

CCCCO-Approved Baccalaureate Program for Regional Recommendation Brief: 0948.00/Automotive Technology (Automotive Manufacturer Technology)

Orange County Center of Excellence, April 2025 (original report Dec 2023)



Note: This report's regional quantitative data has been updated and the state analysis has been removed for Orange County's regional recommendation and the curriculum approval processes; the rest of the report is the same as was published in December 2023.

Summary

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to provide Los Angeles/Orange County and statewide labor market supply and demand data related to Santa Ana College's (SAC) proposed Automotive Manufacturer Technology Baccalaureate of Science Degree Program. The occupations included in this report were selected by SAC and are reflective of the occupational goals of the proposed program.

Unlike typical COE labor market analysis briefs used as part of the career education program recommendation process this report does not include the endorsement language nor corresponding endorsement table found in those briefs. Instead, this report focuses on regional supply and demand data for occupations that align with the proposed Automotive Manufacturer Technology Baccalaureate of Science Degree Program.

The labor market analysis included in this report focuses on the following occupations:

Middle-Skill

- Automotive Service Technicians and Mechanics (49-3023)

Above Middle-Skill – denoted with a caret (^) throughout this report.

- Training and Development Managers (11-3131)^
- Training and Development Specialists (13-1151)^

Middle-skill occupations typically require a community college education while above middle-skill occupations typically require at least a bachelor's degree.

The proposed Automotive Manufacturer Technology Baccalaureate of Science Degree Program is designed to build on SAC's existing Automotive Technology Associate of Science Degree, which prepares students for automotive mechanic positions at dealerships, repair shops, and other vehicle service establishments. The existing Automotive Technology Associate of Science Degree includes courses that prepare students for Automotive Service Excellence (ASE) Automobile & Light Truck Certification Tests (A Series).¹ The proposed Automotive Manufacturer Technology Baccalaureate of Science Degree Program includes these courses and expands on them with upper-division courses that prepare students for advanced ASE Certifications including:

- Advanced Engine Performance (L1)
- Electronic Diesel Engine Diagnosis (L2)
- Light Duty Hybrid/Electric Vehicle (L3)
- Advanced Driver Assistance Systems (L4)
- Parts Specialist (P1/2/3)
- Alternate Fuels (F1/H1)

These advanced certifications allow students to work for both an automotive dealership and an automotive manufacturer. Roles available for automotive manufacturers include field service engineers and other similar positions that involve working on hard-to-fix issues such as those related to warranties, recalls,

¹ <https://www.sac.edu/AcademicProgs/HST/Auto/Pages/Automotive-Courses.aspx>

product failures, and more. Additionally, the proposed Automotive Manufacturer Technology Baccalaureate of Science Degree Program includes leadership and management courses that will prepare students for roles such as training managers, technical training and education specialists, technical training education manager, and more. These positions involve attracting, retaining, and training talent for automotive manufacturers.

Summary Findings

Exhibit 1 shows the demand, supply, entry-level hourly wages, and percentage of incumbent workers that have completed a bachelor's degree as their highest level of education. Additional details regarding each column are included in Appendix B: Data Sources.

It is important to note that the educational programs that train for the above middle-skill occupations *training and development managers*[^] and *training and development specialists*[^] are general business programs that train for 25 other occupations not included in this report. The total supply for these occupations is lower than the total demand, suggesting there is a supply gap. However, the COE is unable to isolate supply solely for *training and development managers*[^] and *training and development specialists*[^]. **Therefore, the supply data for *training and development managers*[^] and *training and development specialists*[^] is overstated throughout this report.**

**Exhibit 1: Occupational Demand and Supply in
Los Angeles/Orange Counties**

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25 th Percentile)	Bachelor's Degree Educational Attainment ⁱ
Automotive Service Technicians and Mechanics (49-3023)	LA: 1,488 OC: 557 TTL: 2,045	LA: 1,290 OC: 409 TTL: 1,700	OC: \$19.56	4%
Middle-Skill Total	2,045	1,700	N/A	N/A
Training and Development Managers (11-3131) [^]	LA: 116 OC: 45 TTL: 161	LA: 8,224 OC: 3,969 TTL: 12,192	OC: \$48.06	35%
Training and Development Specialists (13-1151) [^]	LA: 1,026 OC: 410 TTL: 1,436	LA: 2 OC: 0 TTL: 2	OC: \$19.94	35%
Above Middle-Skill Total	1,597	12,194	N/A	N/A
Total	3,642	13,894	N/A	N/A

ⁱ Educational attainment is represented by the percentage of incumbent workers that have completed a bachelor's degree as their highest level of education. This data is currently only available at the national level.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for the three automotive manufacturer technology occupations from 2017 through 2027. Employment in these automotive manufacturer technology occupations declined 4% from 2019 to 2020 in Orange County, which is lower than the 7% decline across all occupations in Los Angeles and Orange counties due to the COVID-19 pandemic. Following a sharp increase in employment from 2020 to 2021 and another increase from 2021 to 2022, employment in these occupations is projected to slightly increase each year through 2028 in Orange County.

Exhibit 2: Annual Percent Change in Jobs for Automotive Manufacturer Technology Occupations, 2018-2028

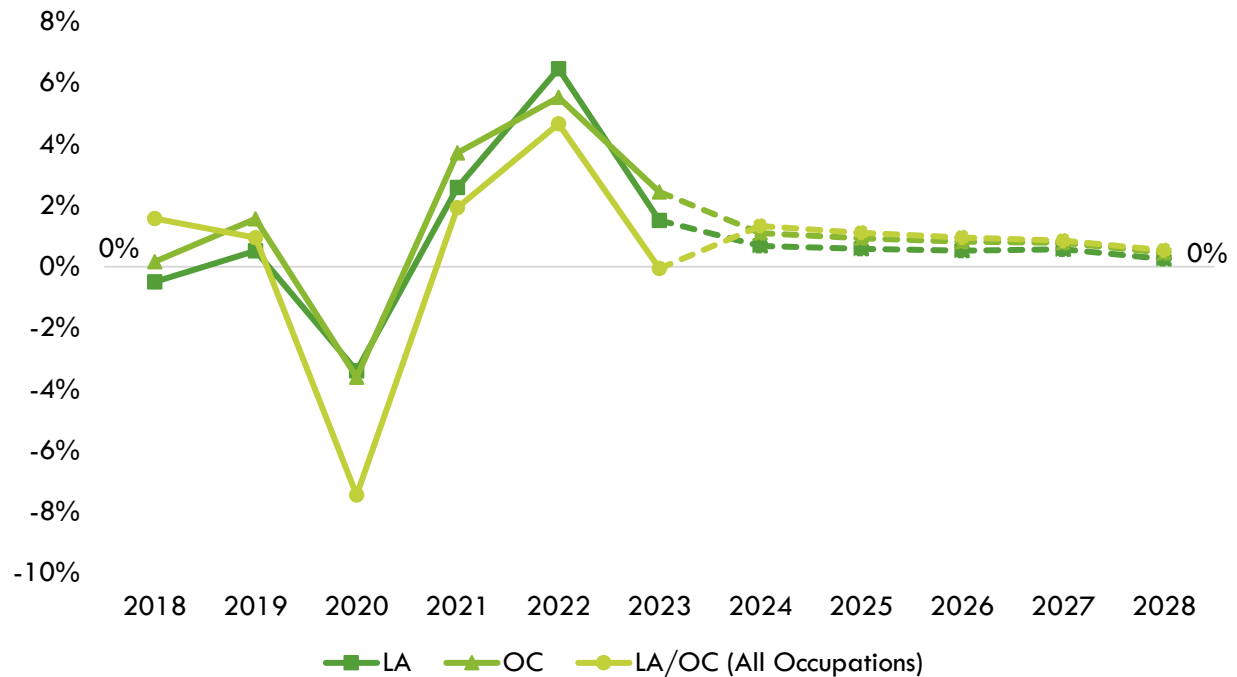


Exhibit 3 shows the five-year occupational demand projections for these automotive manufacturer technology occupations in Los Angeles/Orange County. The number of jobs related to these occupations is projected to increase 3% through 2028. There is projected to be 3,642 jobs available annually. Of those, 56% (2,045) are for *automotive service technicians and mechanics*.

Exhibit 3: Occupational Demand in Los Angeles and Orange Counties²

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
Los Angeles	28,323	29,067	744	3%	2,630
Orange	10,628	11,068	439	4%	1,012
Total	38,952	40,135	1,184	3%	3,642

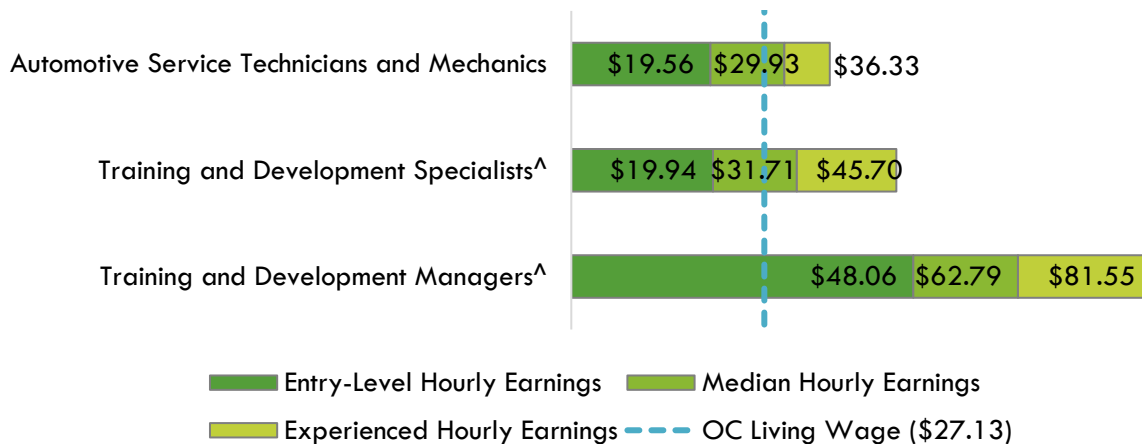
² Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Wages:

The labor market analysis in this report considers the entry-level hourly wages for these automotive manufacturer technology 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 region.

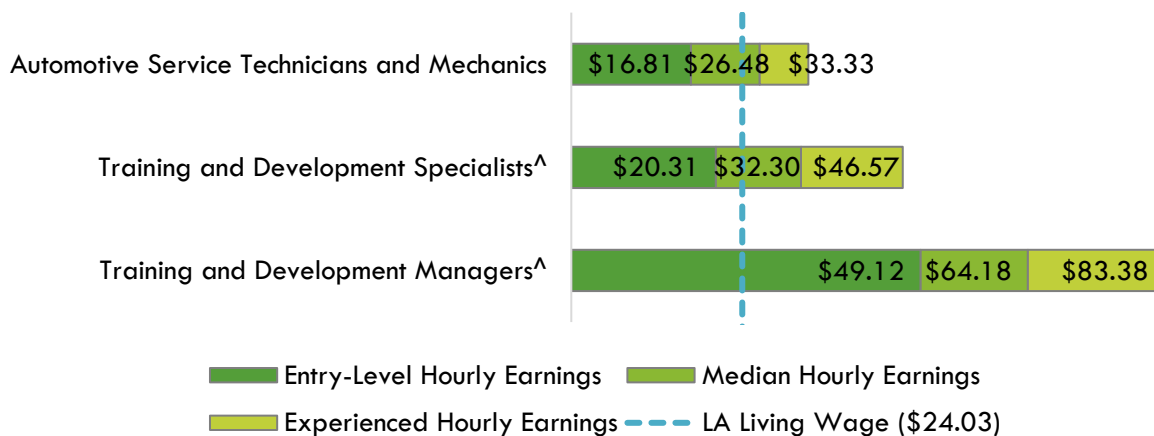
The majority (96%) of annual openings for these automotive manufacturer technology occupations have entry-level wages below the living wage for one adult (\$27.13 in Orange County). Typical entry-level hourly wages range from \$19.56 to \$48.06. Orange County's average wages (\$33.76) are below the average statewide wage of \$34.46 for these occupations. Exhibit 5 shows the wage range for each of these automotive manufacturer technology occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 5: Wages by Occupation in Orange County



The majority (96%) of annual openings for these automotive manufacturer technology occupations have entry-level wages below the living wage for one adult (\$24.03 in Los Angeles County). Typical entry-level hourly wages range from \$16.81 to \$49.12. Los Angeles County's average wages (\$32.36) are lower than the statewide wage of \$34.46 for these occupations. Exhibit 6 shows the wage range for each of these automotive manufacturer technology occupations in Los Angeles County how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 6: Wages by Occupation in Los Angeles County

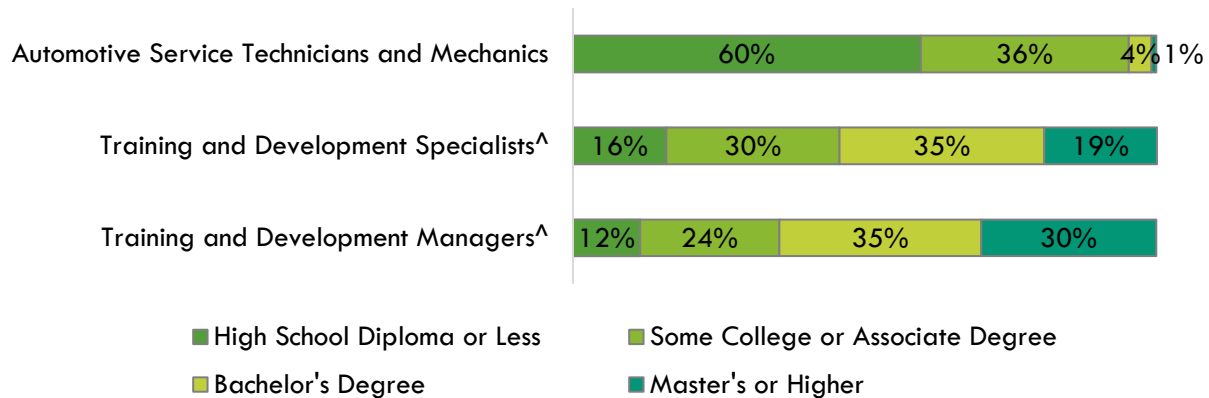


Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a postsecondary nondegree award as the typical entry-level education for *automotive service technicians and mechanics* and a bachelor's degree for *training and development managers*[^] as well as *training and development specialists*[^].

The national-level educational attainment data indicates only 4% of *automotive service technicians and mechanics* have completed a bachelor's degree as their highest level of education. Approximately 35% of *training and development specialists*[^] and 35% of *training and development managers* have completed a bachelor's degree as their highest level of education. Exhibit 14 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Exhibit 14: National-level Educational Attainment for Occupations



Educational Supply

The following sections analyze the supply from community college and non-community college institutions for these automotive manufacturer technology occupations throughout the region.

It is important to note that the educational programs that train for the two above middle-skill occupations in this report also train for 25 other occupations not included in this report. In Los Angeles and Orange counties, these other occupations account for over 49,000 annual openings; educational institutions throughout the region conferred an annual average of approximately 17,306 awards related to these occupations.

Therefore, there is likely a supply gap for *training and development managers*[^] and *training and development specialists*[^]. However, the COE is unable to quantify the supply specifically for these occupations due to the nature of general business administration and management programs, which train for a wide breadth of occupations not included in this report.

Community College Supply:

Los Angeles and Orange Counties

Exhibit 16 shows the three-year average number of awards conferred by community colleges in the related TOP codes:

- Business Management (0506.00)
- Educational Technology (0860.00)
- Diesel Technology (0947.00)
- Automotive Technology (0948.00)
- Alternative Fuels and Advanced Transportation Technology (0948.40)

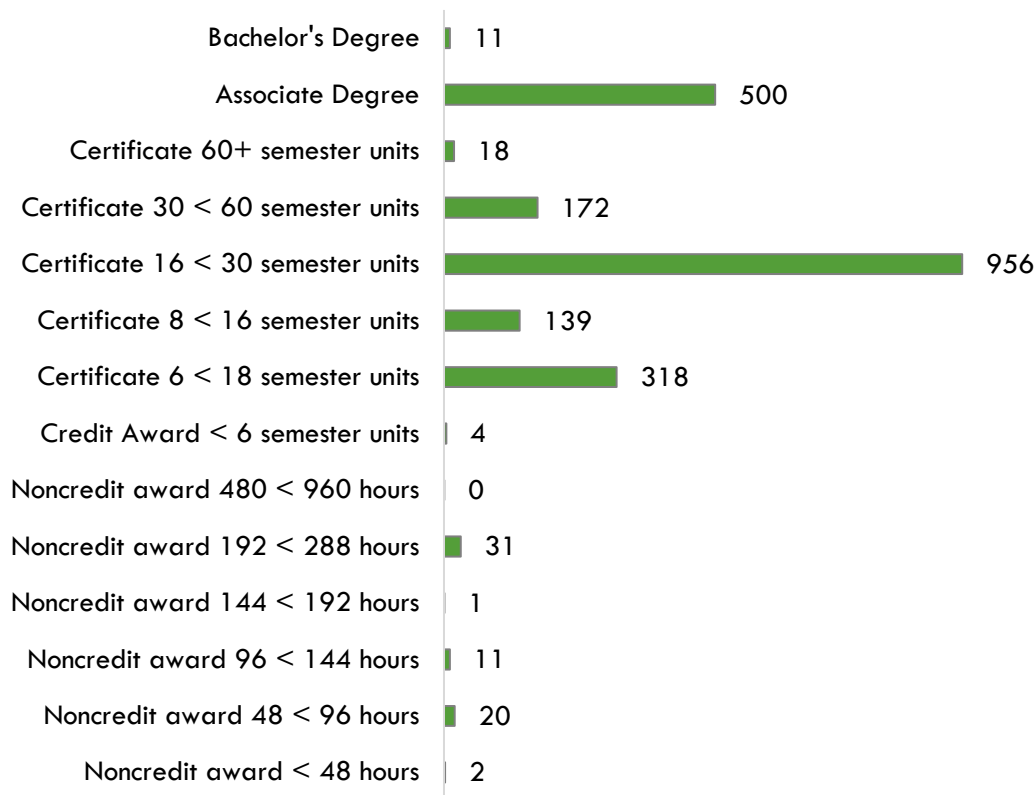
**Exhibit 16: Regional Community College Awards (Certificates and Degrees),
2020-2023**

TOP Code	Program	College	2020- 2023 Awards	2021- 2022 Awards	2022- 2023 Awards	3-Year Award Average
0506.00	Business Management	Cerritos	387	276	469	377
		Compton	0	0	1	0
		East LA	17	18	18	18
		El Camino	49	22	40	37
		Glendale	15	28	22	22
		LA City	18	16	40	25
		LA Mission	4	6	3	4
		LA Pierce	7	14	9	10
		LA Valley	30	39	34	34
		Long Beach	44	28	26	33
		Mt San Antonio	150	188	158	165
		Pasadena	0	0	2	1
		LA Subtotal	721	635	822	726
		Coastline	307	33	40	127
		Cypress	7	1	5	4
		Fullerton	11	19	20	17
		Golden West	11	13	10	11
		Irvine	5	23	20	16
		North Orange Adult	19	32	27	26
		Orange Coast	19	16	2	12
		Santa Ana	40	39	62	47
		Santiago Canyon	55	25	173	84
		OC Subtotal	474	201	359	345
Supply Subtotal/Average			1,195	836	1,181	1,071
0860.00	Educational Technology	Cerritos	2	2	1	2
		LA Subtotal	2	2	1	2
		-	-	-	-	-
		OC Subtotal	-	-	-	-
Supply Subtotal/Average			2	2	1	2
0947.00	Diesel Technology	Citrus	43	30	51	41
		LA Trade	20	41	31	31
		LA Subtotal	63	71	82	72
		Santa Ana	10	0	14	8
		OC Subtotal	10	0	14	8
Supply Subtotal/Average			73	71	96	80
0948.00	Automotive Technology	Cerritos	22	45	75	47
		Citrus	10	35	100	48
		Compton	1	24	58	28
		East LA	18	43	52	38

TOP Code	Program	College	2020- 2023 Awards	2021- 2022 Awards	2022- 2023 Awards	3-Year Award Average
		El Camino	35	35	43	38
		LA Pierce	44	49	82	58
		LA Trade	81	108	142	110
		Long Beach	42	66	94	67
		Pasadena	36	166	84	95
		Rio Hondo	55	92	80	76
		LA Subtotal	344	663	810	606
		Cypress	140	219	200	186
		Fullerton	25	26	42	31
		Golden West	21	69	111	67
		Saddleback	15	26	35	25
		Santa Ana	57	52	76	62
		OC Subtotal	258	392	464	371
		Supply Subtotal/Average			602	1,055
0948.40	Alternative Fuels and Advanced Transportation Technology	LA Trade	3	6	18	9
		Long Beach	15	9	7	10
		Rio Hondo	30	44	20	31
		LA Subtotal	48	59	45	51
		Saddleback	2	6	4	4
		OC Subtotal	2	6	4	4
Supply Subtotal/Average			50	65	49	55
Supply Subtotal/Average			1,922	2,029	2,601	2,184

Exhibit 17 shows the annual average community college awards by type from 2020-21 through 2022-23. The highest number of awards are for certificates between 16 and less than 30 semester units, followed by associate degrees. Notably, there was an annual average of 11 bachelor's degrees conferred by Rio Hondo College for Automotive Technology (0948.00).

Exhibit 17: Annual Average Community College Awards by Type in Los Angeles and Orange Counties, 2020-2023



Non-Community College Supply:

The following sections include supply data for non-community institutions that conferred awards in the related Classification of Instructional Programs (CIP) codes:

- Automotive Engineering Technology/Technician (15.0803)
- Automobile/Automotive Mechanics Technology/Technician (47.0604)
- Vehicle Emissions Inspection and Maintenance Technology/Technician (47.0612)
- Business Administration and Management, General (52.0201)

No awards were conferred under the following related CIP code:

- Educational/Instructional Technology (13.0501)

For the purposes of this report, non-community college supply does not include master's or doctoral degrees because it is not possible to determine if these programs are creating new supply or upskilling existing automotive technology workers through additional education. However, it is important to note that there were 3,891 advanced degrees conferred by non-community college institutions in Los Angeles and Orange counties.

Los Angeles and Orange Counties

Exhibit 21 shows the annual and three-year average number of awards conferred by non-community college institutions in the related Classification of Instructional Programs (CIP) codes in Los Angeles and Orange counties. Due to different data collection periods, the most recent period of available data is from 2019 to 2022. Between 2019 and 2022, non-community college institutions throughout the region conferred an average of 11,710 awards annually in related training programs.

Exhibit 21: Regional Non-Community College Awards, 2019-2022

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
15.0803	Automotive Engineering Technology / Technician	Art Center College of Design	38	47	34	40
		Hacienda La Puente Adult Education	25	31	22	26
Supply Subtotal/Average			63	78	56	66
47.0604	Automobile / Automotive Mechanics Technology / Technician	Baldwin Park Adult & Community Education	10	3	4	6
		UEI College- Garden Grove	0	7	64	24
		UEI College- Gardena	127	73	91	97
		UEI College- West Covina	98	78	102	93
		Universal Technical Institute- Southern California	306	206	391	301
Supply Subtotal/Average			541	367	652	520
47.0612	Vehicle Emissions Inspection and Maintenance Technology / Technician	California Career School	7	0	0	2
Supply Subtotal/Average			7	0	0	2
52.0201	Business Administration and Management, General	Abraham Lincoln University	0	1	1	1
		American Jewish University	3	5	1	3
		Angeles College	6	10	16	11

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		Azusa Pacific University	106	100	82	96
		Bethesda University	26	28	14	23
		Biola University	136	120	106	121
		California Intercontinental University	4	5	12	7
		California State Polytechnic University-Pomona	1,399	1,644	1,561	1,535
		California State University-Dominguez Hills	571	619	588	593
		California State University-Fullerton	2,293	2,367	2,164	2,275
		California State University-Long Beach	1,351	1,457	1,491	1,433
		California State University-Los Angeles	1,125	864	726	905
		California State University-Northridge	691	760	769	740
		Chapman University	440	452	453	448
		Concordia University-Irvine	87	76	64	76
		Fremont University	1	6	0	2
		Haven University	0	0	0	0
		Hope International University	57	35	39	44

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		InterCoast Colleges- Santa Ana	18	0	0	6
		InterCoast Colleges- West Covina	0	1	2	1
		Learnet Academy Inc	3	10	6	6
		Life Pacific University	15	17	19	17
		Los Angeles Pacific College	7	3	1	4
		Los Angeles Pacific University	0	4	14	6
		Loyola Marymount University	29	52	41	41
		Marymount California University	59	42	45	49
		Mount Saint Mary's University	48	33	21	34
		Pacific College	0	0	0	0
		Pacific Oaks College	7	1	0	3
		Pacific States University	1	1	4	2
		Pathways College	0	2	0	1
		Pepperdine University	185	176	218	193
		Platt College- Anaheim	14	9	5	9
		Platt College- Los Angeles	11	4	6	7
		Presbyterian Theological Seminary in America	0	0	0	0
		The Master's University and Seminary	45	40	43	43

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		University of Antelope Valley	26	18	18	21
		University of California- Irvine	306	379	340	342
		University of La Verne	294	296	219	270
		University of Massachusetts Global	155	268	303	242
		University of Southern California	1,020	1,035	832	962
		University of the People	205	283	467	318
		University of the West	7	11	9	9
		Vanguard University of Southern California	51	66	50	56
		Westcliff University	71	107	114	97
		Whittier College	61	62	39	54
		Woodbury University	21	30	8	20
Supply Subtotal/Average			10,955	11,499	10,911	11,122
Supply Total/Average			11,566	11,944	11,619	11,710

Appendix A: Methodology

The OC COE prepared this report by analyzing data from occupations and education programs. Occupational data is derived from Lightcast, a labor market analytics firm that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS) and other government agencies. Program supply data is drawn from two systems: Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

The OC COE determined labor market supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a “supply table” with this information, which is the source of the program supply data for this report. TOP code data comes from the California Community Colleges Chancellor’s Office MIS Data Mart (datamart.cccco.edu) and CIP code data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS. 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 in the United States and Canada. Institutions outside of the California Community College system do not use TOP codes in their reporting systems.

Data included in this analysis represents the labor market demand for relevant positions most closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges.

All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor’s Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

Appendix B: Data Sources

Data Type	Source
Occupational Projections and Wages	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/
Living Wage	“Living Wage” measures the income necessary for an individual or family to afford basic expenses by assessing the costs such as housing, food, child care, health care, transportation, and taxes. Per the CCCCCO'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 (\$56,451 annually) in Orange County. For more information, see: http://www.selfsufficiencystandard.org/California
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The O*NET database includes information on skills, abilities, knowledge, work activities, and interests associated with occupations. For more information, see https://www.onetonline.org/help/online/
Educational Supply	The CCCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions

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