Labor Market Analysis for Program Exploration: 0614.00/Digital Media
(Digital Media Arts)
Orange County Center of Excellence, November 2022

C·O·E
CENTERS OF EXCELLENCE
FOR LABOR MARKET RESEARCH

Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met	☐	Endorsed: Some LMI Criteria Met	☒	Not LMI Endorsed	☐

Program LMI Endorsement Criteria	

	Yes ☑	No ☐
Supply Gap:	*Comments:* there is projected to be **1,915 middle-skill annual job openings** throughout Los Angeles and Orange counties for these middle-skill digital media arts occupations, which **is more than the 419 awards conferred by educational institutions**.	

	Yes ☐	No ☑
Living Wage: (Entry-Level, 25th)	*Comments:* **the majority (80%) of annual job openings** for these middle-skill digital media arts occupations **have entry-level hourly wages significantly below the OC living wage of $20.63**.	

	Yes ☑	No ☐
Education:	*Comments:* The typical entry-level education for these middle-skill digital media arts occupations ranges from a high school diploma or equivalent to a bachelor's degree. However, **a significant number of workers in the field have completed some college or an associate degree as their highest level of education.**	

Emerging Occupation(s)	
Yes ☐	*No* ☑

Comments: 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 three digital media arts occupations:

- Middle-Skill
  - Web and Digital Interface Designers (15-1255)
  - Photographers (27-4021)
- Above Middle-Skill – denoted with an asterisk (*) throughout this report.
  - Graphic Designers (27-1024)*

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 digital media arts occupations in the region and typical education requirements for these occupations align with a community college education. However, the majority of annual job openings have entry-level wages significantly

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: Occupational Demand and Supply in Los Angeles/Orange Counties

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Web and Digital Interface Designers (15-1255)	431	125	OC: $22.67	Bachelor's degree	25%
Photographers (27-4021)	1,485	294	OC: $14.16	High school diploma or equivalent	34%
Middle-Skill Total	**1,915**	**419**	**N/A**	**N/A**	**N/A**
Graphic Designers (27-1024)*	**1,823**	615	OC: $20.50	Bachelor's degree	26%
Above Middle-Skill Total	**1,823**	**615**	**N/A**	**N/A**	**N/A**
Total	**3,738**	**1,034**	**N/A**	**N/A**	**N/A**

Demand:

- The number of jobs related to these middle-skill digital media arts occupations are projected to increase 10% through 2026; there is projected to be 1,915 annual job openings due to retirements and replacements.
- Hourly entry-level wages for these middle-skill digital media arts occupations range from $14.16 to $22.67 in Orange County; the majority of annual job openings have entry-level wages significantly below the living wage.
- There were 3,493 online job postings for these middle-skill digital media arts occupations over the past 12 months. The highest number of postings were for photographers, content creators, videographers, and concept artists.
- The typical entry-level education for these middle-skill digital media arts occupations ranges from a high school diploma to a bachelor's degree.
- Between 25% and 34% 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 232 awards conferred by 25 community colleges in Los Angeles and Orange Counties from 2018 to 2021.
- There was an average of 187 awards conferred by 25 non-community college institutions from 2017 to 2020.

- Orange County community college students that exited digital media programs in the 2018-2019 academic year had a median annual wage of $26,328 after exiting the program and 25% attained the regional living wage.
- Throughout Orange County, 59% of digital media arts students that exited their program in 2017-18 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 three of the digital media arts occupations researched in this report from 2016 through 2026. Notably, employment in these digital media arts occupations in Orange County increased 4% from 2019 to 2020 while employment across all occupations in Los Angeles and Orange Counties declined 7% due to the COVID-19 pandemic.

Employment in all three of these digital media arts occupations is projected to continue to increase at a slightly higher rate than all occupations through 2026. Employment in the middle-skill occupations is projected to increase at a higher rate than the above middle-skill occupations.

Exhibit 2: Annual Percent Change in Jobs for Digital media Arts Occupations, 2016-2026
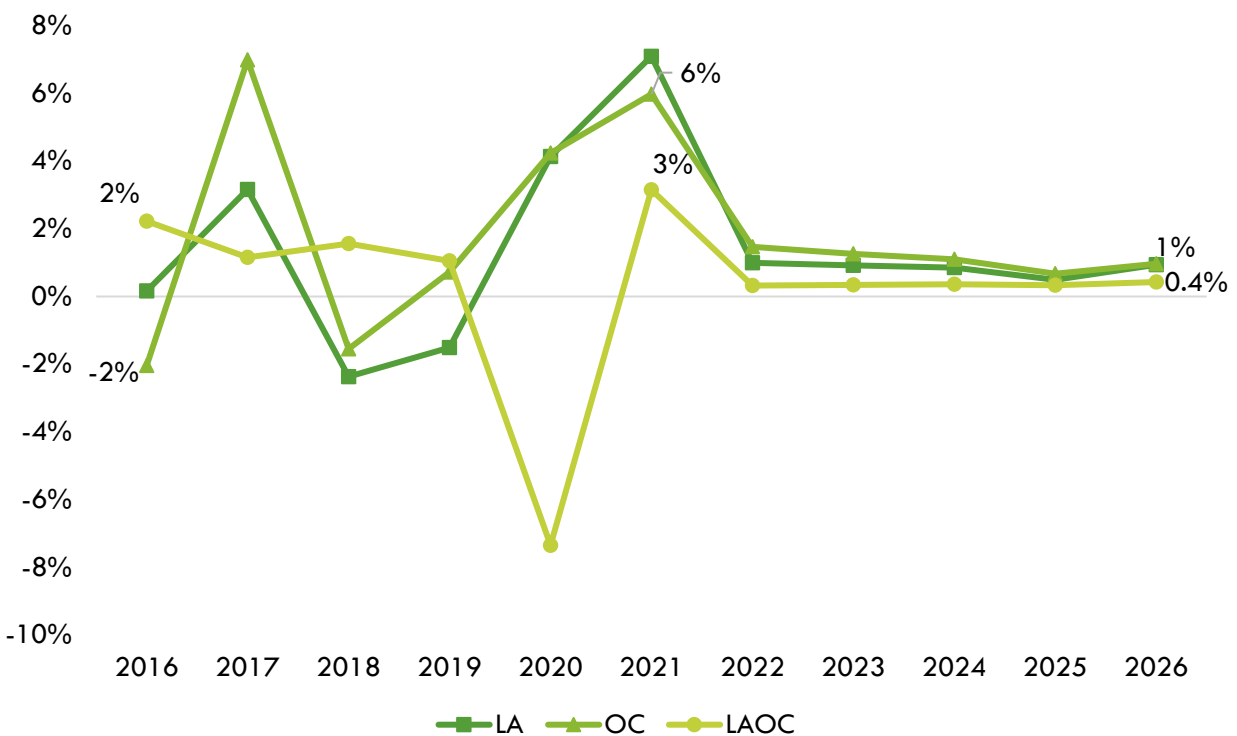
Exhibit 3 shows the five-year occupational demand projections for these middle-skill digital media arts occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase 10% through 2026. There is projected to 1,915 jobs available annually.

Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties.[1]

Geography	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	Annual Openings
Los Angeles	13,358	14,670	1,311	10%	1,481
Orange	3,923	4,282	359	9%	435
Total	**17,281**	**18,952**	**1,671**	**10%**	**1,915**

Exhibit 4 shows the five-year occupational demand projections for *graphic designers*, the sole above middle-skill digital media arts occupation in this report. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to increase by 0.1% through 2026. There is projected to be 1,823 jobs available annually.

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

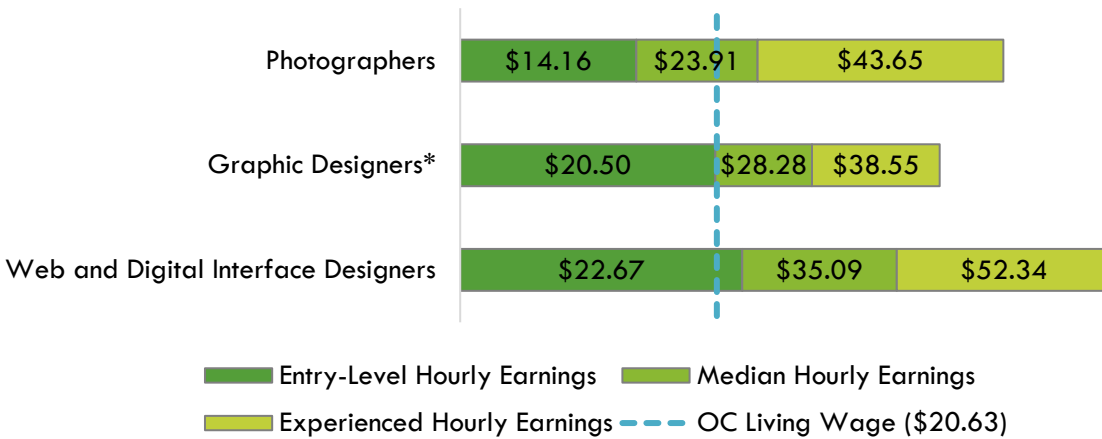| Geography	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	Annual Openings
Los Angeles	14,825	14,719	(106)	(1%)	1,370
Orange	4,699	4,822	123	3%	453
Total	**19,524**	**19,541**	**16**	**0.1%**	**1,823**

Wages:

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill digital media arts 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 (80%) of annual openings for these middle-skill digital media arts occupations have entry-level wages below the living wage for one adult ($20.63 in Orange County). Typical entry-level hourly wages range between $14.16 and $22.67. Orange County's average wages are below the average statewide wage of $44.10 for these occupations. Exhibit 5, on the following page, shows the wage range for each of these digital media arts occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.
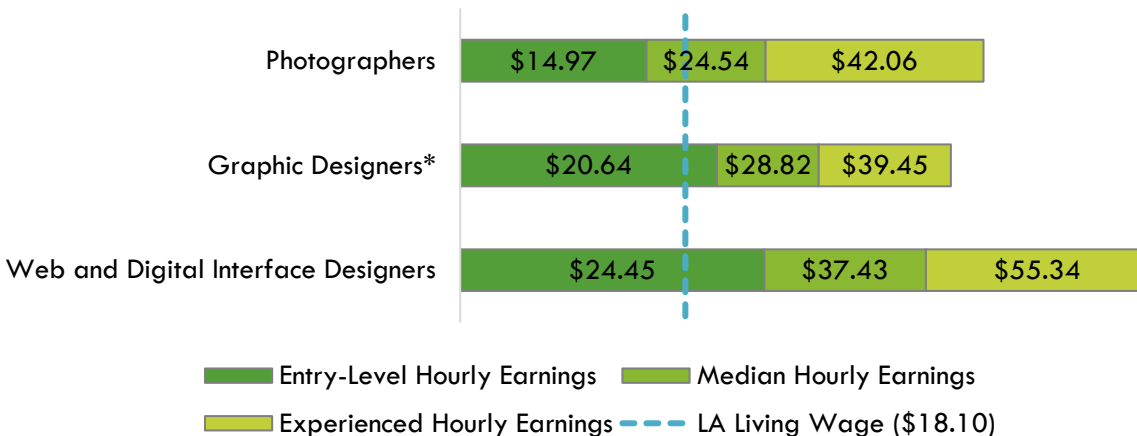
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[1] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Exhibit 5: Wages by Occupation in Orange County

Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Photographers	$14.16	$23.91	$43.65
Graphic Designers*	$20.50	$28.28	$38.55
Web and Digital Interface Designers	$22.67	$35.09	$52.34

Legend:
- Entry-Level Hourly Earnings
- Median Hourly Earnings
- Experienced Hourly Earnings
- OC Living Wage ($20.63)

The majority (78%) of annual openings for these middle-skill digital media arts occupations have entry-level wages below the living wage for one adult ($18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between $14.97 and $24.45. Los Angeles County's average wages are lower than the statewide wage of $44.10 for these occupations. Exhibit 6 shows the wage range for each of these digital media arts 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

Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Photographers	$14.97	$24.54	$42.06
Graphic Designers*	$20.64	$28.82	$39.45
Web and Digital Interface Designers	$24.45	$37.43	$55.34

Legend:
- Entry-Level Hourly Earnings
- Median Hourly Earnings
- Experienced Hourly Earnings
- LA Living Wage ($18.10)

Job Postings:

There were 8,519 online job postings related to these digital media arts occupations listed in the past 12 months. Of those, 41% (3,493) were for middle-skill digital media arts occupations. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=18,657)

Occupation	Job Postings	Percentage of Job Postings
Graphic Designers*	5,026	59%
Photographers	1,763	21%
Web and Digital Interface Designers	1,730	20%
Total Postings	**8,519**	**100%**

The top employers for the middle-skill digital media arts 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=3,493)

Employer	Job Postings	Percentage of Job Postings
Canteen Vending	90	2.58%
Electronic Arts	61	1.75%
Riot Games	58	1.66%
Balfour	56	1.60%
Cherry Hill Programs	50	1.43%
Shutterfly	48	1.37%
Jobot	43	1.23%
Activision Blizzard	35	1.00%
CyberCoders	30	0.86%
Nationwide Studios	30	0.86%

The top employers for the above middle-skill digital media arts occupation 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=5,026)

Employer	Job Postings	Percentage of Job Postings
Robert Half	125	2.49%
Disney	67	1.33%
Onward Search	45	0.90%
24 Seven	40	0.80%
Creative Circle	37	0.74%
Aquent	33	0.66%
Randstad	25	0.50%
Live Nation	20	0.40%
Amazon	19	0.38%
California State University	18	0.36%

The top specialized, soft, and software/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=3,493)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Photography (1058)	Communications (981)	Adobe Photoshop (561)
Adobe Photoshop (561)	Customer Service (539)	Autodesk Maya (198)
Marketing (443)	Editing (529)	Unreal Engine (195)
Content Creation (290)	Detail Oriented (466)	TikTok (192)
Workflow Management (276)	Sales (428)	Unity Engine (174)
Game Design (256)	Management (414)	C++ (Programming Language) (165)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Video Game Development (200)	Self-Motivation (379)	Microsoft Office (144)
Autodesk Maya (198)	Valid Driver's License (364)	Adobe Photoshop Lightroom (143)
Unreal Engine (191)	Problem Solving (327)	Adobe Creative Suite (127)
TikTok (187)	Leadership (317)	ZBrush (123)

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

Exhibit 11: Top Skills for Above Middle-Skill Occupations by Number of Job Postings (n=5,026)
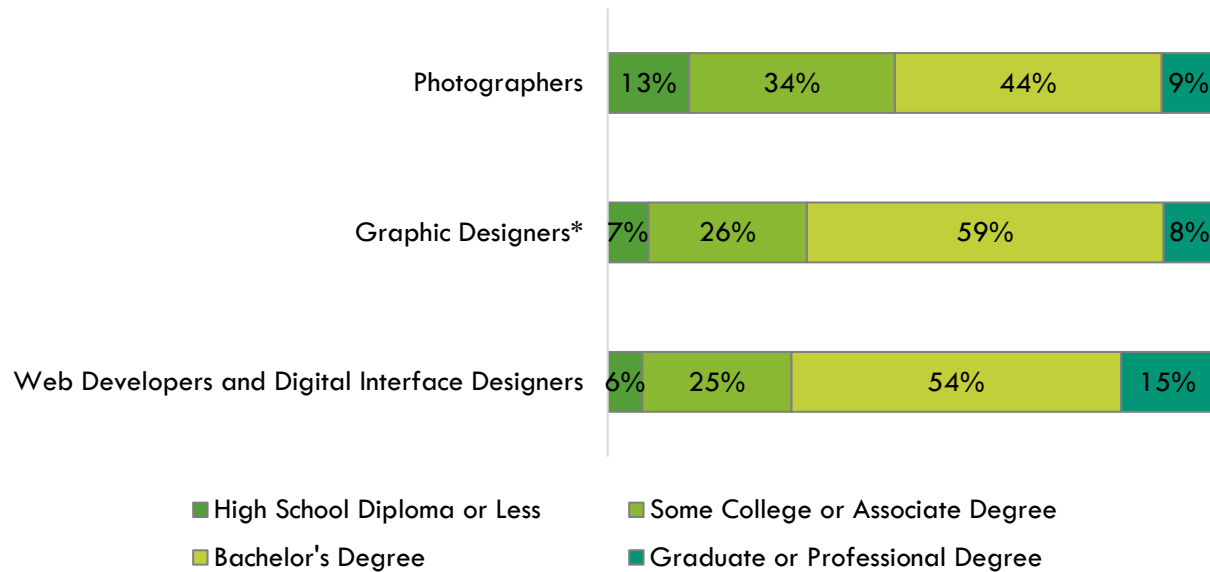
Top Specialized Skills	Top Soft Skills	Top Computer Skills
Graphic Design (2,945)	Communications (2,346)	Adobe Photoshop (2,931)
Adobe Photoshop (2,931)	Detail Oriented (1,795)	Adobe Illustrator (2,917)
Adobe Illustrator (2,917)	Presentations (1,265)	Adobe InDesign (2,034)
Marketing (2,150)	Packaging And Labeling (959)	Adobe Creative Suite (1,819)
Adobe InDesign (2,034)	Ability To Meet Deadlines (839)	Adobe After Effects (750)
Adobe Creative Suite (1,819)	Self-Motivation (830)	Microsoft PowerPoint (638)
Typography (1,373)	Multitasking (773)	Microsoft Office (560)
Branding (901)	Sales (770)	HyperText Markup Language (HTML) (516)
Illustration (898)	Time Management (760)	Microsoft Excel (457)
Adobe After Effects (750)	Problem Solving (650)	Design Software (380)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for *photographers* and a bachelor's degree as the typical entry-level education for *web and digital interface designers* and *graphic designers*. The national-level educational attainment data indicates between 25% and 34% of workers in the middle-skill occupations have completed some college or an associate degree as their highest level of education. Approximately 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 32% of the cumulative job postings for these middle-skill digital media arts occupations that listed a minimum education requirement in Los Angeles/Orange County, 50% (565) requested a bachelor's degree and the remaining 50% (560) requested a high school diploma or an associate degree. Conversely, of the 53% of the postings for *graphic designers*, the sole above middle-skill occupation, that listed a minimum education requirement, 78% (2,100) requested a bachelor's degree and 22% (558) requested a high school diploma or an associate degree.

Exhibit 12: National-level Educational Attainment for Occupations

Occupation	High School Diploma or Less	Some College or Associate Degree	Bachelor's Degree	Graduate or Professional Degree
Photographers	13%	34%	44%	9%
Graphic Designers*	7%	26%	59%	8%
Web Developers and Digital Interface Designers	6%	25%	54%	15%

- ■ High School Diploma or Less
- ■ Some College or Associate Degree
- ■ Bachelor's Degree
- ■ Graduate or Professional Degree

Educational Supply

Community College Supply:

Exhibit 13 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Digital Media (0614.00), Website Design and Development (0614.30), Computer Graphics and Digital Imagery (0614.60), Applied Photography (1012.00), and Graphic Art and Design (1030.00). The colleges with the most completions in the region are: Santa Monica, Mt. San Antonio, Golden West. Over the past 12 months, there were no other related program recommendation requests 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
		Glendale	0	1	0	0
		LA Mission	1	4	5	3
		LA Trade	19	11	18	16
		Pasadena	0	0	3	1
		Rio Hondo	0	2	1	1
		LA Subtotal	**20**	**18**	**27**	**21**
0614.00	Digital Media	Coastline	3	0	3	2
		Cypress	0	0	2	1
		Golden West	10	10	7	8
		Irvine	9	1	6	5
		Saddleback	0	0	1	0
		Santa Ana	0	1	6	2

TOP Code	Program	College	2018-2019 Awards	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
		OC Subtotal	**22**	**12**	**25**	**18**
	Supply Subtotal/Average		**42**	**30**	**52**	**39**
0614.30	Website Design and Development	LA Pierce	3	2	4	3
		Mt San Antonio	9	7	6	7
		Pasadena	0	1	1	1
		Santa Monica	0	2	3	2
		LA Subtotal	**12**	**12**	**14**	**13**
		Coastline	1	1	1	1
		Fullerton	3	0	1	2
		Irvine	3	0	5	2
		Orange Coast	0	9	7	5
		Saddleback	7	2	7	5
		Santa Ana	0	2	1	1
		Santiago Canyon	24	3	6	11
		OC Subtotal	**38**	**17**	**28**	**27**
	Supply Subtotal/Average		**50**	**29**	**42**	**40**
0614.60	Computer Graphics and Digital Imagery	Citrus	13	12	26	17
		East LA	16	1	2	6
		Mt San Antonio	0	0	1	0
		LA Subtotal	**29**	**13**	**29**	**23**
		Coastline	5	1	0	2
		Cypress	7	5	0	4
		Fullerton	2	1	3	2
		North Orange Adult	9	3	0	4
		Orange Coast	38	21	31	30
		Saddleback	4	4	2	4
		Santa Ana	0	11	3	4
		OC Subtotal	**65**	**46**	**39**	**50**
	Supply Subtotal/Average		**94**	**59**	**68**	**73**
1012.00	Applied Photography	East LA	24	5	1	10
		El Camino	10	10	7	9
		Glendale	0	6	5	4
		LA City	37	38	5	26
		LA Pierce	0	2	3	2
		Mt San Antonio	40	31	10	27
		Pasadena	10	5	1	5

TOP Code	Program	College	2018-2019 Awards	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
		Santa Monica	23	37	33	31
		LA Subtotal	**144**	**134**	**65**	**114**
		Cypress	5	5	2	4
		Fullerton	20	11	4	12
		Orange Coast	32	18	21	23
		OC Subtotal	**57**	**34**	**27**	**39**
	Supply Subtotal/Average		**201**	**168**	**92**	**153**
1030.00	Graphic Art and Design	Cerritos	11	11	14	12
		East LA	18	3	8	10
		El Camino	0	1	0	0
		Glendale	6	4	9	6
		LA City	6	22	8	12
		LA Pierce	22	15	13	16
		LA Valley	2	5	1	2
		Long Beach	1	2	8	4
		Mt San Antonio	15	11	20	15
		Pasadena	9	7	15	11
		Rio Hondo	30	20	28	25
		Santa Monica	31	50	43	41
		LA Subtotal	**151**	**151**	**167**	**154**
		Cypress	0	0	4	1
		Fullerton	12	12	14	13
		Golden West	57	32	20	36
		Irvine	5	16	21	14
		Saddleback	23	15	19	19
		Santa Ana	4	3	3	3
		Santiago Canyon	5	1	4	3
		OC Subtotal	**106**	**79**	**85**	**89**
	Supply Subtotal/Average		**50**	**42**	**71**	**55**
	Supply Total/Average		**644**	**516**	**506**	**548**

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, followed by certificates between 30 and less than 60 semester units, then certificates between 16 and less than 30 semester units.

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

Award Type	Value
Associate Degree	192
Certificate 30 < 60 semester units	120
Certificate 18 < 30 semester units	14
Certificate 16 < 30 semester units	116
Certificate 12 < 18 semester units	6
Certificate 8 < 16 semester units	14
Certificate 6 < 18 semester units	71
Noncredit award 480 < 960 hours	5
Noncredit award 288 < 480 hours	6
Noncredit award 144 < 192 hours	4
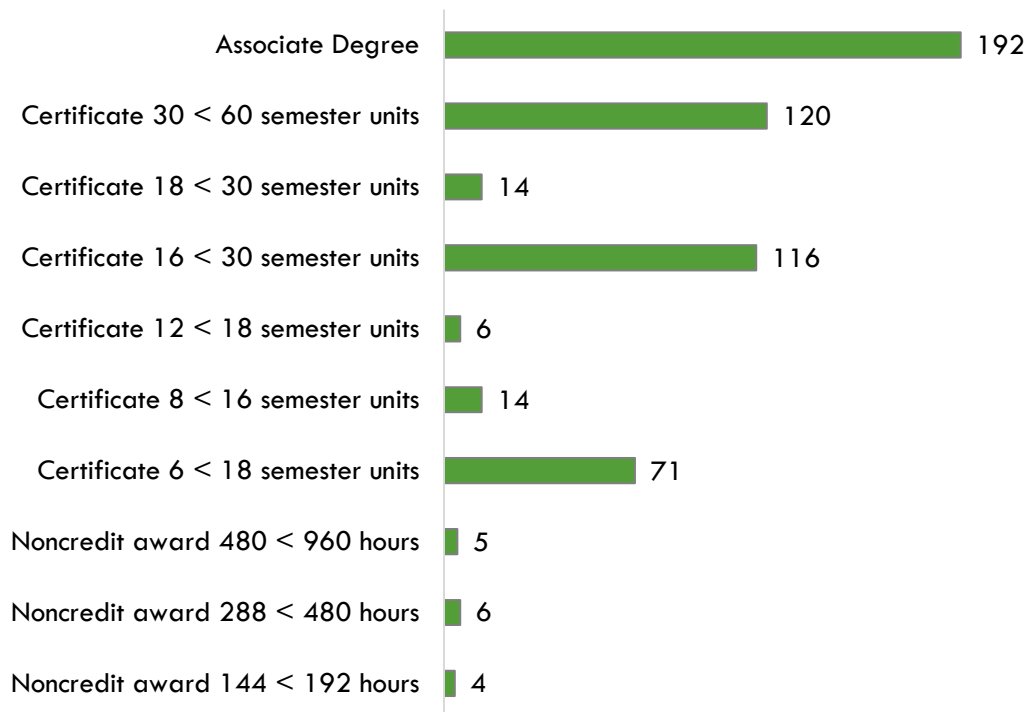
Community College Student Outcomes:

Exhibit 15 shows the Strong Workforce Program (SWP) metrics for digital media arts programs in South Orange Community College District (SOCCCD), the Orange County Region, and California. Of the 1,556 digital media students in Orange County, 19% (295) attended a SOCCCD college.

Additionally, SOCCCD students that exited digital media programs in the 2018-19 academic year had median annual earnings of $26,098 after exiting the program, which is lower when compared to the Orange County Region ($26,328).

Exhibit 15: Digital media arts (1030.00) Strong Workforce Program Metrics, 2019-20[2]

SWP Metric	SOCCCD	OC Region	California
SWP Students	295	1,556	9,411
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	19%	24%	29%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	83%	82%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	Insufficient Data	Insufficient Data	175

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[2] All SWP metrics are for 2019-20 unless otherwise noted.

SWP Metric	SOCCCD	OC Region	California
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2018-19)	33	87	606
SWP Students with a Job Closely Related to Their Field of Study (2017-18)	67%	59%	28%
Median Annual Earnings for SWP Exiting Students (2018-19)	$26,098 ($12.55)	$26,328 ($12.66)	$25,388 ($12.21)
Median Change in Earnings for SWP Exiting Students (2018-19)	-7%	20%	21%
SWP Exiting Students Who Attained the Living Wage (2018-19)	25%	25%	32%

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 digital media arts 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: Digital Communication and Media/Multimedia (09.0702); Computer Graphics (11.0803); Web/Multimedia Management and Webmaster (11.1004); Digital Arts (50.0102); and Graphic Design (50.0409).

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 486 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
09.0702	Digital Communication and Media/ Multimedia	California State University-Dominguez Hills	41	58	41	47
		Fremont College	1	1	1	1
		Marymount California University	0	3	10	4
		Vanguard University of Southern California	7	8	2	6
		Supply Subtotal/Average	**49**	**70**	**54**	**58**
11.0803	Computer Graphics	ABC Adult School	5	4	4	4
		Los Angeles Pacific College	0	33	0	11
		Supply Subtotal/Average	**5**	**37**	**4**	**15**
11.1004	Web/ Multimedia Management and Webmaster	ABCO Technology	17	24	37	26
		Los Angeles Pacific College	0	0	1	0
		Pepperdine University	2	0	0	1
		Supply Subtotal/Average	**19**	**24**	**38**	**27**
50.0102	Digital Arts	Los Angeles Academy of Figurative Art	0	3	4	2

| CIP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
		Los Angeles Pacific College	0	0	4	1
		Marymount California University	17	15	3	12
		Otis College of Art and Design	92	69	48	70
		University of Southern California	16	14	15	15
		Woodbury University	4	1	2	2
		Supply Subtotal/Average	**129**	**102**	**76**	**102**
50.0409	Graphic Design	Art Center College of Design	50	73	67	63
		California Institute of the Arts	11	9	12	11
		California State Polytechnic University-Pomona	128	92	89	103
		Chapman University	19	17	27	21
		Concordia University-Irvine	9	7	10	9
		East San Gabriel Valley Regional Occupational Program	0	0	0	0
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	36	38	38	37
		Laguna College of Art and Design	21	24	25	24
		Los Angeles Film School	0	3	28	10
		Los Angeles Pacific College	0	1	8	3
		New York Film Academy	3	3	0	2
		Otis College of Art and Design	0	1	0	0
		Platt College-Los Angeles	3	0	0	1
		Supply Subtotal/Average	**129**	**102**	**76**	**102**
		Supply Subtotal/Average	**482**	**501**	**476**	**486**

Regional Demographics

This section analyzes demographic data for Orange County community college students enrolled in digital media arts 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 digital media programs compared to the overall Orange County population, as well as the three digital media arts occupations included in this report. Notably, 54% of workers employed in these digital media arts occupations are White, which is significantly higher than the population (40%) and community college digital media arts students (25%). Conversely, 40% of community college digital media arts students are Hispanic or Latino, which is higher than the Orange County population (34%) significantly higher than workers in these digital media arts occupations (19%).

Exhibit 17: Program and County Demographics by Ethnicity

- OC Community College Students (0614.00)
- OC Population
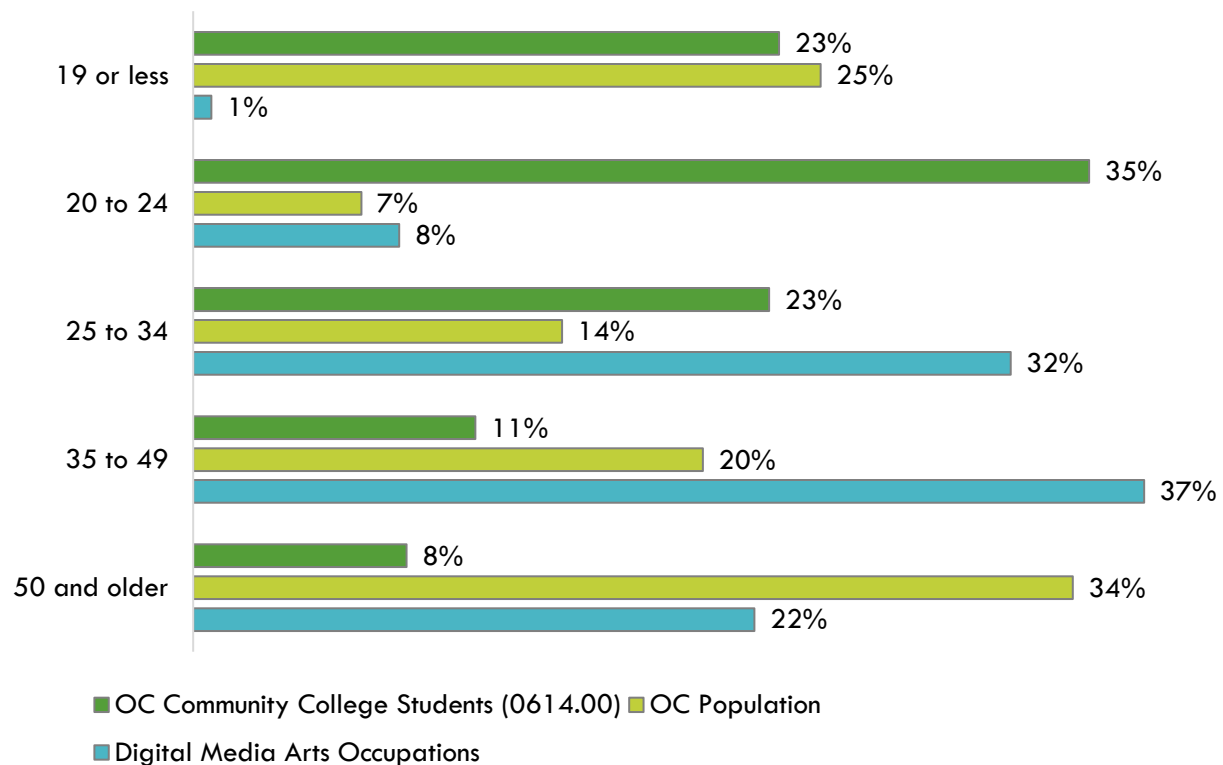- Digital Media Arts Occupations
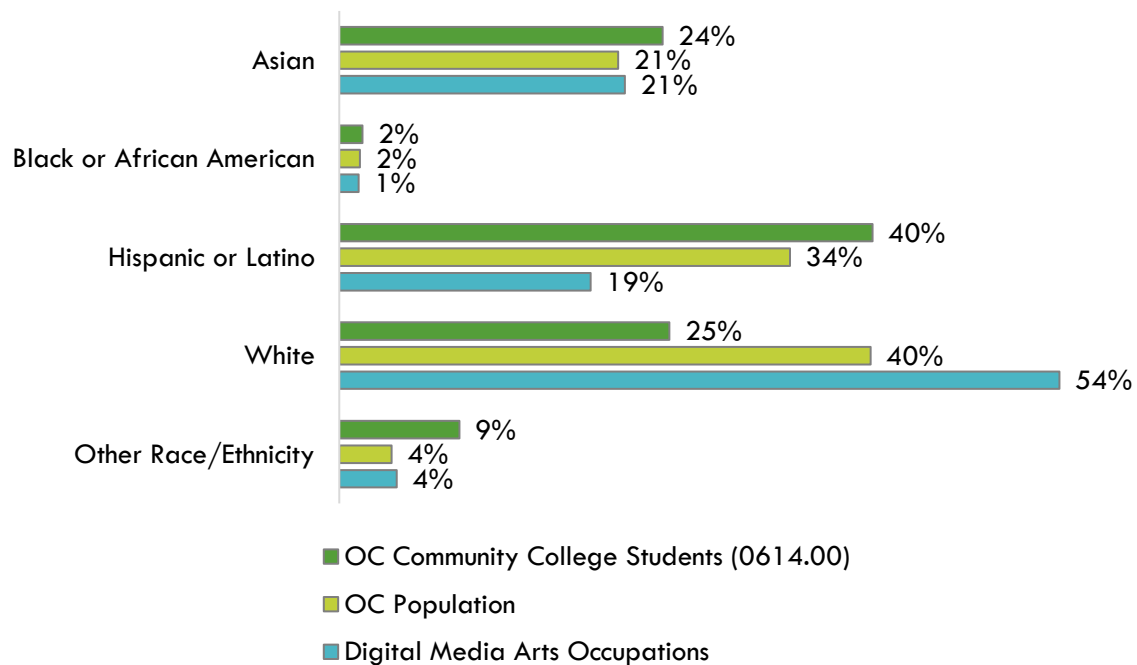
Age:

Exhibit 18 shows the age of Orange County community college students enrolled in digital media programs compared to the overall Orange County population, as well as the three digital media arts occupations included in this report. The plurality of workers in these digital media arts occupations are age 35 to 49 (37%), which is significantly higher than the population (20%) and community college digital media arts students (11%). Additionally, the majority (58%) of community college digital media arts students are age 24 or less, which is significantly higher than the population (32%) and these digital media arts occupation (9%).

Examining disaggregated data for each occupation (not shown), the two middle-skill occupations have highest percentage of workers age 34 or less (48%).

Exhibit 18: Program and County Demographics by Age

Age	OC Community College Students (0614.00)	OC Population	Digital Media Arts Occupations
19 or less	23%	25%	1%
20 to 24	35%	7%	8%
25 to 34	23%	14%	32%
35 to 49	11%	20%	37%
50 and older	8%	34%	22%

■ OC Community College Students (0614.00) ■ OC Population
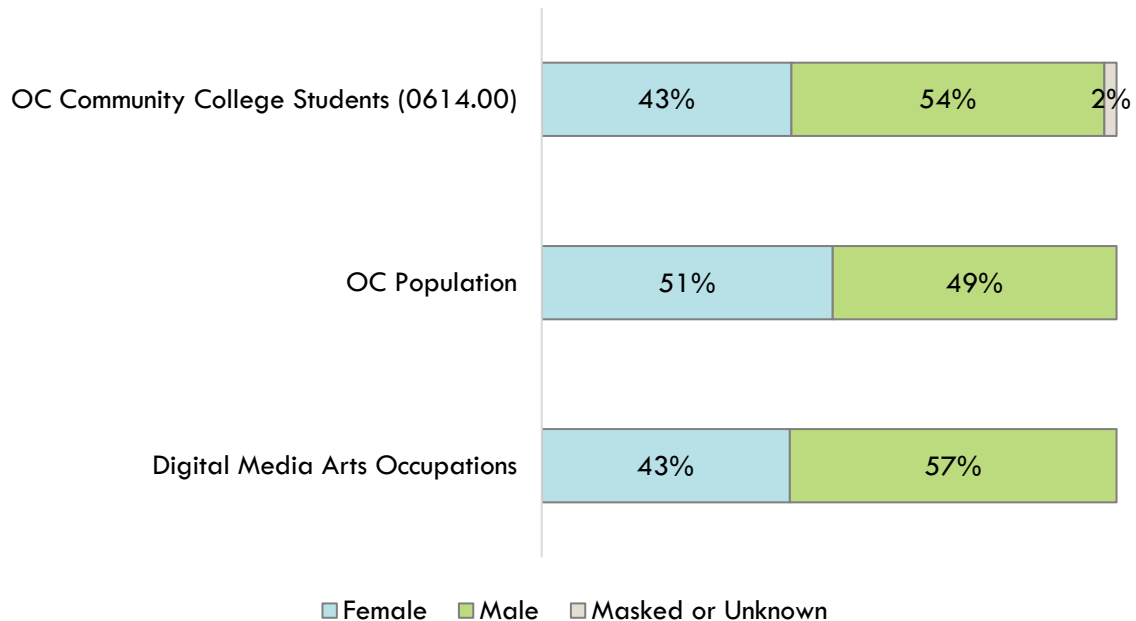■ Digital Media Arts Occupations

Sex:

Exhibit 19 shows the sex of Orange County community college students enrolled in digital media arts programs compared to the overall Orange County population as well as these digital media arts occupations.

Though the Orange County population is split nearly evenly between men and women, 54% of digital media students and 57% workers in these digital media arts occupations are men. Examining disaggregated data for each occupation (not shown), *web and digital interface designers* has the highest percentage of men (74%) and also has the highest entry-level wages of all three digital media arts occupations ($22.67).

Exhibit 19: Program and County Demographics by Sex

	Female	Male	Masked or Unknown
OC Community College Students (0614.00)	43%	54%	2%
OC Population	51%	49%	
Digital Media Arts Occupations	43%	57%	

Legend: ☐ Female ☐ Male ☐ Masked or Unknown

Appendix A: Methodology A

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	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	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://insightcced.org/family-needs-calculator/ The living wage for one adult in Orange County is $20.63 per hour ($42,910.40 annually). This figure is used by the CCCCO to calculate the percentage of students that attained the regional living wage.
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, knowledges, work activities, and interests associated with occupations. For more information, see https://www.onetonline.org/help/online/
Educational Supply	The CCCCO 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
Student Metrics and Demographics	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

Data Type	Source
Population and Occupation Demographics	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 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

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