Labor Market Analysis for Program Recommendation: 0708.00/Computer Infrastructure and Support CIP: 11.1003/Computer and Information Systems Security/Auditing/Information Assurance. *(Cybersecurity Specialist (Applied), Certificate of Achievement)*

Orange County Center of Excellence, January 2026

☑ Endorsed: All Criteria Met			
Program LMI Endorsement Criteria			
Supply Gap:	Met ☑	Partially Met ☐	Not Met ☐
	There are projected to be **2,129 annual job openings** throughout Los Angeles and Orange counties for these cybersecurity occupations, which **is more than the 1,904 awards conferred by educational institutions**.		
Self-Sufficiency Standard Living Wage[1]:	Met ☑	Partially Met ☐	Not Met ☐
	All annual job openings for these cybersecurity occupations **have entry-level hourly wages above the OC living wage of $27.13**.		
Education:	Met ☑	Partially Met ☐	Not Met ☐
	Most (64%) annual job openings for these middle-skill cybersecurity occupations typically require some college, no degree and **between 37% and 39% of workers in the field have completed some college or an associate degree as their highest level of education.**		

Summary

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to determine whether there is a supply gap in the Los Angeles and Orange counties regional labor market related to three occupations:

- Middle-Skill
  - *Computer User Support Specialists (15-1232)*
  - *Network and Computer Systems Administrators (15-1244)*
  - *Computer Network Architects (15-1241)*

Based on the available data, there appears to be a supply gap for these middle-skill occupations, and typical education requirements align with a community college education. Additionally, all annual job openings have entry-level wages above the Self-Sufficiency Standard living wage. **Therefore, due to all of the regional labor market criteria being met, the COE endorses this proposed program.**

[1] The living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage; Orange County's living wage of $27.13, was last updated in March 2024.

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the middle-skill occupations included in this report.

Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Computer User Support Specialists (15-1232)	LA: 942	LA: 57	OC: $28.05	Some college, no degree	39%
	OC: 425	OC: 40			
	TTL: 1,367	TTL: 97			
Network and Computer Systems Administrators (15-1244)	LA: 348	LA: 795	OC: $40.47	Bachelor's degree	38%
	OC: 143	OC: 467			
	TTL: 491	TTL: 1,262			
Computer Network Architects (15-1241)	LA: 184	LA: 294	OC: $53.62	Bachelor's degree	37%
	OC: 88	OC: 251			
	TTL: 271	TTL: 545			
Total	**2,129**	**1904**	**N/A**	**N/A**	**N/A**

Demand

- In Los Angeles and Orange counties, the number of jobs related to these cybersecurity occupations is projected to decrease 1% through 2029, equating to 2,129 annual job openings.
- Hourly entry-level wages for these cybersecurity occupations range from $28.05 to $53.62 in Orange County; all annual job openings have entry-level wages above the Self-Sufficiency Standard living wage.
- There were 9,770 online job postings for these cybersecurity occupations over the past 12 months. The most common job titles were network engineers, systems administrators, and desktop support technicians.
- The typical entry-level education for these cybersecurity occupations ranges from some college, no degree to a bachelor's degree.
- Between 37% and 39% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

Supply

- Between 2021 to 2024, an average of 1,681 awards were conferred by 28 community colleges in Los Angeles and Orange counties.

- From 2020 to 2023, non-community college institutions conferred an average of 223 awards for the middle-skill occupation.
- In the 2022-23 academic year, Orange County community college students that exited computer infrastructure and support programs had a median annual wage of $64,718 ($31.11 per hour) post-exit, and 58% attained the regional living wage.
- Due to insufficient data, the number of Orange County computer infrastructure and support students that exited their programs reported working a job closely related to their field of study is not available.

Demand

Occupational Projections

Exhibit 2 shows the annual percentage change in jobs for these cybersecurity occupations from 2019 through 2029. Between 2019 and 2020, employment levels across Los Angeles and Orange counties declined sharply due to the broader economic impacts of the COVID-19 pandemic. From 2021 to 2024, Orange County experienced fluctuations in job levels, starting with stable levels in 2021 and 2022, followed by a 7% drop in 2023, and a 2% uptick in 2024. Beginning in 2025, job levels are projected to grow at a similar rate to the average of all occupations through 2029.

Exhibit 2: Annual Percentage Change in Jobs for Cybersecurity occupations, 2019-29

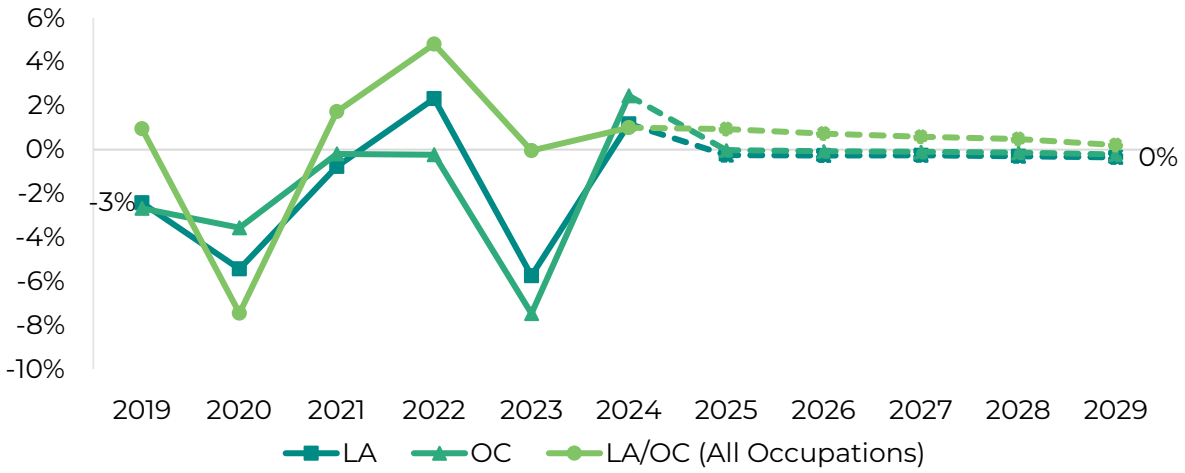


Exhibit 3 shows the five-year occupational demand projections for these middle-skill cybersecurity occupations. In Los Angeles and Orange counties, the number of jobs related to these occupations is projected to decrease 1% through 2029, with 2,129 jobs available annually.

Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties[2]

Geography	2024 Jobs	2029 Jobs	2024-2029 Change	2024-2029 % Change	Annual Openings
Los Angeles	25,212	24,851	(361)	-1%	1,474
Orange	11,027	10,966	(61)	-1%	655
Total	**36,239**	**35,817**	**(422)**	**-1%**	**2,129**

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

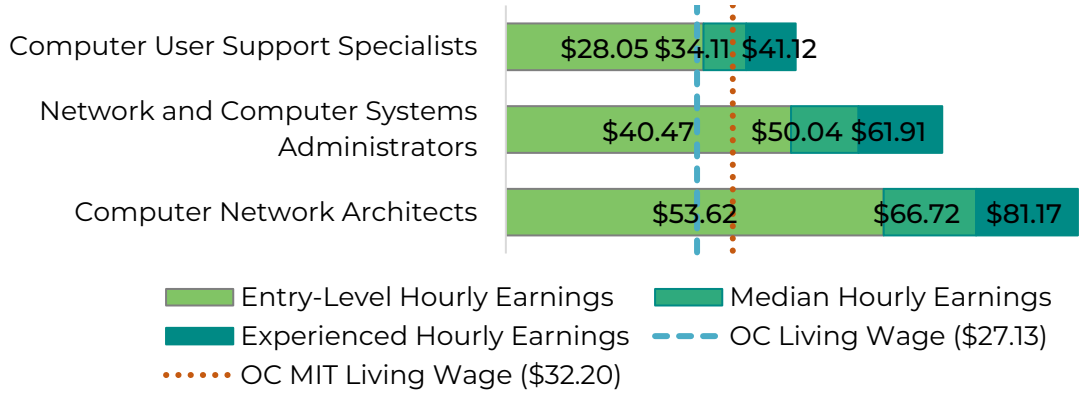
Wages

The labor market endorsement in this report considers the entry-level hourly wages for these cybersecurity occupations in Orange County as they relate to the county's living wage. Los Angeles County wages are included below to provide a complete analysis of the LA/OC region.

In addition to the Self Sufficiency Standard living wage, data for the MIT Living Wage (updated on February 10, 2025) is provided as a reference. Currently, the MIT Living Wage in Orange County is $32.20. Both figures account for geographic-specific costs of necessities such as housing, food, health care, and transportation to assess the cost of living, and are notated in the exhibits below.

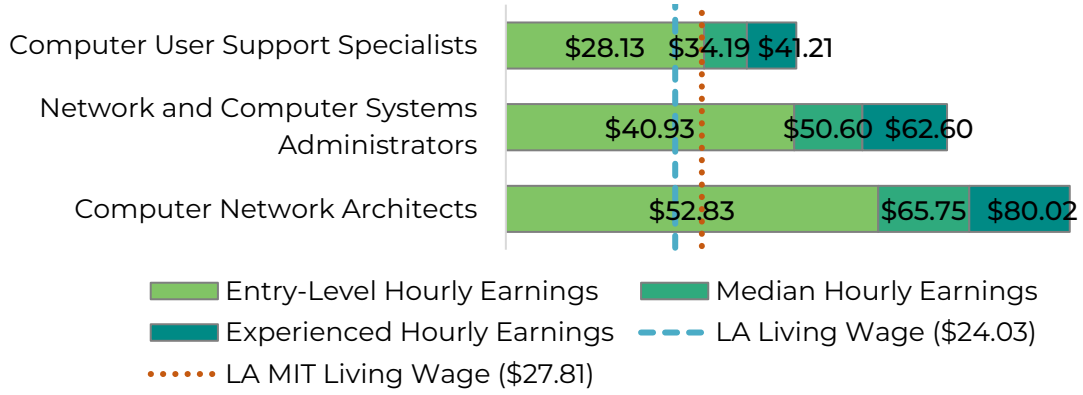
In Orange County, all annual openings for these cybersecurity occupations have entry-level wages below the Self-Sufficiency living wage of $27.13 for a single adult, ranging from $28.05 to $53.62. Exhibit 4 shows the wage range for each of these cybersecurity occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 4: Wages by Occupation in Orange County



In Los Angeles County, all annual openings for these cybersecurity occupations have entry-level wages above the Self-Sufficiency living wage of $24.03 for a single adult, ranging from $28.13 to $52.83. Exhibit 5 shows the wage range for each of these cybersecurity occupations in Los Angeles County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 5: Wages by Occupation in Los Angeles County



Resilient Jobs and U.S. News & World Report Best Jobs

Exhibit 6 shows if each occupation is considered an Orange County Great Recession-Resilient, COVID-19 Pandemic Recession-Resilient Job, or a 2025 U.S. News & World Report (USN&WR) Best Job[3]. Only one occupation, *computer network architects*, met the criteria to be considered both a COVID-19 Pandemic Recession-Resilient Job and a USN&WR Best Job, while *computer user support specialists* was designated as a Great Recession-Resilient Job. *Network and computer systems administrators* did not meet the criteria for any of these designations.

Exhibit 6: Resilient Jobs and USN&WR Best Jobs Designations

Occupation	Great Recession-Resilient Job	COVID-19 Pandemic Recession-Resilient Job	2025 USN&WR Best Job
Computer Network Architects	☐	☑	☑
Network and Computer Systems Administrators	☐	☐	☐
Computer User Support Specialists	☑	☐	☐

Job Postings

Important Job Postings Data Note: *There are limitations when analyzing job postings. A single job posting may not represent a single job opening for a variety of reasons.*

There were 9,770 online job postings related to these cybersecurity occupations listed in the past 12 months. Exhibit 7 shows the number of job postings by occupation. Over 48% of job postings were for *computer user support specialists,* while *network and computer systems administrators* and *computer network architects* each accounted for 26%.

Exhibit 7: Number of Job Postings by Occupation (n=9,770)

Occupation	Job Postings	Percentage of Job Postings
Computer User Support Specialists	4,711	48%
Network and Computer Systems Administrators	2,531	26%
Computer Network Architects	2,528	26%
Total Postings	**9,770**	**100%**

The top job titles for these middle-skill cybersecurity occupations in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Job Titles by Number of Job Postings for Middle-Skill Occupation (n=9,770)

Job Titles	Job Postings	Percentage
Network Engineers	519	5%
Systems Administrators	326	3%

[3] "100 Best Jobs," U.S. News & World Report, accessed January 28, 2025, https://money.usnews.com/careers/best-jobs/rankings/the-100-best-jobs.

Desktop Support Technicians	244	2%
IT Specialists	211	2%
IT Support Specialists	198	2%
IT Support Technicians	137	1%
Technical Support Specialists	129	1%
IT Technicians	129	1%
Help Desk Technicians	118	1%
Network Administrators	94	1%

The top employers for these middle-skill cybersecurity occupations in the region, by number of job postings, are shown in Exhibit 9.

Exhibit 9: Top Employers by Number of Job Postings for Middle-Skill Occupation (n=9,770)

Employer	Job Postings	Percentage of Job Postings
Robert Half	230	2%
The Judge Group	167	2%
Northrop Grumman	163	2%
Insight Global	132	1%
Apple	126	1%
TEKsystems	121	1%
Ledgent	115	1%
Boeing	98	1%
Best Buy	94	1%
Raytheon Technologies	63	1%

The top specialized, soft, and computer skills for these middle-skill cybersecurity occupations listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 10.

Exhibit 10: Top Skills by Number of Job Postings for Middle-Skill Occupations (n=9,770)

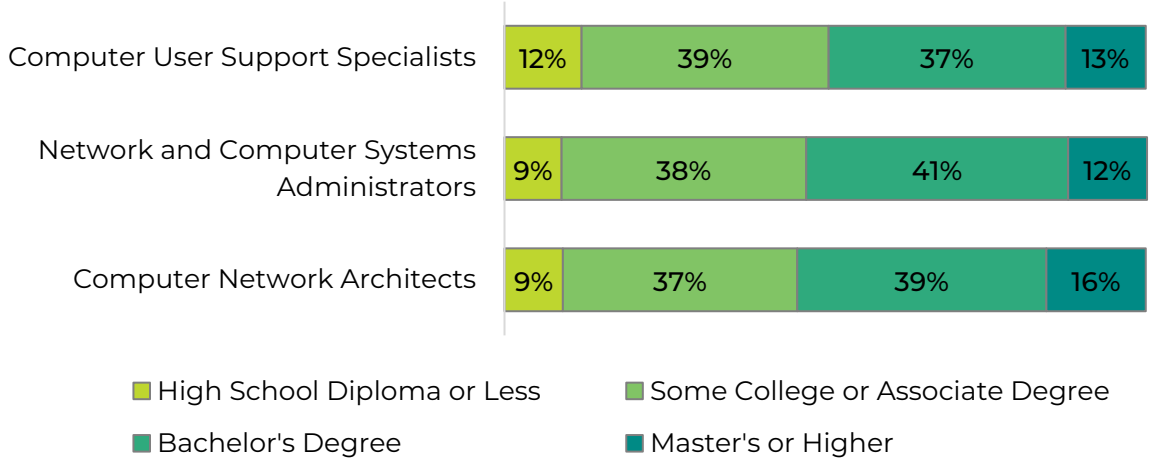
Top Specialized Skills	Top Soft Skills	Top Computer Skills
Technical Support (2,589)	Troubleshooting (Problem Solving) (5,691)	Operating Systems (2,135)
Computer Science (2,371)	Communication (4,935)	Active Directory (1,623)
Operating Systems (2,135)	Customer Service (3,204)	Microsoft Office (1,473)
Help Desk Support (1,834)	Management (3,060)	Firewall (1,402)
Active Directory (1,623)	Problem Solving (2,915)	Microsoft 365 (1,368)
Automation (1,592)	Operations (2,613)	Linux (1,191)
Firewall (1,402)	Information Technology (1,698)	Python (Programming Language) (1,006)
Microsoft 365 (1,368)	Microsoft Office (1,473)	Microsoft Excel (972)
Network Routing (1,359)	Leadership (1,378)	Microsoft Azure (958)
Linux (1,191)	Detail Oriented (1,362)	Mac OS (903)

Educational Attainment

The Bureau of Labor Statistics (BLS) lists some college, no degree as the typical entry-level education for *computer user support specialists* and a bachelor's degree for *network and computer systems administrators* and *computer network architects*.

The national-level educational attainment data indicates between 37% and 39% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 11 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Exhibit 11: National-level Educational Attainment for Occupations



Requested Minimum Education Requirement

Of the cumulative job postings for these cybersecurity occupations in Los Angeles and Orange counties that listed a minimum education requirement:

- 60% of Middle-Skill Occupations Job Postings
  - 37% (2,157) requested a high school diploma or associate degree
  - 61% (3,566) requested a bachelor's degree.

Educational Supply

The following supply tables display the total supply for these middle-skill cybersecurity occupations that align with these TOP and CIP codes and program needs.

Community College Supply

Exhibit 12 shows the three-year average number of awards conferred by community colleges in the related TOP codes:

- Computer Information Systems (0702.00)
- Computer Programming (0707.10)
- Computer Systems Analysis (0707.30)
- Computer Infrastructure and Support (0708.00)
- Computer Networking (0708.10)
- Computer Support (0708.20)
- World Wide Web Administration (0709.00)

The colleges with the most completions in the region are Orange Coast (208), then Mt. San Antonio (196), and Coastline (145). Over the past 12 months, there were four other related program recommendation requests from regional community colleges.

Exhibit 12: Regional Community College Awards (Certificates and Degrees), 2021-24

TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
0702.00	Computer Information Systems	Citrus	6	2	5	4
		Compton	12	4	4	7
		East LA	11	23	42	25
		El Camino	28	19	27	25
		Glendale	8	11	5	8
		LA City	3	4	20	9
		LA Harbor	1	2	3	2
		LA Mission	1	0	0	0
		LA Trade	17	35	18	23
		Long Beach	0	6	26	11
		Mt San Antonio	68	41	41	50
		Rio Hondo	15	14	14	14
		Santa Monica	0	2	6	3
		West LA	14	8	7	10
		LA Southwest	21	20	10	17
		LA Subtotal	**205**	**191**	**228**	**208**
		Coastline	2	7	11	7
		Fullerton	49	48	51	49
		Irvine	0	1	0	0
		Orange Coast	1	0	0	0

TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
		Saddleback	0	1	1	1
		Santa Ana	18	8	23	16
		Santiago Canyon	1	5	2	3
		OC Subtotal	**71**	**70**	**88**	**76**
Supply Subtotal/Average			**276**	**261**	**316**	**284**
0707.10	Computer Programming	Cerritos	7	2	2	4
		Citrus	9	7	9	8
		East LA	0	1	2	1
		Glendale	0	0	1	0
		LA City	10	19	30	20
		LA Harbor	4	6	1	4
		LA Mission	7	6	15	9
		LA Pierce	5	7	7	6
		LA Valley	8	15	15	13
		Long Beach	7	4	4	5
		Mt San Antonio	125	65	68	86
		Pasadena	23	37	46	35
		Santa Monica	71	55	77	68
		West LA	0	0	1	0
		LA Southwest	2	3	3	3
		LA Subtotal	**278**	**227**	**281**	**262**
		Coastline	1	2	0	1
		Cypress	5	5	6	5
		Fullerton	28	32	1	20
		Orange Coast	160	250	202	204
		Santa Ana	0	0	5	2
		Santiago Canyon	2	3	4	3
		OC Subtotal	**196**	**292**	**218**	**235**
Supply Subtotal/Average			**474**	**519**	**499**	**497**
0707.30	Computer Systems Analysis	Cerritos	5	2	1	3
		East LA	0	4	3	2
		LA City	6	5	3	5
		LA Harbor	1	0	1	1
		LA Mission	1	2	3	2
		LA Pierce	5	6	6	6

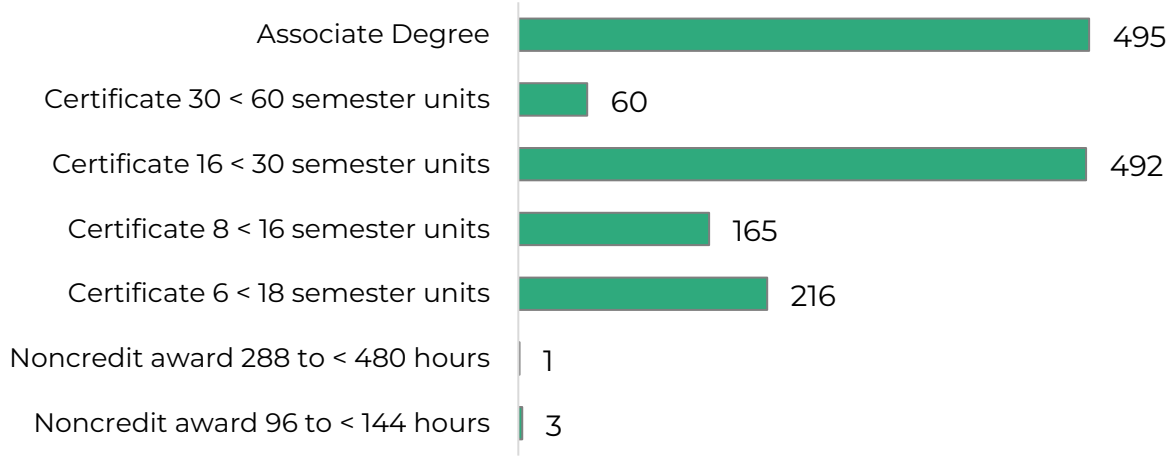
TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
		LA Trade	0	2	2	1
		Mt San Antonio	9	6	6	7
		Rio Hondo	3	2	1	2
		Santa Monica	0	0	6	2
		LA Subtotal	**30**	**29**	**32**	**30**
		-	**-**	**-**	**-**	**-**
		OC Subtotal	**0**	**0**	**0**	**0**
Supply Subtotal/Average			**30**	**29**	**32**	**30**
0708.00	Computer Infrastructure and Support	West LA	7	4	7	6
		Cerritos	9	14	14	12
		East LA	3	11	3	6
		El Camino	5	8	13	9
		Glendale	11	3	4	6
		LA City	12	19	50	27
		LA Harbor	2	1	0	1
		LA Mission	32	20	58	37
		LA Valley	3	2	3	3
		Long Beach	2	24	37	21
		Mt San Antonio	36	17	35	29
		Pasadena	8	17	3	9
		Rio Hondo	19	30	31	27
		LA Subtotal	**149**	**170**	**258**	**192**
		Santiago Canyon	0	1	1	1
		Coastline	91	81	137	103
		Cypress	1	0	1	1
		Fullerton	0	0	1	0
		Orange Coast	7	2	2	4
		Saddleback	13	14	14	14
		Santa Ana	14	20	18	17
		OC Subtotal	**126**	**118**	**174**	**139**
Supply Subtotal/Average			**275**	**288**	**432**	**332**
0708.10	Computer Networking	West LA	24	24	68	39
		Cerritos	6	10	13	10
		Glendale	2	2	0	1
		LA City	8	6	11	8

TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
		LA Pierce	19	14	24	19
		Long Beach	52	70	39	54
		Mt San Antonio	25	13	21	20
		Rio Hondo	5	7	10	7
		Santa Monica	0	1	0	0
		LA Subtotal	**141**	**147**	**186**	**158**
		Coastline	49	17	36	34
		Cypress	71	116	151	113
		Irvine	18	27	34	26
		Saddleback	15	17	15	16
		Santa Ana	45	47	88	60
		OC Subtotal	**198**	**224**	**324**	**249**
Supply Subtotal/Average			**339**	**371**	**510**	**407**
0709.00	World Wide Web Administration	West LA	7	8	5	7
		Cerritos	3	3	7	4
		Glendale	7	2	6	5
		LA Pierce	0	2	1	1
		Long Beach	44	39	15	33
		Mt San Antonio	0	4	8	4
		Santa Monica	0	3	3	2
		LA Subtotal	**61**	**61**	**45**	**56**
		Fullerton	0	0	1	0
		Saddleback	3	3	0	2
		OC Subtotal	**3**	**3**	**1**	**2**
Supply Subtotal/Average			**64**	**64**	**46**	**58**
0708.20	Computer Support	Citrus	4	0	0	1
		El Camino	0	1	1	1
		Glendale	7	7	8	7
		LA Pierce	6	4	5	5
		LA Valley	0	5	4	3
		Long Beach	33	22	12	22
		Pasadena	12	19	20	17
		LA Subtotal	**62**	**58**	**50**	**57**
		Coastline	0	0	2	1
		Cypress	13	15	15	14

TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
		Santa Ana	0	0	3	1
		OC Total	**13**	**15**	**20**	**16**
		Supply Subtotal/Average	**75**	**73**	**70**	**73**
		Supply Total/Average	**694**	**710**	**790**	**732**

Exhibit 13 shows the annual average community college awards by type from 2021-22 to 2023-24. The plurality of the awards are for associate degree, followed by certificate 16 to 30 semester units and certificate 6 to 18 semester units.

Exhibit 13: Annual Average Community College Awards by Type, 2021-2024



Community College Student Outcomes

Exhibit 19 shows the Strong Workforce Program (SWP) metrics for computer infrastructure and support programs Coast County Community College District (CCCD), the Orange County Region, and California. Of the 833 Orange County computer infrastructure and support students in the 2023-24 academic year, 52% (430) attended a CCCD college.

CCCD students that exited computer infrastructure and support programs in the 2022-23 academic year had higher median annual earnings ($69,966 or $33.64 per hour) compared to all computer infrastructure and support students in Orange County ($64,718 or $31.11 per hour). A higher percentage of SOCCCD computer infrastructure and support students attained the living wage (65%) when compared to all computer infrastructure and support students in Orange County (58%).

Exhibit 14: Computer Infrastructure and Support (0708.00) Strong Workforce Program Metrics, 2021-24[4]

SWP Metric	CCCD	OC Region	California
SWP Students	430	833	8,521

[4] All SWP metrics are for 2023-24 unless otherwise noted.

SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	49%	41%	45%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	81%	81%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	84	113	885
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2022-23)	19	23	316
SWP Students with a Job Closely Related to Their Field of Study (2021-22)	Insufficient Data	Insufficient Data	70%
Median Annual Earnings for SWP Exiting Students (2022-23)	$69,966 ($33.64)	$64,718 ($31.11)	$57,612 ($27.70)
Median Change in Earnings for SWP Exiting Students (2022-23)	29%	29%	26%
SWP Exiting Students Who Attained the Living Wage (2022-23)	65%	58%	57%

Non-Community College Supply

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering computer infrastructure and support programs. Exhibit 15 displays the annual and three-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) codes:

- Computer Systems Networking and Telecommunications (11.0901)
- Cloud Computing (11.0902)
- Network and System Administration/Administrator (11.1001)
- System, Networking, and LAN/WAN Management/Manager (11.1002)
- Computer and Information Systems Security/Auditing/Information Assurance (11.1003)
- Computer Support Specialist (11.1006)

No awards were conferred under the related CIP codes:

- Computer Systems Analysis/Analyst (11.0501)
- Cloud Computing (11.0902)

The available data covers 2020 to 2023. During this period, non-community college institutions in the region conferred an average of 223 awards annually in related programs.

Exhibit 15: Regional Non-Community College Awards, 2020-2023

CIP Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
11.0901		Brand College	0	2	0	1
		PCI College	0	0	0	0

	Computer Systems Networking and Telecommunications	University of California-Irvine	20	9	19	16
		University of Southern California	3	1	1	2
		Supply Subtotal/Average	**23**	**12**	**20**	**18**
11.1001	Network and System Administration/ Administrator	ABCO Technology	40	104	46	63
		Brand College	16	9	6	10
		Supply Subtotal/Average	**56**	**113**	**52**	**74**
11.1002	System, Networking, and LAN/WAN Management/ Manager	ABCO Technology	30	91	15	45
		Brand College	1	1	0	1
		Supply Subtotal/Average	**31**	**92**	**15**	**46**
11.1003	Computer and Information Systems Security/Auditing/ Information Assurance	ABCO Technology	0	0	0	0
		Azusa Pacific University	0	0	0	0
		California State University-Dominguez Hills	8	39	37	28
		InterCoast Colleges-West Covina	0	2	6	3
		Learnet Academy Inc	4	3	1	3
		Loyola Marymount University	0	0	0	0
		Platt College-Los Angeles	0	0	7	2
		University of La Verne	0	0	0	0
		University of Southern California	29	13	35	26
		Westcliff University	0	0	0	0
		Computer and Information Systems Security/Auditing/Information Assurance Total	41	57	86	61
		ABCO Technology	0	0	0	0
		Azusa Pacific University	0	0	0	0
		California State University-Dominguez Hills	8	39	37	28
		InterCoast Colleges-West Covina	0	2	6	3
		Learnet Academy Inc	4	3	1	3
		Loyola Marymount University	0	0	0	0
		Platt College-Los Angeles	0	0	7	2

		University of La Verne	0	0	0	0
		University of Southern California	29	13	35	26
		Westcliff University	0	0	0	0
		Computer and Information Systems Security/Auditing/Information Assurance Total	41	57	86	61
		Supply Subtotal/Average	**41**	**57**	**86**	**61**
11.1006	Computer Support Specialist	Southern California Institute of Technology	17	24	31	24
		Supply Subtotal/Average	**17**	**24**	**31**	**24**
		Supply Total/Average	**17**	**24**	**31**	**24**

Regional Demographics

The following section presents occupational, community college program, and population demographic data for Orange County. This comparison can help identify possible equity gaps between the local workforce and the student pipeline who are preparing for these occupations. These insights can inform program development, outreach, and support strategies to better align community college programs with current labor market needs.

Ethnicity

Exhibit 16 compares the ethnicity of Orange County community college students enrolled in computer infrastructure and support programs, the overall Orange County population, and occupation-specific data for the four cybersecurity occupations included in this report.

White and Asian workers are overrepresented in cybersecurity occupations (49% and 29%, respectively) compared to the their shares of community college computer infrastructure and support enrollments (23% and 20%). In contrast, Hispanic or Latino and Black individuals make up half of computer infrastructure and support students (43% and 6%), but only 15% of the workforce (13% and 2%), indicating a potential disconnect between training pipelines and employment outcomes.

Exhibit 16: Program and County Demographics by Ethnicity

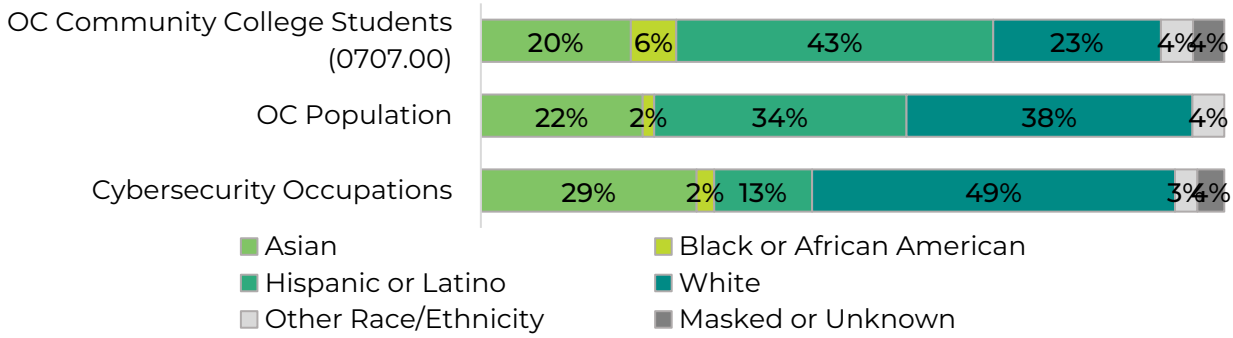
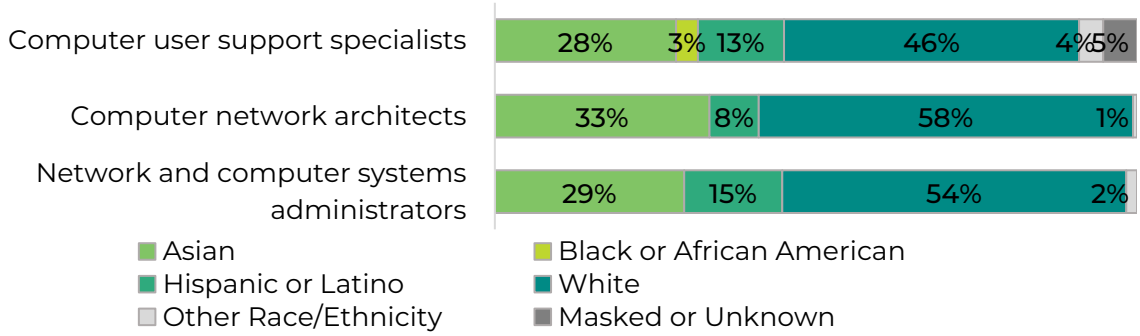


Exhibit 17 shows the disaggregated ethnicity data for each occupation, revealing potential disparities in entry into well-paying occupations or career advancement.

Across the cybersecurity workforce, White and Asian individuals are significantly represented, accounting for over 81% of workers in the highest-paying occupation with the highest educational requirements—computer network architects. In contrast, Hispanic or Latino individuals are significantly underrepresented across all occupations, indicating potential barriers to access, advancement, or equitable hiring within the cybersecurity field.

Exhibit 17: Disaggregated Ethnic Distribution by Occupation



Age

Exhibit 18 compares the age of Orange County community college students enrolled in computer infrastructure and support programs, the overall Orange County population, and occupation-specific data for the four cybersecurity occupations included in this report.

Community college students enrolled in computer software development programs skew younger, with 30% under age 25 compared to just 3% of the cybersecurity workforce. In contrast, 73% of workers are aged 35 or older, suggesting that these roles may require additional experience or advanced training prior to entry.

Exhibit 18: Program and County Demographics by Age

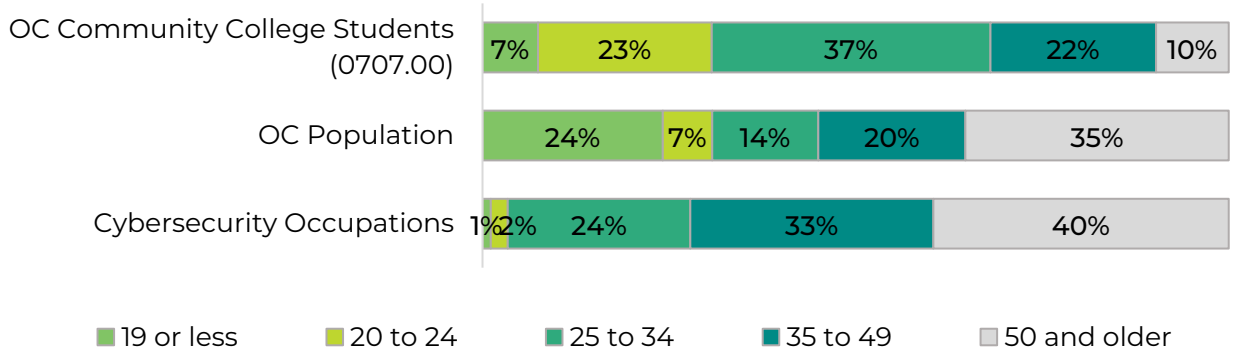
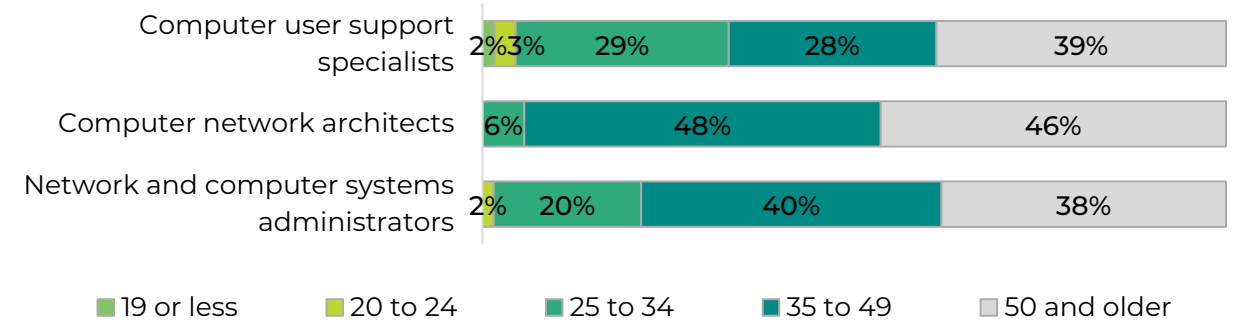


Exhibit 24 shows the disaggregated age data for each occupation, revealing potential disparities in entry into well-paying occupations or career advancement.

Workers under 24 are most represented in the lowest-paying occupation with the lowest educational requirements, *computer user support specialists*. In contrast, the highest-paying occupation, *computer network architects,* is composed entirely of workers aged 25 and older, with 94% aged 35 or older. This disparity suggests that advancing into higher-paying roles may require substantial experience, training, or career progression over time, while entry into lower-wage roles is more accessible to younger workers with less experience.

Exhibit 19: Disaggregated Age Distribution by Occupation



Sex

Exhibit 20 compares the sex of Orange County community college students enrolled in computer infrastructure and support programs, the overall Orange County population, and occupation-specific data for these cybersecurity occupations.

Though the population has an even gender distribution, only 20% of the cybersecurity workforce, and 25% of community college students, are women.

Exhibit 20: Program and County Demographics by Sex

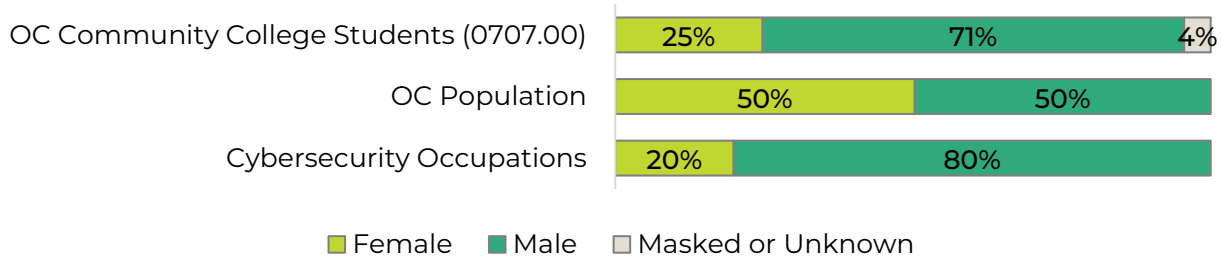
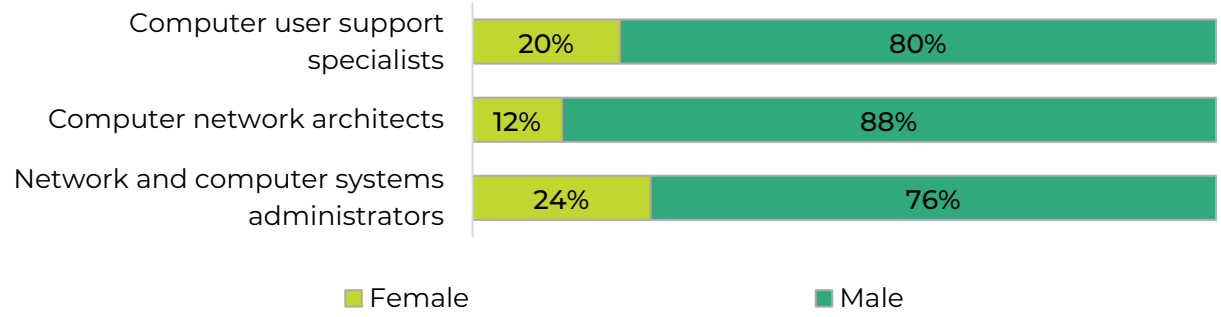


Exhibit 21 shows the disaggregated sex data for each occupation, revealing potential disparities in entry into well-paying occupations or career advancement.

Women are most represented in the lower-paying occupations, *computer user support specialists and network* and *computer systems administrators*. In contrast, the highest-paying occupation, *computer network architects,* is overwhelmingly male (88%), highlighting persistent gender imbalances in the field.

Exhibit 21: Disaggregated Sex Distribution by Occupation



Appendix A: Methodology

OC COE prepared this report by analyzing occupational and educational program data. Occupational data comes from Lightcast, a labor market analytics firm which compiles information from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS), and other agencies. Analysis of emerging occupations is predicated on online job postings data combined with Occupational Information Network (O*NET) profile descriptions. Program supply data was sourced from the California Community Colleges Chancellor's Office Data Mart (MIS Data Mart) (datamart.cccco.edu) and the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS, which was integrated into the COE's Supply Table. (IPEDS).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- All occupations that have 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.

The OC COE determined labor market supply for each occupation (SOC code) by analyzing the number of 3-year average program completers or awards in related TOP and CIP codes. TOP code data comes from MIS Data Mart and CIP code data comes from the IPEDS. The TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education throughout the United States and Canada. The California Community Colleges are the only system that use TOP codes.

The analysis reflects labor market demand for occupations closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. assess current and projected employment based on data trends for detailed occupations, as well as annual average awards granted by regional postsecondary educational institutions. Real-time labor market information (online job postings) assesses employer preferences but cannot be used to measure the quantity of open positions, number of jobs, or annual openings.

All findings are based on the most current available data and a combination of primary and secondary sources. While care was taken to ensure accuracy, the OC COE, its host district, and the California Community Colleges Chancellor's Office are not responsible for individual decisions made based on this report.

Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	Traditional and real-time labor market information are captured using data from Lightcast (v.2025.4), a labor market analytics firm.
Living Wage	Per the CCCCO's this report's endorsement criteria uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard last updated in March 2024, which is $27.13 per hour ($57,294 annually) in Orange County. The MIT Living Wage, updated on February 10, 2025, is a nationally recognized living wage metric and is provided for reference. The current MIT Living Wage in Orange County is $32.20.
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (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.
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations.
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions).
Student Metrics and Demographics	Data Vista (v.2.0), a statewide data system supported by the California Community Colleges Chancellor's Office provides data on progress, success, employment, and earnings outcomes for California community college students.
Population and Occupation Demographics	The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products.

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FOR LABOR MARKET RESEARCH
ORANGE COUNTY