

**Labor Market Analysis: 0708.10/Computer Networking
Cyber Security Essentials (Associate Degree & Certificate)**
Los Angeles Center of Excellence, January 2023

Summary

| | | | |
|--|---|---|--|
| Program Endorsement: | Endorsed: All Criteria Met <input checked="" type="checkbox"/> | Endorsed: Some Criteria Met <input 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 checked="" type="checkbox"/> | No <input 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 middle-skill occupations:

- **Information Security Analysts (15-1212)** Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. Assess system vulnerabilities for security risks and propose and implement risk mitigation strategies. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses.¹
- **Computer Network Support Specialists (15-1231)** Analyze, test, troubleshoot, and evaluate existing network systems, such as local area networks (LAN), wide area networks (WAN), cloud networks, servers, and other data communications networks. Perform network maintenance to ensure networks operate correctly with minimal interruption.²
- **Computer User Support Specialists (15-1232)** Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, via telephone, or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.³
- **Computer Network Architects (15-1241)** Design and implement computer and information networks, such as local area networks (LAN), wide area networks (WAN), intranets, extranets, and other data communications networks. Perform network modeling, analysis, and planning, including analysis of capacity needs for network infrastructures. May also design network and computer security measures. May research and recommend network and data communications hardware and software.⁴

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

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

³ [Computer Support Specialists : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/occupational-outlook-handbook/)

⁴ [Computer Network Architects : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/occupational-outlook-handbook/)

- **Network and Computer Systems Administrators (15-1244)** Install, configure, and maintain an organization's local area network (LAN), wide area network (WAN), data communications network, operating systems, and physical and virtual servers. Perform system monitoring and verify the integrity and availability of hardware, network, and server resources and systems. Review system and application logs and verify completion of scheduled jobs, including system backups. Analyze network and server resource consumption and control user access. Install and upgrade software and maintain software licenses. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software.⁵

Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.⁶ Although some of the occupations in this report typically require a bachelor's degree, they are considered middle-skill because approximately one-third of workers in the field have completed some college or an associate degree. 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 middle-skill cyber security occupations in the region. Furthermore, entry-level wages exceed the self-sufficiency standard wage in both Los Angeles and Orange counties, and the majority of annual openings for the occupations in this report typically require some college, but no degree. **Therefore, due to all the criteria being met, the LA COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, **3,923 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 1,805 awards conferred** by educational institutions in the region.
- **Living Wage Criteria** – Within Los Angeles County, **all five occupations have entry-level wages above the self-sufficiency standard hourly wage** (\$18.10/hour).⁷
- **Educational Criteria** – Within the greater LA/OC region, **52% of the annual job openings** for occupations related to cyber security **typically require some college, but no degree.**

⁵ [Network and Computer Systems Administrators : 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>.

- Furthermore, the national-level educational attainment data indicates **between 32% and 51%** of workers in the field have **completed some college/associate degree or less education**.

Supply:

- There are **27 community colleges** in the greater LA/OC region that issue awards related to cyber security, conferring an average of **952 awards annually** between 2018 and 2021.
- Between 2017 and 2020, there was an average of **852 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 middle-skill cyber security occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 4% through 2026. There will be more than 3,900 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 | 35,092 | 36,473 | 1,381 | 4% | 2,746 |
| Orange | 14,691 | 15,409 | 718 | 5% | 1,177 |
| Total | 49,783 | 51,882 | 2,099 | 4% | 3,923 |

Wages

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill cyber security 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 occupations 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 \$21.92 and \$45.78. Experienced workers can expect to earn wages between \$38.48 and \$73.57, which are higher than the self-sufficiency standard.

Exhibit 2: Hourly Earnings for Occupations in LA County

| Occupation | Entry-Level Hourly Earnings (25th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75th Percentile) |
|---|---|---------------------------------------|---|
| Information Security Analysts (15-1212) | \$45.78 | \$57.89 | \$67.07 |
| Computer Network Support Specialists (15-1231) | \$25.12 | \$31.15 | \$40.05 |
| Computer User Support Specialists (15-1232) | \$21.92 | \$29.09 | \$38.48 |
| Computer Network Architects (15-1241) | \$38.24 | \$54.14 | \$73.57 |
| Network and Computer Systems Administrators (15-1244) | \$34.69 | \$45.22 | \$57.46 |

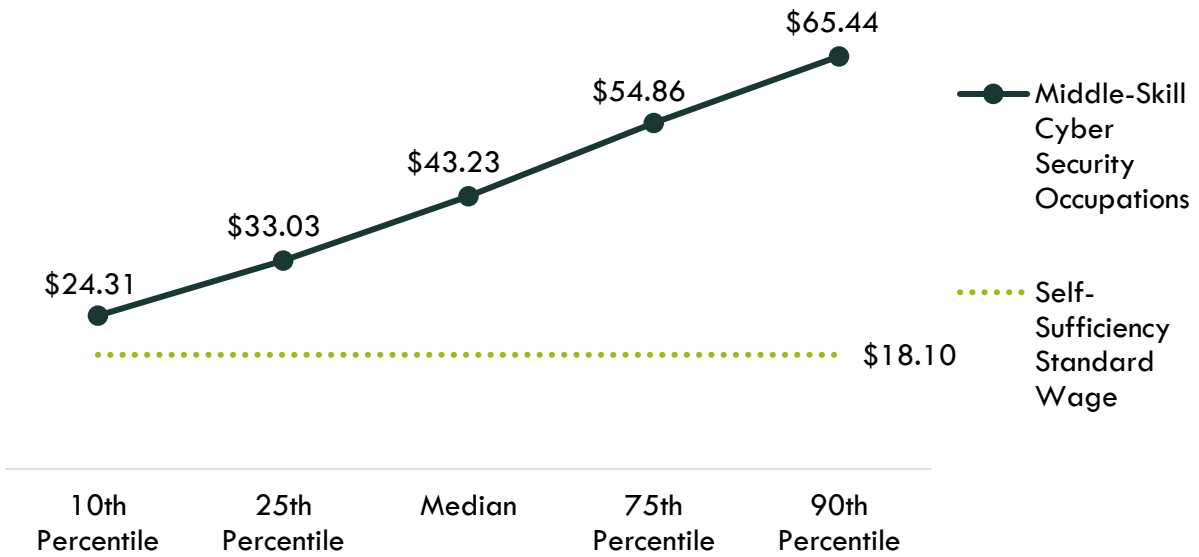
Orange County— All five occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$22.00 and \$44.48. Experienced workers can expect to earn wages between \$37.45 and \$71.14, which are higher than the self-sufficiency standard.

Exhibit 3: Hourly Earnings for Occupations in Orange County

| Occupation | Entry-Level Hourly Earnings (25th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75th Percentile) |
|---|---|---------------------------------------|---|
| Information Security Analysts (15-1212) | \$44.48 | \$56.23 | \$65.23 |
| Computer Network Support Specialists (15-1231) | \$25.16 | \$30.79 | \$39.02 |
| Computer User Support Specialists (15-1232) | \$22.00 | \$28.69 | \$37.45 |
| Computer Network Architects (15-1241) | \$37.50 | \$52.69 | \$71.14 |
| Network and Computer Systems Administrators (15-1244) | \$34.66 | \$44.79 | \$56.52 |

On average, the entry-level earnings for the occupations in this report are \$33.03; 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.

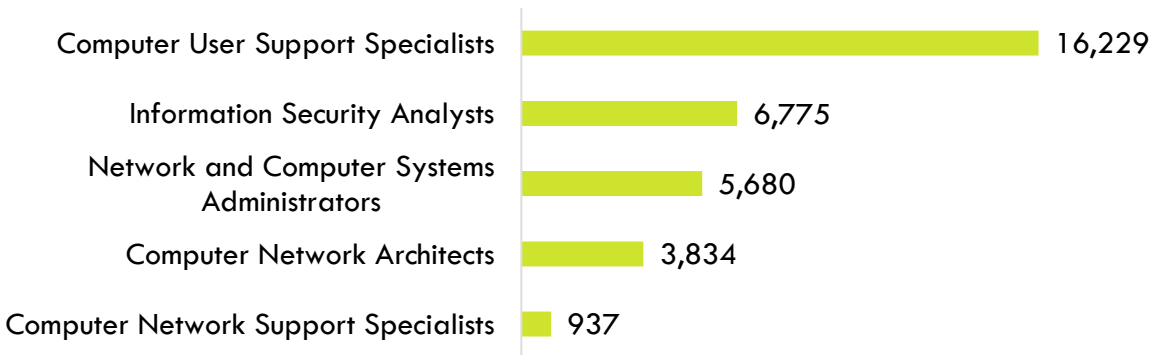
Exhibit 4: Average Hourly Earnings for Middle-Skill Cyber Security Occupations in LA/OC



Job Postings

There were 33,455 online job postings related to cyber security listed in the past 12 months. The majority of job postings (49%) were for *computer user support specialists*, followed by *information security analysts* (20%) and *network and computer systems administrators* (17%). The highest number of job postings were for network engineers, systems administrators, IT support specialists, desktop support technicians, and help desk technicians. The top skills were computer science, help desk support, operating systems, technical support, and cyber security. The top three employers, by number of job postings, in the region were Robert Half, Northrop Grumman, and Boeing.

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



Educational Attainment

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

- **Bachelor’s degree:** *Information security analysts; computer network architects; network and computer systems administrators*

- **Associate degree:** *Computer network support specialists*
- **Some college, no degree:** *Computer user support specialists*

In the greater LA/OC region, the majority of annual job openings (52%) typically require some college, but no degree. Furthermore, the national-level educational attainment data indicates between 32% and 51% of workers in the field have completed some college/associate degree or less education. Of the 58% of cyber security job postings listing a minimum education requirement in the greater Los Angeles/Orange County region, 22% (4,297) requested high school or vocational training, 12% (2,343) requested an associate degree, and 66% (12,748) 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 Long Beach, Mt. San Antonio, and Coastline.

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 |
|--------------------------------|---------------------------------|--------------------|----------------|----------------|----------------|----------------|
| 0701.00 | Information Technology, General | East LA | 23 | 10 | 4 | 12 |
| | | Glendale | - | - | 3 | 1 |
| | | LA Harbor | - | - | 1 | 0 |
| | | LA Mission | 1 | 3 | 1 | 2 |
| | | LA Southwest | - | - | 2 | 1 |
| | | Long Beach | 34 | 64 | 106 | 68 |
| | | Mt San Antonio | 74 | 90 | 49 | 71 |
| | | Santa Monica | 39 | - | 1 | 13 |
| | | West LA | 4 | 5 | - | 3 |
| | | LA Subtotal | 175 | 172 | 167 | 171 |
| | | Santa Ana | - | - | 3 | 1 |
| | | OC Subtotal | - | - | 3 | 1 |
| Supply Subtotal/Average | | | 175 | 172 | 170 | 172 |
| 0702.00 | Computer Information Systems | Citrus | 5 | 8 | 4 | 6 |
| | | Compton | 1 | - | - | 0 |
| | | East LA | 19 | 15 | 23 | 19 |
| | | El Camino | 14 | 21 | 11 | 15 |
| | | Glendale | - | 5 | 6 | 4 |
| | | LA City | 1 | 1 | 4 | 2 |
| | | LA Mission | 5 | 1 | 1 | 2 |

| TOP | Program | College | 2018-19 Awards | 2019-20 Awards | 2020-21 Awards | 3-Year Average |
|---------|-------------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| | | LA Trade-Tech | 8 | 20 | 15 | 14 |
| | | Long Beach | - | - | 3 | 1 |
| | | Mt San Antonio | - | 79 | 6 | 28 |
| | | Rio Hondo | 21 | 10 | 6 | 12 |
| | | West LA | 8 | 10 | 9 | 9 |
| | | LA Subtotal | 82 | 170 | 88 | 113 |
| | | Cypress | 5 | 4 | - | 3 |
| | | Fullerton | 15 | 11 | 31 | 19 |
| | | Irvine | - | 2 | - | 1 |
| | | Orange Coast | 4 | 2 | - | 2 |
| | | Saddleback | - | - | 1 | 0 |
| | | Santa Ana | 4 | 2 | 16 | 7 |
| | | Santiago Canyon | 3 | 4 | 1 | 3 |
| | | OC Subtotal | 31 | 25 | 49 | 35 |
| | | Supply Subtotal/Average | 113 | 195 | 137 | 148 |
| 0707.30 | Computer Systems Analysis | Cerritos | 2 | 3 | - | 2 |
| | | East LA | - | 1 | - | 0 |
| | | LA City | - | - | 1 | 0 |
| | | LA Harbor | - | - | 1 | 0 |
| | | LA Mission | - | 1 | 1 | 1 |
| | | LA Pierce | - | - | 6 | 2 |
| | | LA Subtotal | 2 | 5 | 9 | 5 |
| | | Cypress | 2 | - | - | 1 |
| | | OC Subtotal | 2 | - | - | 1 |
| | | Supply Subtotal/Average | 4 | 5 | 9 | 6 |
| 0708.00 | Computer Infrastructure and Support | Cerritos | - | 4 | 4 | 3 |
| | | Glendale | - | 3 | 4 | 2 |
| | | LA City | - | 3 | 5 | 3 |
| | | LA Harbor | 1 | 1 | 1 | 1 |
| | | LA Mission | 2 | 12 | 17 | 10 |
| | | LA Valley | 5 | 2 | 4 | 4 |
| | | Long Beach | 3 | 8 | 8 | 6 |
| | | Mt San Antonio | 24 | 24 | 24 | 24 |
| | | Pasadena | 1 | 1 | 24 | 9 |
| | | Rio Hondo | - | 10 | 11 | 7 |

| TOP | Program | College | 2018-19 Awards | 2019-20 Awards | 2020-21 Awards | 3-Year Average |
|---------|---------------------|--------------------------------|----------------|--------------------------------|----------------|----------------|
| | | West LA | 4 | 15 | 16 | 12 |
| | | LA Subtotal | 40 | 83 | 118 | 80 |
| | | Coastline | 49 | 46 | 73 | 56 |
| | | Cypress | 2 | 3 | 1 | 2 |
| | | Orange Coast | - | 7 | 5 | 4 |
| | | Saddleback | - | - | 3 | 1 |
| | | Santa Ana | - | - | 27 | 9 |
| | | OC Subtotal | 51 | 56 | 109 | 72 |
| | | Supply Subtotal/Average | 91 | 139 | 227 | 152 |
| 0708.10 | Computer Networking | Cerritos | 11 | 9 | 8 | 9 |
| | | Glendale | 3 | 3 | - | 2 |
| | | LA City | 23 | - | 4 | 9 |
| | | LA Pierce | 39 | 20 | 12 | 24 |
| | | Long Beach | 55 | 47 | 48 | 50 |
| | | Mt San Antonio | 8 | 11 | 4 | 8 |
| | | Rio Hondo | 5 | 7 | 2 | 5 |
| | | West LA | 77 | 48 | 58 | 61 |
| | | LA Subtotal | 221 | 145 | 136 | 167 |
| | | Coastline | 38 | 59 | 92 | 63 |
| | | Cypress | 70 | 95 | 61 | 75 |
| | | Fullerton | - | - | 1 | 0 |
| | | Irvine | 11 | 21 | 10 | 14 |
| | | Saddleback | 10 | 21 | 19 | 17 |
| | | Santa Ana | 14 | 12 | 23 | 16 |
| | | OC Subtotal | 143 | 208 | 206 | 186 |
| | | | | Supply Subtotal/Average | 364 | 353 |
| 0708.20 | Computer Support | Citrus | - | 1 | 1 | 1 |
| | | Glendale | 10 | 7 | 2 | 6 |
| | | LA Pierce | 9 | 8 | 6 | 8 |
| | | LA Valley | - | - | 1 | 0 |
| | | Long Beach | 8 | 14 | 40 | 21 |
| | | Pasadena | 7 | 30 | 34 | 24 |
| | | LA Subtotal | 34 | 60 | 84 | 59 |
| | | Cypress | 3 | 5 | 3 | 4 |
| | | Santa Ana | 9 | - | - | 3 |

| TOP | Program | College | 2018-19 Awards | 2019-20 Awards | 2020-21 Awards | 3-Year Average |
|---------|-------------------------------|--------------------------------|----------------|----------------|----------------|----------------|
| | | OC Subtotal | 12 | 5 | 3 | 7 |
| | | Supply Subtotal/Average | 46 | 65 | 87 | 66 |
| 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 |
| | | Supply Total/Average | 843 | 971 | 1,043 | 952 |

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 middle-skill cyber security 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 852 awards.

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

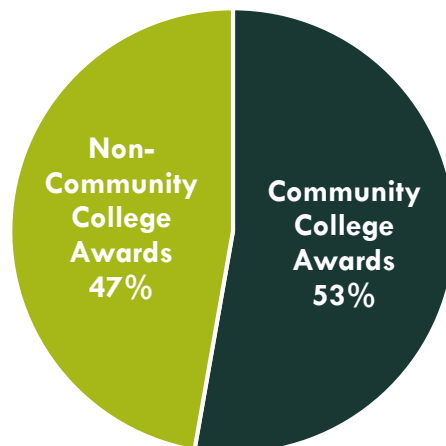
| CIP | Program | Institution | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average |
|---------|--|-------------------------------|----------------|----------------|----------------|----------------|
| 11.0101 | Computer and Information Sciences, General | Azusa Pacific University | 26 | 30 | 21 | 26 |
| | | Brand College | 2 | - | - | 1 |
| | | Brandman University | 20 | 20 | 30 | 23 |
| | | Chapman University | 12 | 13 | 18 | 14 |
| | | LA Pacific College | - | - | 6 | 2 |
| | | Loyola Marymount Univ. | 42 | 32 | 27 | 34 |
| | | Pacific States University | - | 2 | - | 1 |
| | | The Master's Univ. & Seminary | 6 | 7 | 11 | 8 |
| | | UC-Irvine | - | 1 | - | 0 |
| | | University of La Verne | 18 | 39 | 23 | 27 |
| | | University of the People | 100 | 80 | 203 | 128 |

| CIP | Program | Institution | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average |
|---------|--|-------------------------------|----------------|----------------|----------------|----------------|
| | | Vanguard Univ. of Southern CA | 1 | - | - | 0 |
| 11.0103 | Information Technology | Abraham Lincoln Univ. | 1 | 1 | - | 1 |
| | | Brand College | 37 | 50 | 13 | 33 |
| | | CA Intercontinental Univ. | - | - | 2 | 1 |
| | | CSU-Dominguez Hills | 1 | 5 | 4 | 3 |
| | | CSU-Los Angeles | 127 | 122 | 166 | 138 |
| | | CSU-Northridge | 54 | 54 | 29 | 46 |
| | | Platt College-Anaheim | 1 | 11 | 15 | 9 |
| | | Platt College-LA | - | 6 | 12 | 6 |
| | | Trident Univ. Int'l | 87 | 71 | - | 53 |
| | | University of La Verne | - | 3 | 2 | 2 |
| 11.0199 | Computer and Information Sciences, Other | Antioch University-LA | 47 | 4 | - | 17 |
| | | Brand College | - | 2 | - | 1 |
| | | CSU-Dominguez Hills | 59 | 55 | 65 | 60 |
| | | CSU-Northridge | 77 | 87 | 73 | 79 |
| 11.0201 | Computer Programming/ Programmer, General | ABCO Technology | 23 | 29 | 46 | 33 |
| | | Platt College-Anaheim | 4 | 4 | 4 | 4 |
| 11.0501 | Computer Systems Analysis/ Analyst | Brand College | 2 | - | - | 1 |
| 11.0901 | Computer Systems Networking and Telecommunications | Brand College | - | 2 | 2 | 1 |
| 11.1001 | Network and System Administration/ Administrator | ABCO Technology | 13 | 5 | 25 | 14 |
| | | Brand College | 6 | 23 | 9 | 13 |
| | | CA Intercontinental Univ. | 1 | 3 | 1 | 2 |
| 11.1002 | System, Networking, and LAN/WAN Management/ Manager | ABCO Technology | 7 | 9 | 19 | 12 |
| | | Brand College | - | - | 1 | 0 |
| 11.1003 | Computer and Information Systems Security/ Auditing/ Information Assurance | Learnet Academy | 17 | - | 5 | 7 |

| CIP | Program | Institution | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average |
|-----------------------------|---|---|----------------|----------------|----------------|----------------|
| 11.1004 | Web/ Multimedia Management and Webmaster | ABCO Technology | 17 | 24 | 37 | 26 |
| | | LA Pacific College | - | - | 1 | 0 |
| | | Pepperdine University | 2 | - | - | 1 |
| 11.1005 | Information Technology Project Management | CA Intercontinental Univ. | - | 1 | - | 0 |
| 11.1006 | Computer Support Specialist | Southern California Institute of Technology | 26 | 25 | 26 | 26 |
| 15.1202 | Computer/ Computer Systems Technology/ Technician | Learnet Academy | 1 | - | 4 | 2 |
| Supply Total/Average | | | 837 | 820 | 900 | 852 |

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. Just over half of the 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 (25th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75th Percentile) |
|---|------------------|------------------|--------------------|----------------------|------------------------|---|-------------------------------|---|
| Information Security Analysts (15-1212) | 2,602 | 2,943 | 341 | 13% | 264 | \$45.78 | \$57.89 | \$67.07 |
| Computer Network Support Specialists (15-1231) | 4,037 | 4,253 | 216 | 5% | 341 | \$25.12 | \$31.15 | \$40.05 |
| Computer User Support Specialists (15-1232) | 17,206 | 17,992 | 785 | 5% | 1,422 | \$21.92 | \$29.09 | \$38.48 |
| Computer Network Architects (15-1241) | 4,297 | 4,271 | (26) | (1%) | 254 | \$38.24 | \$54.14 | \$73.57 |
| Network and Computer Systems Administrators (15-1244) | 6,950 | 7,015 | 65 | 1% | 465 | \$34.69 | \$45.22 | \$57.46 |
| Total | 35,092 | 36,473 | 1,381 | 4% | 2,746 | - | - | - |

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) |
|---|------------------|------------------|--------------------|----------------------|------------------------|---|-------------------------------|---|
| Information Security Analysts (15-1212) | 1,161 | 1,336 | 174 | 15% | 123 | \$44.48 | \$56.23 | \$65.23 |
| Computer Network Support Specialists (15-1231) | 1,583 | 1,665 | 82 | 5% | 133 | \$25.16 | \$30.79 | \$39.02 |
| Computer User Support Specialists (15-1232) | 7,199 | 7,584 | 386 | 5% | 609 | \$22.00 | \$28.69 | \$37.45 |
| Computer Network Architects (15-1241) | 1,953 | 1,972 | 19 | 1% | 120 | \$37.50 | \$52.69 | \$71.14 |
| Network and Computer Systems Administrators (15-1244) | 2,794 | 2,852 | 58 | 2% | 192 | \$34.66 | \$44.79 | \$56.52 |
| Total | 14,691 | 15,409 | 718 | 5% | 1,177 | - | - | - |

Exhibit 11. Los Angeles and Orange Counties

| Occupation (SOC) | 2021 Jobs | 2026 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | Typical Entry-Level Education |
|---|------------------|------------------|--------------------|----------------------|------------------------|--------------------------------------|
| Information Security Analysts (15-1212) | 3,763 | 4,278 | 515 | 14% | 386 | Bachelor's degree |
| Computer Network Support Specialists (15-1231) | 5,620 | 5,918 | 298 | 5% | 474 | Associate degree |
| Computer User Support Specialists (15-1232) | 24,405 | 25,576 | 1,171 | 5% | 2,031 | Some college, no degree |
| Computer Network Architects (15-1241) | 6,251 | 6,244 | (7) | (0%) | 374 | Bachelor's degree |
| Network and Computer Systems Administrators (15-1244) | 9,744 | 9,866 | 123 | 1% | 658 | Bachelor's degree |
| Total | 49,783 | 51,882 | 2,099 | 4% | 3,923 | - |

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

