college/associate degree or less education: *web developers* (30%), *web and digital interface designers* (30%), and *graphic designers* (33%). Also of note, between 67% and 79% of workers in these occupations have earned a bachelor’s degree

or more education. Of the 55% of e-commerce job postings listing a minimum education requirement in the greater Los Angeles/Orange County region, 10% (2,123) requested high school or vocational training, 6% (1,327) requested an associate degree, and 84% (18,684) requested a bachelor’s degree.

Educational Supply

Community College Supply—Exhibit 6 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, Santiago Canyon, and Santa Monica.

Exhibit 6: Regional community college awards (certificates and degrees), 2018-2021

TOP	Program	College	2018-19 Awards	2019-20 Awards	2020-21 Awards	3-Year Average		
0509.00	Marketing and Distribution	Cerritos	25	18	14	19		
		Compton	1	-	-	0		
		East LA	9	5	8	7		
		El Camino	14	6	9	10		
		Glendale	1	1	3	2		
		LA City	12	15	15	14		
		LA Pierce	4	8	8	7		
		LA Trade	3	3	7	4		
		LA Valley	28	19	24	24		
		Long Beach	6	5	15	9		
		Mt San Antonio	5	5	12	7		
		Pasadena	3	6	3	4		
		Rio Hondo	2	9	11	7		
		Santa Monica	20	28	54	34		
		West LA	1	1	1	1		
		LA Subtotal			134	129	184	149
		Cypress	4	5	4	4		
		Fullerton	2	4	8	5		
		Golden West	2	6	4	4		
		Orange Coast	83	69	48	67		
		Saddleback	16	27	15	19		
		Santa Ana	3	-	2	2		
		Santiago Canyon	17	18	57	31		
		OC Subtotal			127	129	138	131

TOP	Program	College	2018-19 Awards	2019-20 Awards	2020-21 Awards	3-Year Average
Supply Subtotal/Average			261	258	322	280
0509.70	E-Commerce (Business emphasis)	Long Beach	-	4	7	4
		LA Subtotal	-	4	7	4
Supply Subtotal/Average			-	4	7	4
0614.30	Website Design and Development	LA Pierce	3	2	4	3
		Mt San Antonio	9	7	6	7
		Pasadena	-	1	1	1
		Santa Monica	-	2	3	2
		LA Subtotal	12	12	14	13
		Coastline	1	1	1	1
		Fullerton	3	-	1	1
		Irvine	3	-	5	3
		Orange Coast	-	9	7	5
		Saddleback	7	2	7	5
		Santa Ana	-	2	1	1
		Santiago Canyon	24	3	6	11
		OC Subtotal	38	17	28	28
Supply Subtotal/Average			50	29	42	40
0709.00	World Wide Web Administration	Glendale	6	7	10	8
		LA Pierce	9	-	2	4
		Long Beach	22	24	34	27
		Santa Monica	-	-	16	5
		West LA	13	9	6	9
		LA Subtotal	50	40	68	53
		Fullerton	-	-	1	0
		Saddleback	-	2	2	1
		OC Subtotal	-	2	3	2
Supply Subtotal/Average			50	42	71	54
0709.10	E-Commerce (Technology emphasis)	East LA	1	1	1	1
		LA Subtotal	1	1	1	1
		Saddleback	6	1	-	2
OC Subtotal	6	1	-	2		
Supply Subtotal/Average			7	2	1	3
Supply Total/Average			368	335	443	382

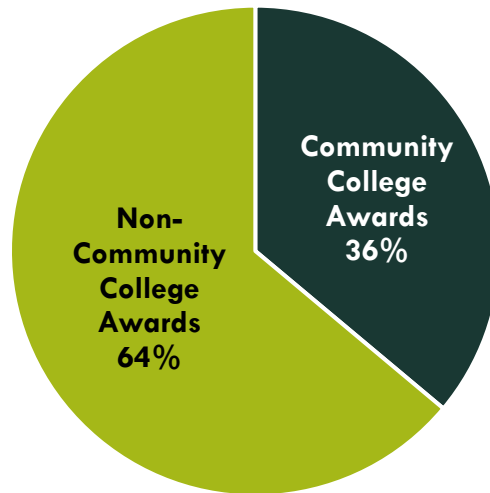
Non-Community College Supply—For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for e-commerce occupations. Exhibit 7 shows the annual and three-year average number of awards conferred by these institutions in relevant programs. Due to different data collection periods, the most recent three-year period of available data is from 2017 to 2020. Between 2017 and 2020, non-community college institutions in the region conferred an average of 676 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.

Exhibit 7: Regional non-community college awards, 2017-2020

CIP	Program	Institution	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
11.1003	Computer and Information Systems Security/ Auditing/ Information Assurance	Learnet Academy	17	-	5	7
11.1004	Web/Multimedia Management and Webmaster	ABCO Technology	17	24	37	26
		LA Pacific College	-	-	1	0
		Pepperdine Univ.	2	-	-	1
52.0208	E-Commerce/ Electronic Commerce	Univ. of La Verne	2	3	4	3
52.1401	Marketing/Marketing Management, General	CSU-Northridge	377	395	384	385
		Fashion Institute of Design & Merch.-LA	70	68	27	55
		Fremont College	3	4	4	4
		Loyola Marymount University	184	132	154	157
		Mount Saint Mary's University	22	10	9	14
		Vanguard Univ. of Southern California	7	9	8	8
		Woodbury Univ.	14	17	19	17
Supply Total/Average			715	662	652	676

Exhibit 8 shows the proportion of community college awards conferred in LA/OC compared to the number of non-community college awards for the programs in this report. One-third of awards conferred in these programs are awarded by community colleges in the LA/OC region.

Exhibit 8: Community College Awards Compared to Non-Community College Awards in LA/OC Region, 3-Year Average



Appendix A: Occupational demand and wage data by county

Exhibit 9. Los Angeles County

Occupation (SOC)	2021 Jobs	2026 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Market Research Analysts and Marketing Specialists (13-1161)	34,458	39,690	5,232	15%	4,675	\$22.87	\$33.21	\$47.60
Computer Systems Analysts (15-1211)	13,686	14,559	873	6%	1,162	\$37.95	\$49.88	\$65.63
Web Developers (15-1254)	5,422	6,348	926	17%	620	\$20.49	\$34.19	\$47.06
Web and Digital Interface Designers (15-1255)	4,822	5,792	969	20%	634	\$21.10	\$33.58	\$52.52
Graphic Designers (27-1024)	21,158	22,393	1,235	6%	2,217	\$18.30	\$27.79	\$40.32
Total	79,546	88,780	9,234	12%	9,307	-	-	-

Exhibit 10. Orange County

Occupation (SOC)	2021 Jobs	2026 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Market Research Analysts and Marketing Specialists (13-1161)	11,862	13,363	1,501	13%	1,533	\$23.13	\$32.80	\$45.81
Computer Systems Analysts (15-1211)	5,870	6,238	368	6%	496	\$37.51	\$48.51	\$63.18
Web Developers (15-1254)	1,699	1,951	252	15%	185	\$21.98	\$34.26	\$46.00
Web and Digital Interface Designers (15-1255)	1,375	1,598	223	16%	167	\$22.33	\$34.54	\$51.84
Graphic Designers (27-1024)	3,658	3,801	144	4%	367	\$22.34	\$29.03	\$37.93
Total	24,465	26,951	2,486	10%	2,748	-	-	-

Exhibit 11. Los Angeles and Orange Counties

Occupation (SOC)	2021 Jobs	2026 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	% Age 55 and older*	Typical Entry-Level Education
Market Research Analysts and Marketing Specialists (13-1161)	46,320	53,052	6,732	15%	6,208	15%	Bachelor's degree
Computer Systems Analysts (15-1211)	19,556	20,797	1,241	6%	1,658	22%	Bachelor's degree
Web Developers (15-1254)	7,121	8,299	1,177	17%	804	11%	Bachelor's degree
Web and Digital Interface Designers (15-1255)	6,197	7,390	1,192	19%	801	12%	Bachelor's degree
Graphic Designers (27-1024)	24,816	26,194	1,378	6%	2,584	23%	Bachelor's degree
Total	104,011	115,731	11,721	11%	12,055	18%	-

*The average percentage of workers age 55 and older across all occupations in the greater LA/OC region is 27%. These occupations have a smaller share of older workers, which typically indicates fewer replacements needs to offset the amount of impending retirements.

Appendix B: Sources

- 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)

For more information, please contact:

Luke Meyer, Director
Los Angeles Center of Excellence
Lmeyer7@mtsac.edu

