

Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met <input type="checkbox"/>	Endorsed: Some LMI Criteria Met <input checked="" type="checkbox"/>	Not LMI Endorsed <input type="checkbox"/>
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Program LMI Endorsement Criteria

	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Supply Gap:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<i>Comments:</i> There is projected to be 1,606 annual job openings throughout Los Angeles and Orange counties for these middle-skill technical theater occupations, which is less than the 1,669 awards conferred by educational institutions . However, the oversupply is within the COE's margin (25% over or under the number of annual job openings) to be considered "supply met" rather than a "supply gap".	
Living Wage: (Entry-Level, 25 th)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments:</i> The majority (74%) of annual job openings for these middle-skill technical theater occupations have entry-level hourly wages above the OC living wage of \$20.63.	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments:</i> The majority (53%) of annual job openings in the Los Angeles and Orange counties for these middle-skill technical theater occupations typically require a postsecondary nondegree award. Additionally, between 38% and 45% of workers in the field have completed some college or an associate degree as their highest level of education.	

Emerging Occupation(s)

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<i>Comments:</i> N/A	

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/Orange County regional labor market related to the following five technical theater occupations:

- Middle-Skill
 - Sound Engineering Technicians (27-4014)
 - Lighting Technicians (27-4015)
 - Costume Attendants (39-3092)
 - Makeup Artists, Theatrical and Performance (39-5091)
- Above Middle-Skill – denoted with an asterisk (*) throughout this report.
 - Set and Exhibit Designers (27-1027)*

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

Based on the available data, there appears to be a slight oversupply for middle-skill technical theater occupations in the region. However, the oversupply is within the COE’s margin (25% over or under the number of annual job openings) to be considered “supply met” rather than a “supply gap.” Additionally, typical education requirements for these middle-skill technical theater occupations align with a community college education, and the majority of annual openings for these occupations have entry-level wages above the living wage. **Therefore, due to some of the regional labor market criteria being met, the COE endorses this proposed program.**

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the five technical theater 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 (25 th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Sound Engineering Technicians (27-4014)	LA: 526	LA: 730	OC: \$20.04	Postsecondary nondegree award	38%
	OC: 41	OC: 86			
	TTL: 567	TTL: 816			
Lighting Technicians (27-4015)	LA: 302	LA: 459	OC: \$24.08	High school diploma or equivalent	38%
	OC: 34	OC: 279			
	TTL: 336	TTL: 738			
Costume Attendants (39-3092)	LA: 370	<i>Accounted for Below</i>	OC: \$20.76	High school diploma or equivalent	36%
	OC: 51				
	TTL: 421				
Makeup Artists, Theatrical and Performance (39-5091)	LA: 252	LA: 115	OC: \$41.35	Postsecondary nondegree award	45%
	OC: 30	OC: 0			
	TTL: 282	TTL: 115			
Middle-Skill Total	1,606	1,669	N/A	N/A	N/A
Set and Exhibit Designers (27-1027)*	LA: 322	LA: 408	OC: \$20.06	Bachelor’s degree	29%
	OC: 63	OC: 50			
	TTL: 385	TTL: 458			
Above Middle-Skill Total	385	458	N/A	N/A	N/A
Total	1,991	2,127	N/A	N/A	N/A

*Denotes an above middle-skill occupation

Demand:

- The number of jobs related to these middle-skill technical theater occupations are projected to increase 9% through 2027. There is projected to be 1,606 annual job openings.
- Hourly entry-level wages for these middle-skill technical theater occupations range from \$20.04 to \$41.35 in Orange County; 74% of annual openings have entry-level wages above the living wage of \$20.63.
- There were 550 online job postings for these middle-skill technical theater occupations over the past 12 months. The highest number of postings were for makeup artists, broadcast engineers, lighting technicians, sound designers, audio engineers, theater technicians, and sound mixers.
- The typical entry-level education for these middle-skill technical theater occupations ranges from a high school diploma or equivalent to a postsecondary nondegree award.
- Between 38% and 45% of workers in these middle-skill occupations have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 1,012 awards conferred by 22 community colleges in Los Angeles and Orange Counties from 2019 to 2022. Of those, 92% (933) were for these middle-skill technical theater occupations.
- Non-community college institutions conferred an average of 1,115 awards from 2019 to 2021. Of those, 66% (738) were for these middle-skill technical theater occupations.
- Orange County community college students that exited technical theater programs in the 2020-2021 academic year had a median annual wage of \$27,520 after exiting the program and 25% attained the living wage.
- Throughout Orange County, 83% of technical theater students that exited their program in 2019-2020 reported that they are working in a job closely related to their field of study.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for all five of the technical theater occupations researched in this report from 2017 through 2027. Employment in these technical theater occupations declined 24% from 2019 to 2020 in Orange County, which is significantly higher than the 7% decline across all occupations due to the COVID-19 pandemic. However, there was a notable 41% increase in employment for these technical theater occupations in Orange County between 2021 and 2022. Employment in these occupations is projected to grow at a similar rate when compared to all occupations through 2027.

Exhibit 2: Annual Percent Change in Jobs for Technical Theater Occupations, 2017-2027

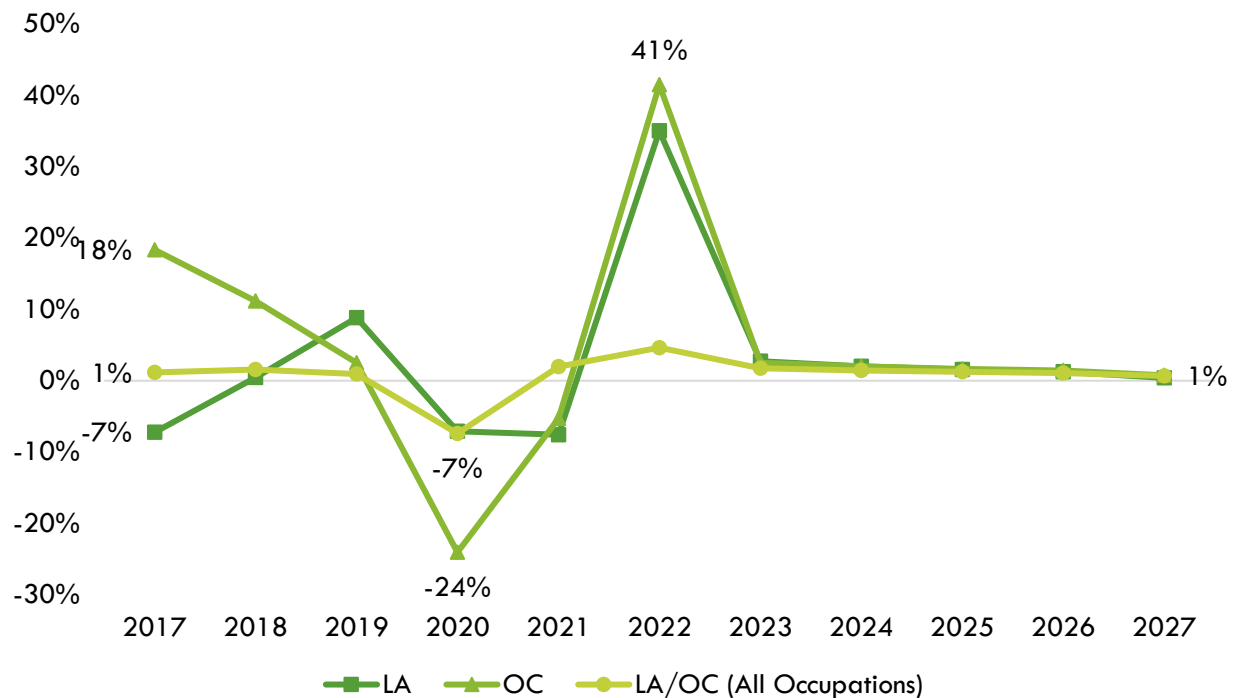


Exhibit 3 shows the five-year occupational demand projections for these middle-skill technical theater occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 9% through 2027. There is projected to be 1,606 jobs available annually. Of those, 90% (1,450) are projected to be in Los Angeles County.

Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties¹

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	9,722	10,614	892	9%	1,450
Orange	942	1,052	110	12%	156
Total	10,664	11,666	1,002	9%	1,606

¹ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Exhibit 4 shows the five-year occupational demand projections for the above middle-skill occupation, set and exhibit designers. In Los Angeles/Orange County, the number of jobs for set and exhibit designers is projected to increase by 5% through 2027. There is projected to be 385 jobs available annually. Of those, 84% (322) are projected to be in Los Angeles County.

Exhibit 4: Above Middle-Skill Occupational Demand in Los Angeles and Orange Counties

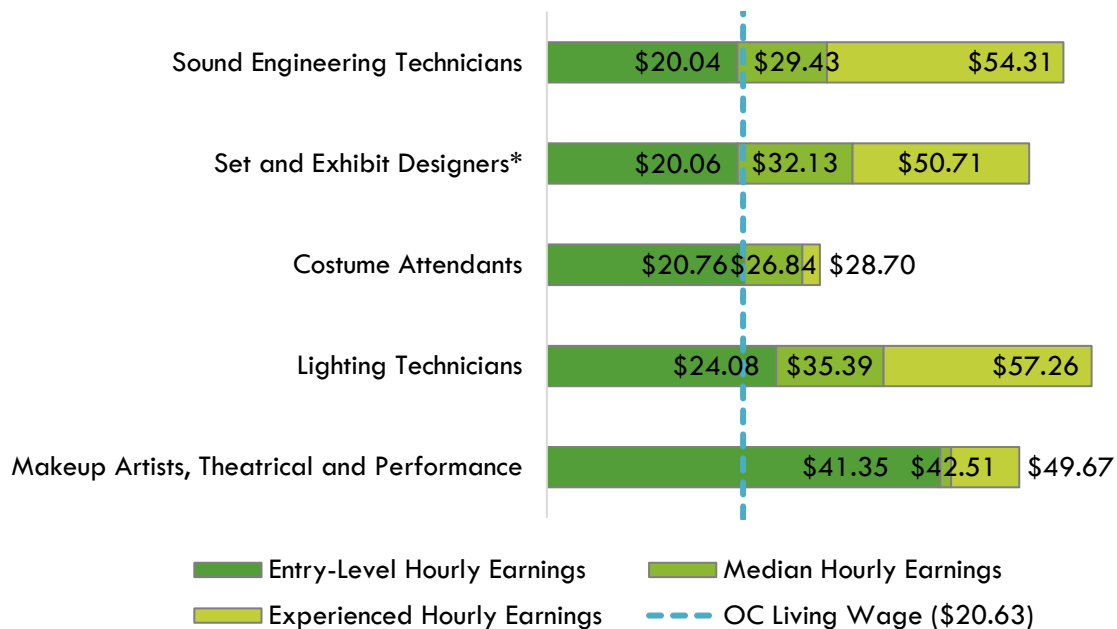
Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	2,974	3,125	151	5%	322
Orange	588	611	23	4%	63
Total	3,562	3,736	174	5%	385

Wages:

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

The majority (74%) of annual openings for these middle-skill technical theater occupations have entry-level wages above the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages for these middle-skill technical theater occupations range from \$20.04 to \$41.35. Orange County’s average wage (\$42.79) is below the average statewide wage of \$45.93 for these middle-skill occupations. Exhibit 5 shows the wage range for each of these occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

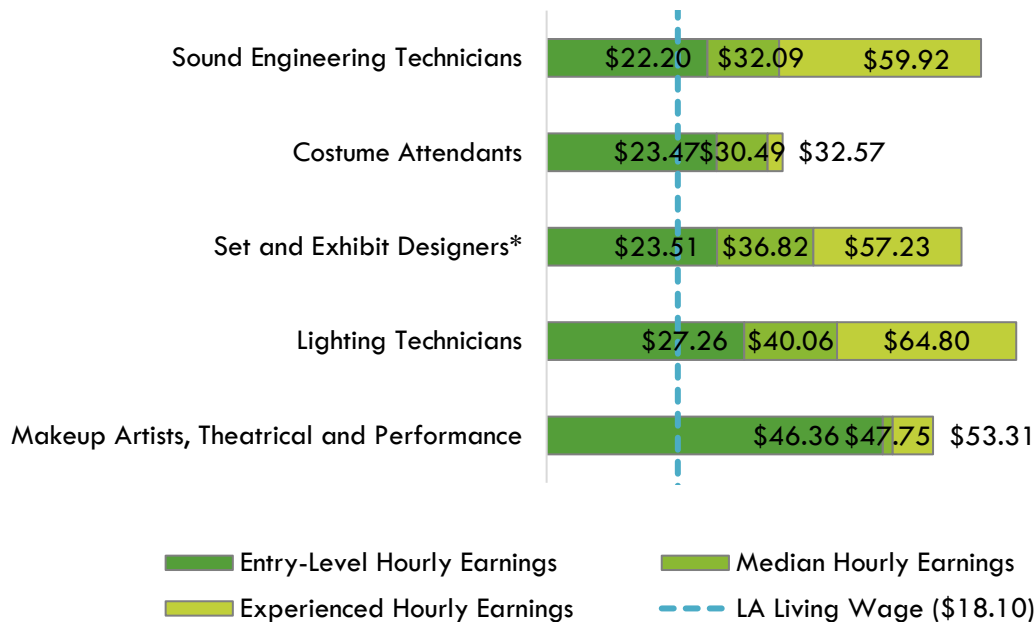
Exhibit 5: Wages by Occupation in Orange County



*Denotes an above middle-skill occupation

All annual openings for these middle-skill technical theater occupations have entry-level wages above the living wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages for these middle-skill technical theater occupations range from \$22.20 to \$46.36. Los Angeles County’s average wage (\$46.54) is above the average statewide wage of \$45.93 for these middle-skill occupations. Exhibit 6 shows the wage range for each of these occupations in Los Angeles County and 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



*Denotes an above middle-skill occupation

Job Postings:

Important Online Job Postings Data Note: Online job postings data is sourced from Lightcast, a labor market analytics firm that scrapes, collects, and organizes data from online job boards such as LinkedIn, Indeed, Glassdoor, Monster, GovernmentJobs.com, and thousands more. Lightcast uses natural language processing (NLP) to determine the related company, industry, occupation, and other information for each job posting. However, NLP has limitations that include understanding contextual words or phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.² For these reasons, job postings could be assigned to the wrong employer, industry, or occupation within Lightcast’s database.

Additionally, there are several limitations when analyzing job postings. A single job posting may not represent a single job opening, as employers may be creating a pool of candidates for future openings or hiring for multiple positions with a single posting. Additionally, not all jobs are posted online, and jobs may be filled through other methods such as internal promotion, word-of-mouth advertising, physical job boards, or a variety of other channels.

² K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), <https://link.springer.com/book/10.1007/978-81-322-3972-7>.

There were 607 online job postings related to these technical theater occupations listed in the past 12 months. Of those, 91% (550) were for middle-skill technical theater occupations. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=607)

Occupation	Job Postings	Percentage of Job Postings
Sound Engineering Technicians	276	45%
Makeup Artists, Theatrical and Performance	205	34%
Set and Exhibit Designers*	57	9%
Costume Attendants	35	6%
Lighting Technicians	34	6%
Total	607	100%

The top employers for the four middle-skill technical theater occupations in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Middle-Skill Employers by Number of Job Postings (n=550)

Employer	Job Postings	Percentage of Job Postings
Cherry Hill Programs	16	3%
Disney	12	2%
B. Braun	10	2%
Ulta Beauty	9	2%
Best Buy	9	2%
Apple	9	2%
Mt. San Antonio College	8	1%
Live Nation	8	1%
The Estée Lauder Companies	7	1%
L'Oréal	6	1%
Anastasia Beverly Hills	6	1%
Sinclair Broadcast Group	6	1%
Chapman University	6	1%
Hyatt	5	1%
Charlotte Tilbury Beauty	5	1%

The top employers for the sole above middle-skill technical theater occupation, *set and exhibit designers*, in the region, by number of job postings, are shown in Exhibit 9.

Exhibit 9: Top Above Middle-Skill Employers by Number of Job Postings (n=57)

Employer	Job Postings	Percentage of Job Postings
Wen Global Solutions	3	5%
Podcast Solutions	2	4%
Evolutions	2	4%

Employer	Job Postings	Percentage of Job Postings
OC Fair & Event Center	2	4%
Kaleo Marketing	2	4%
Cloudpersonnel	2	4%
Disney	2	4%
Outlandish Digital	1	2%
Hydro	1	2%
Universal Music Group	1	2%

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

Exhibit 10: Top Skills for Middle-Skill Occupations by Number of Job Postings (n=550)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Audio Engineering (55)	Communication (121)	Pro Tools (16)
Workflow Management (42)	Troubleshooting (91)	Python (Programming Language) (15)
Broadcast Engineering (38)	Customer Service (76)	Microsoft PowerPoint (11)
Stagecraft (37)	Management (72)	Linux (10)
Sound Design (31)	Operations (69)	Operating Systems (10)
Stage Management (30)	Sales (64)	Microsoft Word (9)
Stage Lighting (30)	Lifting Ability (53)	Microsoft Excel (9)
Cosmetics (28)	Problem Solving (43)	C++ (Programming Language) (9)
Post-Production (25)	Interpersonal Communications (42)	Mac OS (8)
Brand Awareness (23)	Writing (42)	Vectorworks (8)

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for the above middle-skill occupation, *set and exhibit designers*, in Exhibit 11.

Exhibit 11: Top Skills for Above Middle-Skill Occupations by Number of Job Postings (n=57)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Exhibit Design (5)	Communication (14)	Microsoft Office (4)
Workflow Management (4)	Customer Service (9)	Microsoft Outlook (3)
Illustration (4)	Creativity (8)	Microsoft Excel (2)
Construction (4)	Planning (6)	Adobe After Effects (2)
Marketing (4)	Leadership (6)	Adobe Illustrator (2)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Painting (4)	Presentations (6)	Adobe Photoshop (2)
Carpentry (3)	Lifting Ability (5)	Adobe InDesign (2)
Graphic Design (3)	Management (5)	HTML5 (2)
Woodworking (3)	Detail Oriented (5)	Microsoft Project (2)
Stage Management (2)	Research (4)	Microsoft PowerPoint (2)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education for these technical theater occupations:

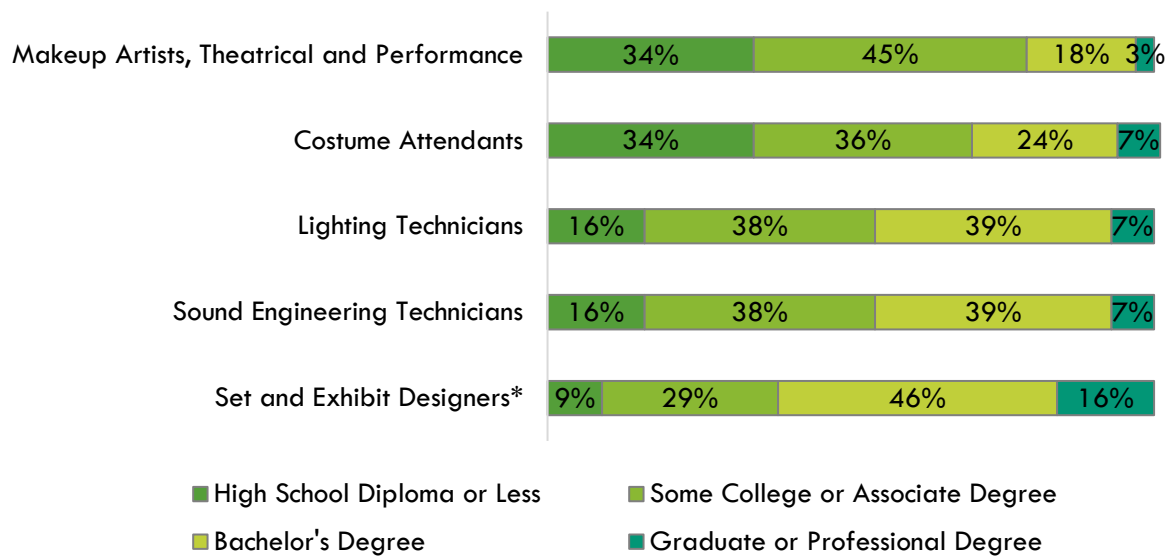
- High school diploma or equivalent: *costume attendants* and *lighting technicians*
- Postsecondary nondegree award: *makeup artists, theatrical and performance* and *sound engineering technicians*
- Bachelor's degree: *set and exhibit designers*

The national-level educational attainment data indicates that between 38% and 45% of workers in these middle-skill occupations have completed some college or an associate degree as their highest level of education. Exhibit 12 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Of the 27% of the cumulative job postings for these middle-skill technical theater occupations that listed a minimum education requirement in Los Angeles/Orange County, 56% (83) requested a high school diploma or an associate degree, 37% (56) requested a bachelor's degree, and 7% (11) requested a master's degree or higher.

Conversely, of the 21% of the postings for *set and exhibit designers* that listed a minimum education requirement, 42% (5) requested a high school diploma or an associate degree, and 58% (7) requested a bachelor's degree.

Exhibit 12: National-level Educational Attainment for Occupations



*Denotes an above middle-skill occupation

Educational Supply

Community College Supply:

Exhibit 13 shows the annual and three-year average number of awards conferred by community colleges in the related TOP codes:

- Radio and Television (0604.00)
- Radio (0604.10)
- Television (including combined TV/film/video) (0604.20)
- Commercial Music (1005.00)
- Technical Theater (1006.00)
- Applied Design (1009.00)
- Applied Photography (1012.00)

The colleges with the most completions in the region are Saddleback, LA City, and Fullerton. Over the past 12 months, there were three other related program recommendation requests from regional community colleges.

Exhibit 13: Regional Community College Awards (Certificates and Degrees), 2019-2022

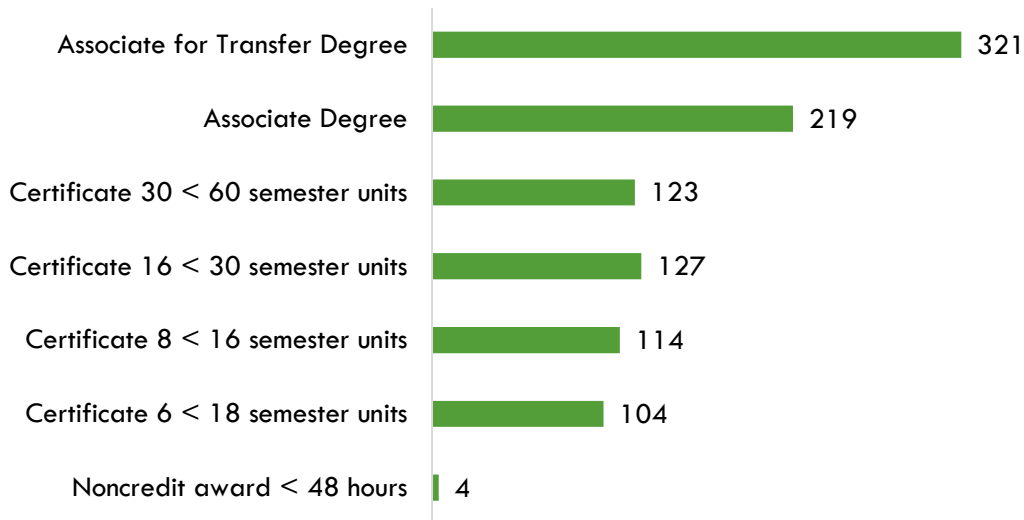
TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
0604.00	Radio and Television	LA Valley	17	12	9	13
		Long Beach	2	2	7	4
		Santa Monica	29	16	8	18
		LA Subtotal	48	30	24	34
		Fullerton	-	2	1	1
		Saddleback	136	98	144	126
		OC Subtotal	136	100	145	127
Supply Subtotal/Average			184	130	169	161
0604.10	Radio	LA Valley	5	3	4	4
		Mt San Antonio	9	-	-	3
		Pasadena	3	1	1	2
		LA Subtotal	17	4	5	9
		Fullerton	4	5	-	3
		OC Subtotal	4	5	-	3
Supply Subtotal/Average			21	9	5	12
0604.20	Television (including combined TV/film/video)	Cerritos	-	5	13	6
		El Camino	22	27	32	27
		Glendale	14	17	25	19
		LA City	34	45	35	38
		LA Pierce	26	29	31	29
		LA Valley	31	42	48	40
		Long Beach	35	42	49	42

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		Mt San Antonio	54	34	50	46
		Pasadena	45	65	51	54
		LA Subtotal	261	306	334	300
		Cypress	15	16	20	17
		Fullerton	48	52	55	52
		Orange Coast	40	22	46	36
		Saddleback	2	-	15	6
		Santa Ana	17	6	13	12
		OC Subtotal	122	96	149	122
Supply Subtotal/Average			383	402	483	423
1005.00	Commercial Music	Cerritos	5	8	13	9
		Citrus	51	51	26	43
		Compton	1	1	-	1
		East LA	-	2	-	1
		Glendale	-	2	-	1
		LA City	129	12	25	55
		LA Harbor	4	-	7	4
		LA Valley	10	6	18	11
		Long Beach	-	1	-	0
		Pasadena	-	2	-	1
		Rio Hondo	-	-	1	0
		LA Subtotal	200	85	90	125
		Cypress	17	10	12	13
		Fullerton	10	8	7	8
		Irvine Valley	1	-	-	0
		Orange Coast	8	1	1	3
		Saddleback	9	61	95	55
		Santa Ana	4	7	7	6
		OC Subtotal	49	87	122	86
Supply Subtotal/Average			249	172	212	211
1006.00	Technical Theater	Citrus	8	7	5	7
		East LA	15	6	32	18
		Glendale	1	-	2	1
		LA City	1	2	4	2
		LA Pierce	13	7	3	8
		LA Valley	2	1	1	1

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		Pasadena	2	2	1	2
		Santa Monica	17	6	16	13
		LA Subtotal	59	31	64	51
		Cypress	3	7	6	5
		Fullerton	4	33	-	12
		Golden West	1	-	-	0
		Irvine Valley	3	4	3	3
		Saddleback	2	4	3	3
		Santa Ana	3	6	2	4
		OC Subtotal	16	54	14	28
		Supply Subtotal/Average	75	85	78	79
1009.00	Applied Design	Orange Coast	-	-	-	0
		OC Subtotal	-	1	-	0
		Supply Subtotal/Average	-	1	-	0
1012.00	Applied Photography	East LA	5	1	-	2
		El Camino	10	7	10	9
		Glendale	6	5	6	6
		LA City	38	5	8	17
		LA Pierce	2	3	2	2
		LA Valley	-	-	3	1
		Mt San Antonio	31	10	32	24
		Pasadena	5	1	10	5
		Santa Monica	37	33	31	34
		LA Subtotal	134	65	102	100
		Cypress	5	2	2	3
		Fullerton	11	4	5	7
		Orange Coast	18	21	10	16
		OC Subtotal	34	27	17	26
		Supply Subtotal/Average	168	92	119	126
		Supply Total/Average	1,080	891	1,066	1,012

Exhibit 14 shows the annual average community college awards by type from 2019-20 through 2021-22. The plurality of the awards is for associate for transfer degrees (32%), followed by associate degrees (22%), and certificates between 16 and less than 30 semester units (13%).

Exhibit 14: Annual Average Community College Awards by Type, 2019-2022



Community College Student Outcomes:

Exhibit 15 shows the Strong Workforce Program (SWP) metrics for technical theater programs in Rancho Santiago Community College District (RSCCD), the Orange County Region, and California. Of the 344 technical theater students in Orange County, 18% (63) attended a RSCCD college. Due to the low number of students, there is insufficient data to determine several outcomes for RSCCD students.

RSCCD students who exited technical theater programs in the 2020-21 academic year had higher median annual earnings (\$28,456) compared to all technical theater students in Orange County (\$27,520) and statewide (\$26,144). A lower percentage of technical theater students in Orange County attained the living wage (25%) when compared to all technical theater students in California (30%).

Notably, a higher percentage of technical theater students in Orange County (83%) reported being employed in their field of study, compared to students throughout California (55%).

Exhibit 15: Technical Theater (1006.00) Strong Workforce Program Metrics, 2020-21³

SWP Metric	RSCCD	OC Region	California
SWP Students	63	344	3,049
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	22%	18%	17%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	Insufficient Data	79%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	Insufficient Data	26	74
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	Insufficient Data	51	406

³ All SWP metrics are for 2020-21 unless otherwise noted.

SWP Metric	RSCCD	OC Region	California
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	Insufficient Data	83%	55%
Median Annual Earnings for SWP Exiting Students	\$28,456 (\$13.68)	\$27,520 (\$13.23)	\$26,144 (\$12.57)
Median Change in Earnings for SWP Exiting Students	(6%)	23%	40%
SWP Exiting Students Who Attained the Living Wage	Insufficient Data	25%	30%

Non-Community College Supply:

For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for these technical theater occupations. Exhibit 16 shows the annual and two-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Codes:

- Photographic and Film/Video Technology/Technician (10.0201)
- Radio and Television Broadcasting Technology/Technician (10.0202)
- Recording Arts Technology/Technician (10.0203)
- Make-Up Artist/Specialist (12.0406)
- Design and Visual Communications, General (50.0401)
- Illustration (50.0410)
- Technical Theatre/Theatre Design and Technology (50.0502)
- Music Technology (50.0913)

Due to different data collection periods, the most recent two-year period of available data is from 2019 to 2021. Between 2019 and 2021, non-community colleges in the region conferred an average of 1,115 awards annually in related training programs.

Exhibit 16: Regional Non-Community College Awards, 2019-2021

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2-Year Award Average
10.0201	Photographic and Film/Video Technology/Technician	Chapman University	-	1	1
Supply Subtotal/Average			-	1	1
10.0202	Radio and Television Broadcasting Technology/Technician	Hollywood Cultural College	20	12	16
Supply Subtotal/Average			20	12	16
10.0203	Recording Arts Technology/Technician	California State University-Dominguez Hills	-	2	1
		Columbia College Hollywood	-	21	11
		Loyola Marymount University	13	12	13

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2-Year Award Average
		Musicians Institute	73	48	61
Supply Subtotal/Average			86	83	85
12.0406	Make-Up Artist/Specialist	Make-up Designory	229	-	115
Supply Subtotal/Average			229	-	115
50.0401	Design and Visual Communications, General	Biola University	3	9	6
		Columbia College Hollywood	-	7	4
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	90	69	80
		Gnomon	19	42	31
		Los Angeles Pacific College	13	1	7
		Otis College of Art and Design	36	30	33
		University of Southern California	5	22	14
Supply Subtotal/Average			166	180	173
50.0410	Illustration	Art Center College of Design	140	170	155
		Laguna College of Art and Design	16	24	20
Supply Subtotal/Average			156	194	175
50.0502	Technical Theatre/Theatre Design and Technology	California Institute of the Arts	18	17	18
		Chapman University	-	1	1
		Pepperdine University	6	3	5
		University of Southern California	4	10	7
		Vanguard University of Southern California	1	1	1
Supply Subtotal/Average			29	32	31
50.0913	Music Technology	California College of Music	-	3	2
		Los Angeles College of Music	21	19	20
		Los Angeles Film School	474	524	499
Supply Subtotal/Average			495	546	521
Supply Total/Average			1,181	1,048	1,115

Regional Demographics

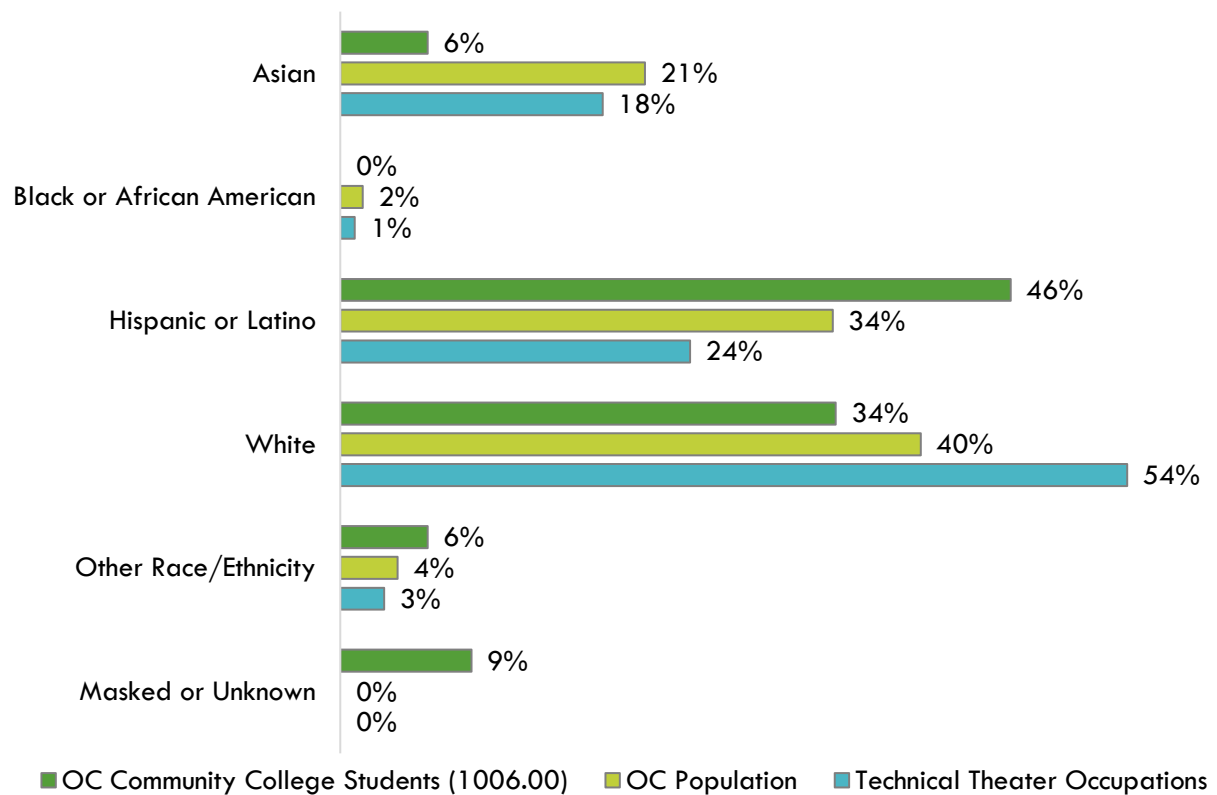
This section analyzes demographic data for Orange County community college students enrolled in technical theater programs compared to the OC population, as well occupational data, for the purpose of identifying potential diversity and equity issues that can be addressed by community college programs.

Ethnicity:

Exhibit 17 shows the ethnicity of Orange County community college students enrolled in technical theater programs compared to the overall Orange County population, as well as the five technical theater occupations included in this report. More than half (54%) of workers in these technical theater occupations are white, which is considerably higher than the population (40%) and significantly higher than the percentage of community college technical theater students (34%). Notably, Hispanic or Latino students comprise the largest group of technical theater students (46%), yet only represent 24% of technical theater occupations.

Examining disaggregated data for each occupation (not shown), white workers comprise the largest group of workers in four of the five technical theater occupations, representing 58% of *lighting technicians*; 58% of *sound engineering technicians*; 56% of *set and exhibit designers*; and 51% of *costume attendants*. The remaining occupation – *makeup artists, theatrical and performance* – is largely made up of Asian workers (54%) followed by white workers (33%).

Exhibit 17: Program and County Demographics by Ethnicity

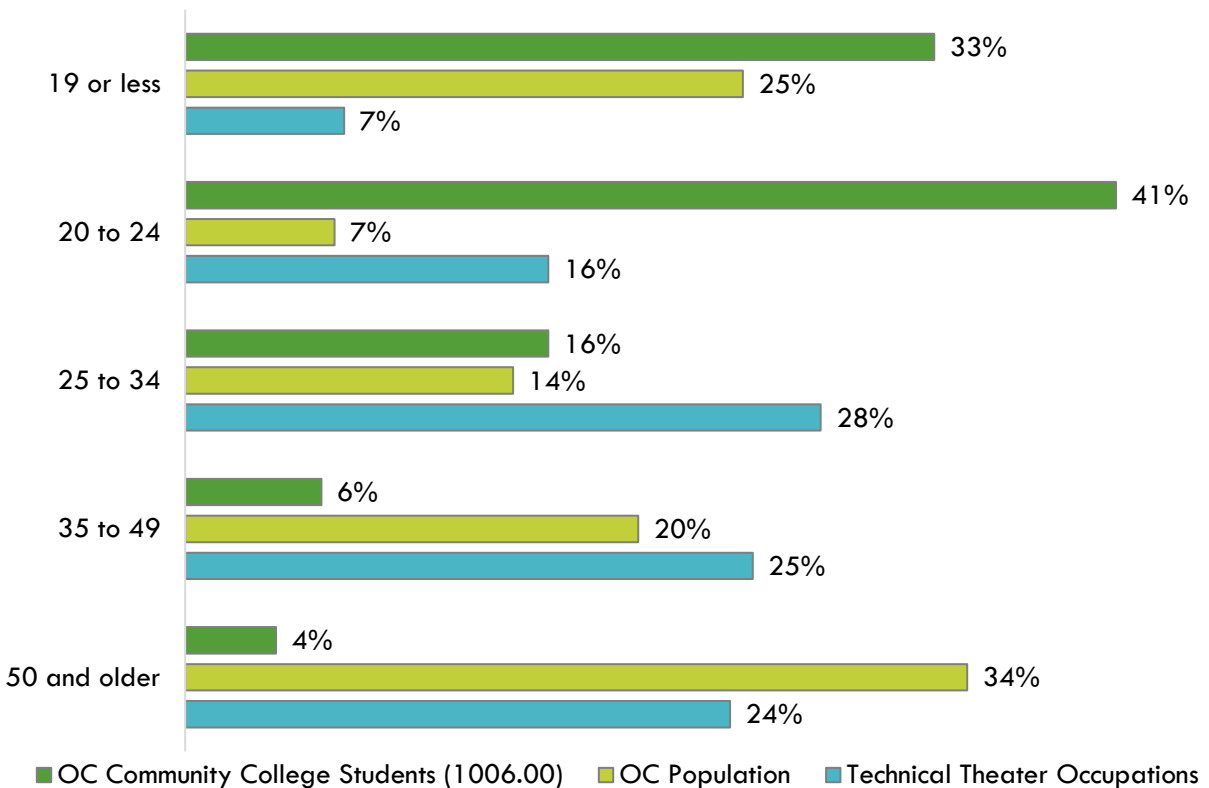


Age:

Exhibit 18 shows the age of Orange County community college students enrolled in technical theater programs compared to the overall Orange County population, as well as the five technical theater occupations included in this report. The plurality (28%) of workers in these technical theater occupations are age 25 to 34 years, followed by 25% of workers age 35 to 49, and 24% of workers age 50 and older. Community college technical theater students are overwhelmingly younger, with 74% of students age 24 or younger.

Examining disaggregated data for each occupation (not shown), 35 to 49 is the largest age group for two of the five occupations: *makeup artists, theatrical and performance* (46%) and *set and exhibit designers* (33%). Conversely, 36% of *sound engineering technicians* and *lighting technicians* are age 25 to 34. The remaining occupation – *costume attendants* – is largely made up of workers age 20 to 24.

Exhibit 18: Program and County Demographics by Age



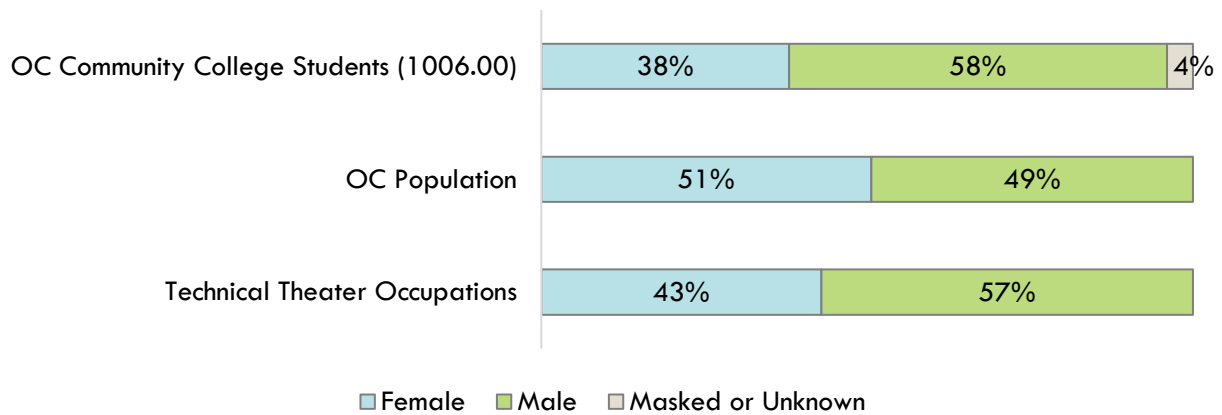
Sex:

Exhibit 19 shows the sex of Orange County community college students enrolled in technical theater programs compared to the overall Orange County population as well as the five technical theater occupations included in this report.

While men and women are almost evenly represented among the population, the majority (57%) of workers in these occupations are men. Similarly, 58% of technical theater students in Orange County are men.

Examining disaggregated data for each occupation (not shown), male workers are the majority in four of the five occupations: *sound engineering technicians* (92%), *lighting technicians* (92%), *set and exhibit designers* (57%), and *costume attendants* (52%). Conversely, 97% of *makeup artists, theatrical and performance* are women.

Exhibit 19: Program and County Demographics by Sex



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).

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 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.

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 represent 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. Real-time labor market information captures job post advertisements for occupations relevant to the field of study which can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.

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, Wages, and Job Postings	<p>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/</p>
Living Wage	<p>The living wage is derived from the Insight Center’s California Family Needs Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, child care, health care, transportation, and taxes. For more information, see: https://insightccd.org/family-needs-calculator/</p> <p>The living wage for one adult in Orange County is \$20.63 per hour (\$42,910.40 annually). This figure is used by the CCCCCO to calculate the percentage of students that attained the regional living wage.</p>
Typical Education and Training Requirements, and Educational Attainment	<p>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</p>
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	<p>The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations. For more information, see https://www.onetonline.org/help/online/</p>
Educational Supply	<p>The CCCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu</p> <p>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</p>
Student Metrics and Demographics	<p>LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx</p>

Data Type	Source
Population and Occupation Demographics	<p>The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. For more information, see: https://www.census.gov/programs-surveys/acs</p> <p>Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: https://usa.ipums.org/usa/about.shtml</p>

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