

Labor Market Analysis for Program Recommendation:
 1006.00/Technical Theater
 (Scenic Design Certificate)
 (Stage Management Certificate)
 Orange County Center of Excellence, March 2023



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 checked="" type="checkbox"/>	No <input type="checkbox"/>
Supply Gap:	<i>Comments:</i> there is projected to be 1,191 middle-skill annual job openings throughout Los Angeles and Orange counties for these middle-skill technical theater occupations, which is more than the 453 awards conferred by educational institutions.	
Living Wage: (Entry-Level, 25 th)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<i>Comments:</i> all annual job openings for these middle-skill technical theater occupations have entry-level hourly wages below the OC living wage of \$20.63. However, 88% of the middle-skill openings have entry-level hourly wages that are only 16 cents below the living wage.	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments:</i> The majority (88%) of annual job openings for these middle-skill technical theater occupations typically require a postsecondary nondegree award and more than one-third 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 four technical theater occupations:

- Middle-Skill
 - Audio and Video Technicians (27-4011)
 - Lighting Technicians (27-4015)
- Above Middle-Skill – denoted with an asterisk (*) throughout this report.
 - Set and Exhibit Designers (27-1027)*
 - Producers and Directors (27-2012)*

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 supply gap for these middle-skill technical theater occupations in the region and typical education requirements for these middle-skill technical theater

occupations align with a community college education. However, all middle-skill annual job openings have entry-level wages below 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 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
Audio and Video Technicians (27-4011)	1,053	453	OC: \$20.47	Postsecondary nondegree award	39%
Lighting Technicians (27-4015)	138	Accounted for Above	OC: \$17.25	High school diploma or equivalent	39%
Middle-Skill Total	1,191	453	N/A	N/A	N/A
Set and Exhibit Designers (27-1027)*	376	332	OC: \$14.08	Bachelor's degree	29%
Producers and Directors (27-2012)*	6,330	2,462	OC: \$32.85	Bachelor's degree	19%
Above Middle-Skill Total	6,707	2,794	N/A	N/A	N/A
Total	7,898	3,247	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 22% through 2026. There is projected to be 1,191 annual job openings.
- Hourly entry-level wages for these middle-skill technical theater occupations range from \$17.25 to \$20.47 in Orange County; all middle-skill annual job openings have entry-level wages below the living wage. However, 88% of the middle-skill openings have entry-level hourly wages that are only 16 cents below the living wage.
- There were 1,225 online job postings for these middle-skill technical theater occupations over the past 12 months. The highest number of postings were for audiovisual technicians, lighting technicians, and audio/video technicians.
- 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.
- Approximately 39% 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 453 awards conferred by 22 community colleges in Los Angeles and Orange Counties from 2018 to 2021.

- Non-community college institutions conferred an average of 2,097 awards from 2017 to 2020; all awards were related to the above middle-skill occupations.
- Orange County community college students that exited technical theater programs in the 2019-20 academic year had a median annual wage of \$26,212 after exiting the program and 23% attained the regional living wage.
- There was insufficient data to determine the percentage of technical theater students that exited and 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 four of the technical theater occupations researched in this report from 2016 through 2026. Employment in these technical theater occupations declined 14% from 2019 to 2020 in Orange County, which is more than double the 6% decline across all occupations due to the COVID-19 pandemic. Employment in these technical theater occupations is projected to grow at a similar rate when compared to all occupations through 2026.

Exhibit 2: Annual Percent Change in Jobs for Technical Theater Occupations, 2016-2026

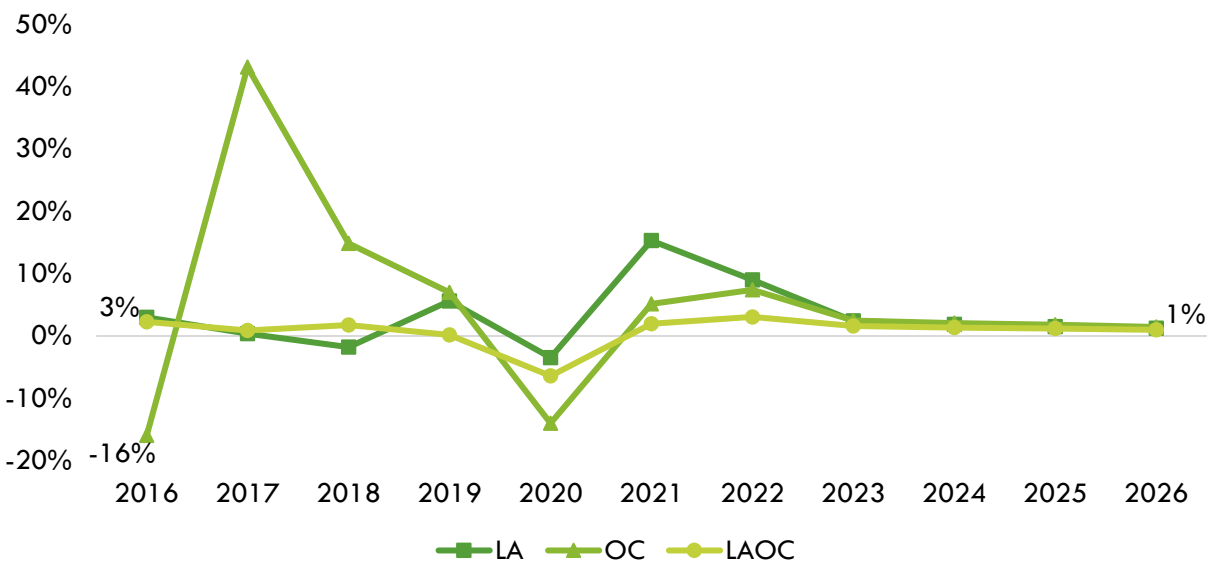


Exhibit 3 shows the five-year occupational demand projections for these middle-skill technical theater occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to crease 22% through 2026. There is projected to 1,191 jobs available annually. Of those, 91% (1,082) are projected to be in Los Angeles County.

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

Geography	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	Annual Openings
Los Angeles	7,141	8,699	1,559	22%	1,082
Orange	749	903	154	21%	110
Total	7,890	9,602	1,712	22%	1,191

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 these above middle-skill technical theater occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 16% through 2026. There is projected to be 6,707 jobs available annually. Of those, 67% (6,482) are projected to be in Los Angeles County.

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

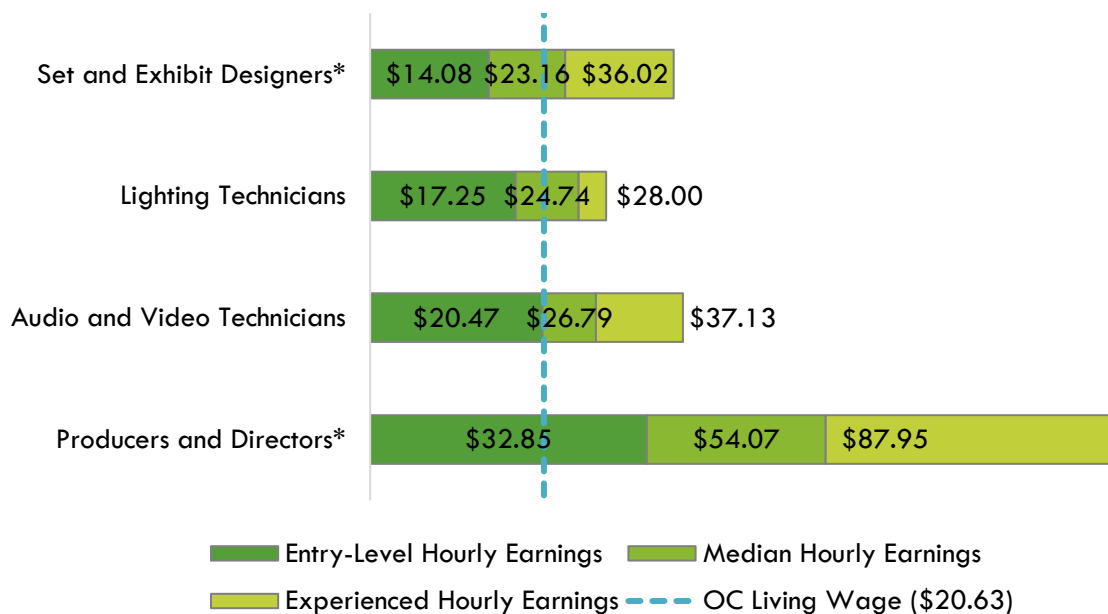
Geography	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	Annual Openings
Los Angeles	47,582	55,238	7,655	16%	6,482
Orange	1,738	1,982	244	14%	225
Total	49,320	57,220	7,900	16%	6,707

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.

All annual openings for these middle-skill technical theater occupations have entry-level wages below the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages range between \$17.25 and \$20.47. Orange County's average wages are below the average statewide wage of \$31.36 for these occupations. Exhibit 5 shows the wage range for each of these technical theater occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

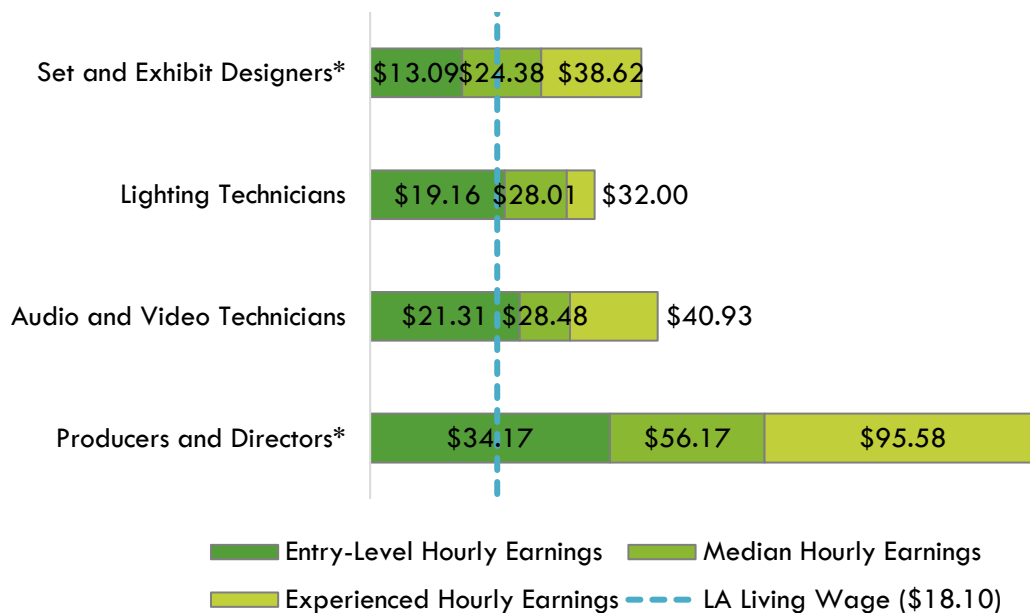
Exhibit 5: Wages by Occupation in Orange County



*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 are in a range between \$19.16 and \$21.31. Los Angeles County’s average wages are above the average statewide wage of \$31.36 for these occupations. Exhibit 6 shows the wage range for each of these technical theater 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



*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 of 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.

There were 4,584 online job postings related to these technical theater occupations listed in the past 12 months. Of those, 27% (1,225) were for middle-skill technical theater occupations. Exhibit 7 shows the number of job postings by occupation.

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

Exhibit 7: Number of Job Postings by Occupation (n=4,584)

Occupation	Job Postings	Percentage of Job Postings
Producers and Directors*	3,285	72%
Audio and Video Technicians	1,146	25%
Lighting Technicians	79	2%
Set and Exhibit Designers*	74	2%
Total Postings	4,584	100%

*Denotes an above middle-skill occupation

The top employers for the 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=1,225)

Employer	Job Postings	Percentage of Job Postings
Encore Global	120	10%
Encore	44	4%
Production Resource Group	20	2%
Five Star Audio Visual	19	2%
Randstad	16	1%
California State University	15	1%
Disneyland Resort	15	1%
Resideo Technologies	13	1%
Compass Group	12	1%
Golden Star	12	1%

The top employers for the above middle-skill human resource occupations 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=3,359)

Employer	Job Postings	Percentage of Job Postings
Disney	134	4%
NBC	129	4%
Amazon	111	3%
CBS Corporation	72	2%
Canteen Vending	64	2%
Activision Blizzard	56	2%
Riot Games	56	2%
Spectrum	53	2%
Apple	37	1%
Disneyland Resort	33	1%

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

**Exhibit 10: Top Skills for Middle-Skill Occupations by Number of Job Postings
(n=1,225)**

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Audiovisual Equipment (193)	Communications (585)	Microsoft Office (85)
Electronic Components (161)	Troubleshooting (Problem Solving) (540)	Microsoft Excel (81)
Operations Management (161)	Customer Service (463)	Zoom (Video Conferencing Tool) (78)
Invoicing (150)	Operations (352)	Microsoft PowerPoint (59)
Crestron (A/V Systems) (142)	Professionalism (239)	Microsoft Outlook (56)
Electrical Wiring (136)	Management (212)	Pro Tools (36)
Upselling (130)	Problem Solving (209)	Adobe Photoshop (33)
Equipment Operation (128)	Lifting Ability (208)	Adobe Premiere Pro (32)
Control Systems (113)	Detail Oriented (167)	Microsoft Word (28)
Workflow Management (99)	Video Conferencing (161)	Adobe After Effects (25)

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for these above middle-skill occupations in Exhibit 11.

**Exhibit 11: Top Skills for Above Middle-Skill Occupations by
Number of Job Postings (n=3,359)**

Top Specialized Skills	Top Soft Skills	Top Software and Computer Skills
Marketing (899)	Communications (1,718)	Adobe Photoshop (330)
Post-Production (645)	Detail Oriented (812)	JIRA (283)
Workflow Management (642)	Management (795)	Microsoft Office (265)
Content Creation (388)	Writing (713)	Microsoft Excel (249)
Social Media (353)	Leadership (665)	Adobe Premiere Pro (223)
Adobe Photoshop (330)	Editing (586)	Microsoft PowerPoint (178)
Production Process (311)	Planning (576)	Adobe After Effects (175)
JIRA (283)	Operations (573)	Instagram (154)
Video Production (250)	Multitasking (547)	TikTok (154)
Journalism (244)	Self-Motivation (535)	Atlassian Confluence (145)

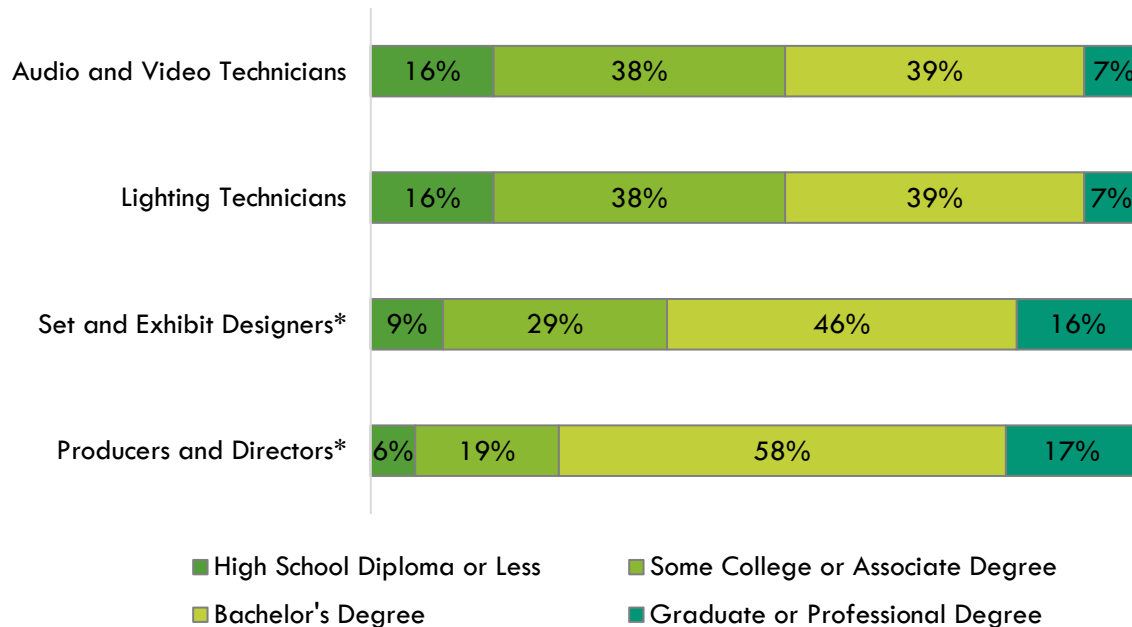
Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for *lighting technicians*; a postsecondary nondegree award for *audio and video technicians*; and a bachelor's degree for *set and exhibit designers* and *producers and directors*. The national-level educational attainment data indicates that approximately 39% of workers in the middle-skill occupations have completed some college or an associate degree as their highest level of education. Between 19% and 29% of workers in the above middle-skill occupations have completed some college or an associate degree. Exhibit 12 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Of the 49% of the cumulative job postings for these middle-skill technical theater occupations that listed a minimum education requirement in Los Angeles/Orange County, 80% (477) requested a bachelor's degree and 20% (120) requested a high school diploma or an associate degree.

Conversely, of the 40% of the postings for these above middle-skill technical theater occupations that listed a minimum education requirement, 87% (1,155) requested a bachelor's degree and 13% (179) requested a high school diploma or an associate degree.

Exhibit 12: National-level Educational Attainment for Occupations



*Denotes an above middle-skill occupation

Educational Supply

Community College Supply:

Exhibit 13 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Radio and Television (0604.00), Radio (0614.10), Television (including combined TV/Film/Video) (0604.20), Film Production (0612.20), Commercial Music (1005.00), Technical Theater (1006.00), and Applied Design (1009.00). The colleges with the most completions in the region are: LA City, Saddleback, and LA Valley. Over the past 12 months, there was one other related program recommendation request from regional community colleges.

Exhibit 13: Regional Community College Awards (Certificates and Degrees), 2018-2021

TOP Code	Program	College	2018-2019 Awards	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
0604.00	Radio and Television	LA Valley	16	17	12	15
		Long Beach	4	2	2	3
		Mt San Antonio	2	0	0	1
		Santa Monica	8	29	16	18
		LA Subtotal	30	48	30	37
		Fullerton	3	0	2	2
		Saddleback	206	136	98	146
		Santa Ana	5	0	0	2
		OC Subtotal	214	136	100	150
Supply Subtotal/Average			244	184	130	187
0604.10	Radio	LA Valley	7	5	3	5
		Mt San Antonio	6	9	0	5
		Pasadena	9	3	1	4
		LA Subtotal	22	17	4	14
		Fullerton	6	4	5	5
		OC Subtotal	6	4	5	5
Supply Subtotal/Average			28	21	9	19
0604.20	Television	Cerritos	0	0	5	2
		El Camino	20	22	27	23
		Glendale	8	14	17	12
		LA City	39	34	45	39
		LA Pierce	11	26	29	22
		LA Valley	29	31	42	34
		Long Beach	39	35	42	39
		Mt San Antonio	48	54	34	45
		Pasadena	25	45	65	46
		LA Subtotal	219	261	306	262
		Cypress	3	15	16	11

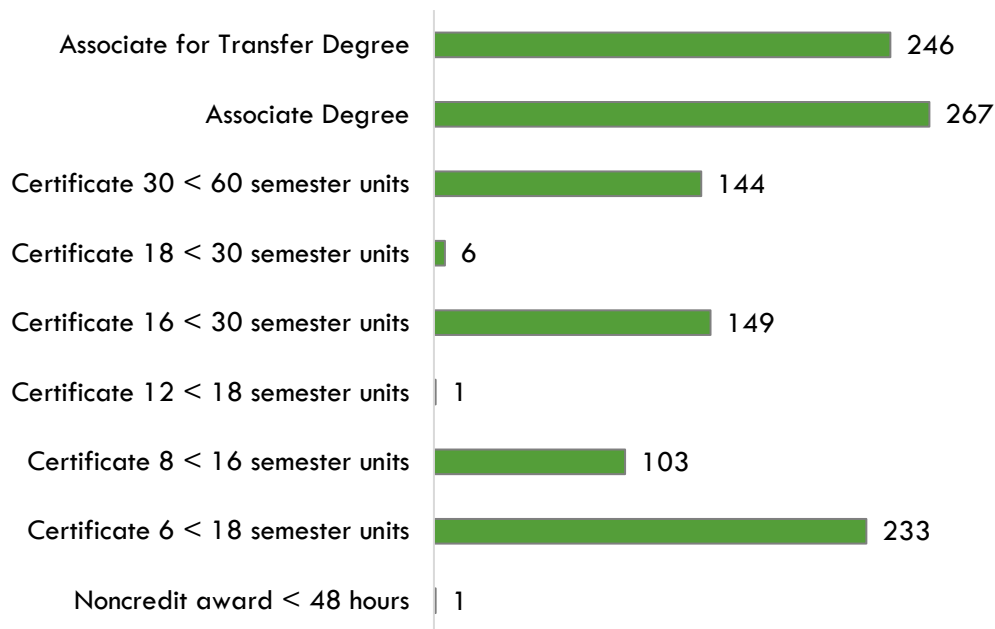
TOP Code	Program	College	2018-2019 Awards	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
		Fullerton	56	48	52	52
		Orange Coast	19	40	22	27
		Saddleback	2	2	0	1
		Santa Ana	14	17	6	12
		OC Subtotal	94	122	96	103
Supply Subtotal/Average			313	383	402	365
0604.20	Television	Cerritos	0	0	5	2
		El Camino	20	22	27	23
		Glendale	8	14	17	12
		LA City	39	34	45	39
		LA Pierce	11	26	29	22
		LA Valley	29	31	42	34
		Long Beach	39	35	42	39
		Mt San Antonio	48	54	34	45
		Pasadena	25	45	65	46
		LA Subtotal	219	261	306	262
		Cypress	3	15	16	11
		Fullerton	56	48	52	52
		Orange Coast	19	40	22	27
		Saddleback	2	2	0	1
		Santa Ana	14	17	6	12
		OC Subtotal	94	122	96	103
		Supply Subtotal/Average			313	383
0612.20	Film Production	Cerritos	10	8	11	10
		LA City	61	62	45	55
		LA Valley	42	31	35	36
		Long Beach	3	0	0	1
		Santa Monica	40	59	41	46
		West LA	33	7	28	23
		LA Subtotal	189	167	160	171
		Orange Coast	49	48	26	40
		Saddleback	7	3	0	3
		OC Subtotal	56	51	26	43
Supply Subtotal/Average			245	218	186	214
1005.00	Commercial Music	Cerritos	3	5	8	5
		Citrus	58	51	51	53
		Compton	0	0	1	0

TOP Code	Program	College	2018-2019 Awards	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
		East LA	0	0	2	0
		Glendale	0	0	2	1
		LA City	313	129	12	152
		LA Harbor	6	4	0	3
		LA Valley	7	10	6	7
		Long Beach	0	0	1	0
		Pasadena	0	0	2	0
		LA Subtotal	387	199	85	221
		Cypress	9	17	10	12
		Fullerton	5	10	8	7
		Irvine	1	1	0	1
		Orange Coast	7	8	1	5
		Saddleback	7	9	61	25
		Santa Ana	7	4	7	6
		OC Subtotal	36	49	87	56
		Supply Subtotal/Average	423	248	172	277
1006.00	Technical Theater	Citrus	5	8	7	7
		East LA	7	15	6	10
		Glendale	0	1	0	0
		LA City	38	1	2	13
		LA Pierce	12	13	7	10
		LA Valley	4	2	1	2
		Mt San Antonio	1	0	0	0
		Pasadena	4	2	2	2
		Santa Monica	17	17	6	13
		LA Subtotal	88	59	31	57
		Cypress	3	3	7	5
		Fullerton	11	4	33	16
		Golden West	0	1	0	0
		Irvine	3	3	4	4
		Orange Coast	1	0	0	0
		Saddleback	0	2	4	2
		Santa Ana	1	3	6	4
		OC Subtotal	19	16	54	31
		Supply Subtotal/Average	107	75	85	88
1009.00	Applied Design	-	-	-	-	-
		LA Subtotal	-	-	-	-

TOP Code	Program	College	2018-2019 Awards	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
		Orange Coast	0	0	1	0
		OC Subtotal	0	0	1	0
		Supply Subtotal/Average	0	0	1	0
		Supply Subtotal/Average	1,360	1,129	985	1,150

Exhibit 14 shows the annual average community college awards by type from 2018-19 through 2020-21. The plurality of the awards are for associate degrees, closely followed by associate for transfer degrees, and certificates of 6 to less than 18 semester units.

Exhibit 14: Annual Average Community College Awards by Type, 2018-2021



Community College Student Outcomes:

Exhibit 15 shows the Strong Workforce Program (SWP) metrics for technical theater programs in North Orange County Community College District (NOCCCD), the Orange County Region, and California. Of the 344 technical theater students in Orange County, 52% (180) attended a NOCCCD college.

Additionally, NOCCCD students that exited technical theater programs in the 2019-20 academic year had a 34% median change in earnings, which is similar to the Orange County Region (35%). However, median earnings for students that exited technical theater programs were low for NOCCCD (\$27,058), the Orange County Region (\$26,212), and statewide (\$21,924). There was insufficient data to determine the percentage of NOCCCD and Orange County students that are employed in their field of study.

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

SWP Metric	NOCCCD	OC Region	California
SWP Students	180	344	3,054
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	19%	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	16	26	74
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	24	51	406
SWP Students with a Job Closely Related to Their Field of Study (2018-19)	Insufficient Data	Insufficient Data	59%
Median Annual Earnings for SWP Exiting Students (2019-20)	\$27,058 (\$13.01)	\$26,212 (\$12.60)	\$21,924 (\$10.54)
Median Change in Earnings for SWP Exiting Students (2019-20)	34%	35%	39%
SWP Exiting Students Who Attained the Living Wage (2019-20)	20%	23%	21%

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 three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Codes: Advertising (09.0903) and Technical theater/Technical theater Management, General (52.1401). Due to different data collection periods, the most recent three-year period of available data is from 2017 to 2020. Between 2017 and 2020, eight colleges in the region conferred an average of 677 awards annually in related training programs.

Exhibit 16: Regional Non-Community College Awards, 2017-2020

CIP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
09.0701	Radio and Television	California State University-Fullerton	174	205	189	189
		California State University-Long Beach	0	1	0	0
		California State University-Los Angeles	174	158	154	162
		California State University-Northridge	414	399	396	403
		Pepperdine University	26	25	20	24
		University of La Verne	11	22	7	13
Supply Subtotal/Average			799	810	766	791

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

CIP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
10.0203	Recording Arts Technology/ Technician	Los Angeles Film School	139	54	0	64
		Loyola Marymount University	10	12	13	12
		Musicians Institute	113	115	73	100
Supply Subtotal/Average			262	181	86	176
50.0401	Design and Visual Communications, General	Bethesda University	0	0	0	0
		Biola University	2	5	3	3
		California State Polytechnic University-Pomona	0	0	0	0
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	155	142	90	129
		Gnomon	37	48	19	35
		Los Angeles Pacific College	0	0	13	4
		Otis College of Art and Design	43	34	36	38
		Platt College-Los Angeles	5	0	0	2
		University of California-Los Angeles	0	0	0	0
		University of La Verne	0	0	0	0
		University of Southern California	0	0	5	2
Supply Subtotal/Average			242	229	166	213
50.0502	Technical Theatre/Theatre Design and Technology	California Institute of the Arts	10	22	18	17
		Pepperdine University	3	6	6	5
		University of Southern California	8	12	4	8
		Vanguard University of Southern California	2	0	1	1
Supply Subtotal/Average			23	40	29	31
50.0507	Directing and Theatrical Production	Pepperdine University	0	1	0	0
		Vanguard University of Southern California	3	4	3	3
Supply Subtotal/Average			3	5	3	3
50.0602	Cinematography and Film/Video Production	Art Center College of Design	28	18	18	21
		Biola University	42	62	56	53
		California Institute of the Arts	10	11	14	12
		Chapman University	160	174	146	160

CIP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	13	14	12	13
		Los Angeles Film School	145	220	245	203
		Loyola Marymount University	71	69	79	73
		Mount Saint Mary's University	7	11	14	11
		New York Film Academy	230	205	215	216
		University of La Verne	0	0	0	0
		University of Southern California	100	104	114	106
		Woodbury University	16	13	15	15
Supply Subtotal/Average			822	901	928	883
Supply Subtotal/Average			2,151	2,166	1,978	2,097

Regional Demographics

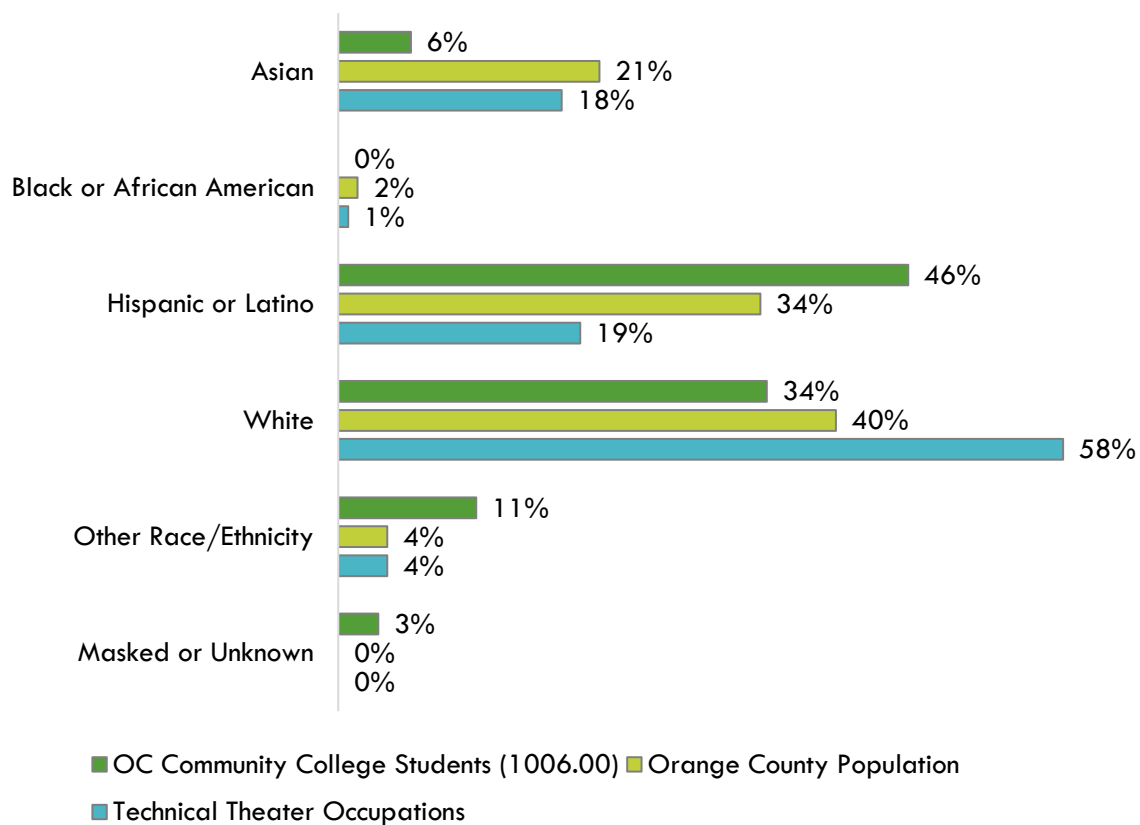
This section analyzes demographic data for Orange County community college students enrolled in technical theater programs compared to the OC population, as well occupational data, for the purpose of identifying potential diversity and equity issues that can be addressed by community college programs.

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 four technical theater occupations included in this report. Notably, 58% of workers employed in these technical theater occupations are white, which is significantly higher than the population (40%) and community college technical theater students (34%). Conversely, 46% of community college technical theater students are Hispanic or Latino, which is higher than the Orange County population (34%) and significantly higher than workers in these technical theater occupations (19%).

Examining disaggregated data for each occupation (not shown), the occupations with the highest percentage of Hispanic or Latino workers are the middle-skill occupations. Additionally, *producers and directors* has the highest percentage of white workers (64%) and also has the highest typical entry-level wages.

Exhibit 17: Program and County Demographics by Ethnicity

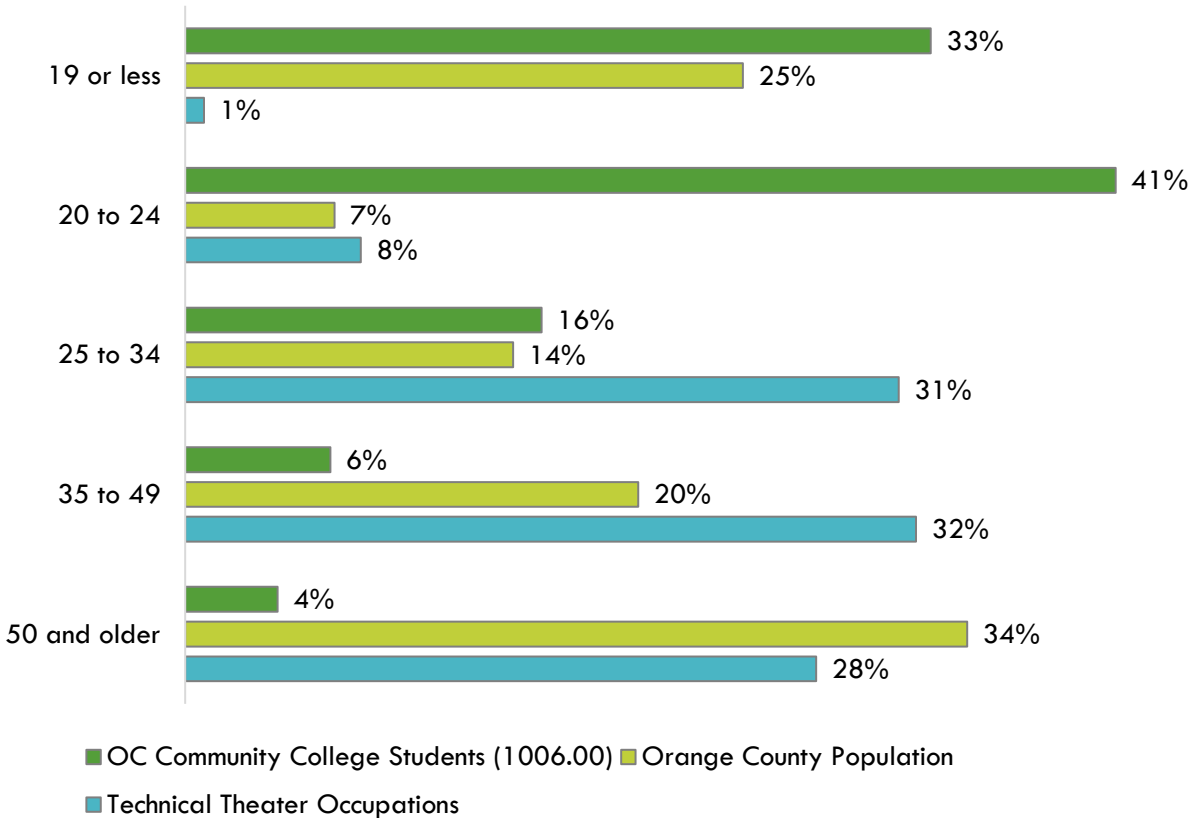


Age:

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 four technical theater occupations included in this report. The plurality of workers in these technical theater occupations are age 35 to 49 (32%), which is significantly higher than the population (14%) and community college technical theater students (16%). Only 9% of workers in these occupations are 24 or less, which is significantly lower than the population (32%), and community college technical theater students (74%).

Examining disaggregated data for each occupation (not shown), there are no significant differences when comparing all occupations.

Exhibit 18: Program and County Demographics by Age



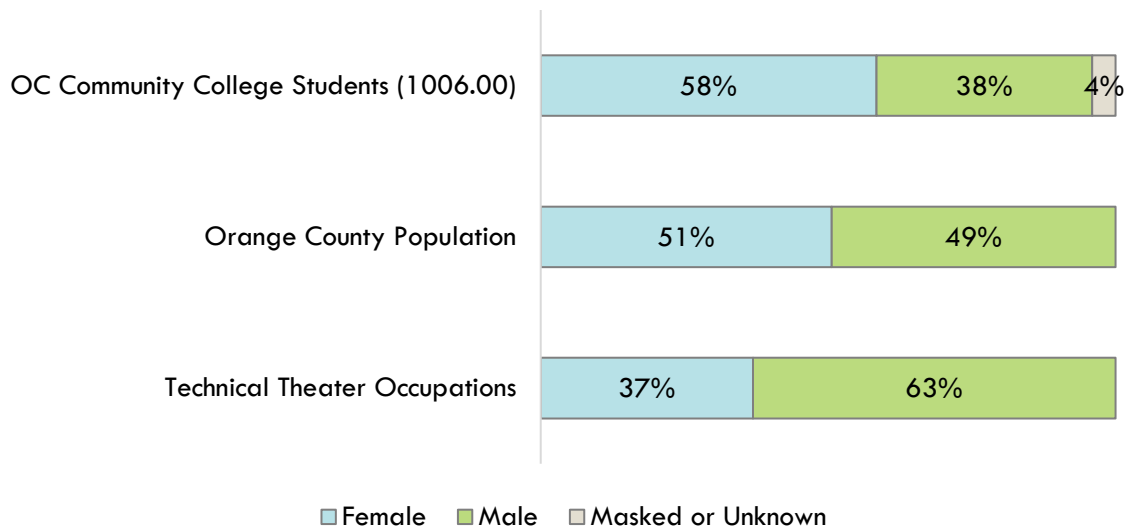
Sex:

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 these technical theater occupations.

Though the Orange County population is split nearly evenly between men and women, 63% of technical workers in these technical theater occupations are men. Conversely, 58% of community college technical theater students are women.

Examining disaggregated data for each occupation (not shown), the two middle-skill occupations have the highest percentage of male workers (92%), followed by *producers and directors* (73%). *Set and exhibit designers* has the highest percentage of female workers (43%), but also has the lowest entry-level wages of all four technical theater occupations.

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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