Labor Market Analysis for Program Recommendation: 1303.30/Fashion Production (*Textile and Clothing Associate in Arts Degree*)

Orange County Center of Excellence, May 2024

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 are projected to be **838 annual job openings** throughout Los Angeles and Orange counties for these fashion occupations, which **is more than the 562 awards conferred by educational institutions.**	
	Yes ☑	No ☐
Living Wage: (Entry-Level, 25th)	*Comments:* **Nearly 63% of annual job openings** for these fashion occupations **have entry-level hourly wages above the OC living wage of $20.63.**	
	Yes ☑	No ☐
Education:	*Comments:* Though the majority (63%) of annual openings for these occupations typically require a bachelor's degree, **25% to 28% 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 fashion occupations:

- Below Middle-Skill – denoted with a carrot (^) throughout this report.
    - *Fabric and Apparel Patternmakers (51-6092)^*
    - *Tailors, Dressmakers, and Custom Sewers (51-6052)^*
- Middle-Skill
    - *Fashion Designers (27-1022)*

Middle-skill occupations typically require a community college education while below middle-skill occupations usually request up to a high school diploma or equivalent. Though OC COE labor market analysis reports typically focus on middle-skill occupations, the below middle-skill occupation included in this report aligns with the program objectives. Additionally, students can obtain employment in these below middle-skill occupations with a community college education. Therefore, the endorsement of this report considers data for both the below middle-skill and middle-skill occupations.

Based on the available data, there appears to be a supply gap for these fashion occupations. In addition, the majority of annual openings have entry-level wages above the living wage and typical education

requirements for these occupations align with a community college education. **Therefore, due to all 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 (25th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Tailors, Dressmakers, and Custom Sewers (51-6052)^	LA: 188	LA: 0	OC: $9.71	No formal education credential	25%
	OC: 48	OC: 0			
	TTL: 237	TTL: 0			
Fabric and Apparel Patternmakers (51-6092)^	LA: 70	*Accounted for Below*	OC: $18.10	High school diploma or equivalent	28%
	OC: 15				
	TTL: 85				
Below Middle-Skill Total	**322**	*Accounted for Below*	**N/A**	**N/A**	**N/A**
Fashion Designers (27-1022)	LA: 406	LA: 454	OC: $28.06	Bachelor's degree	26%
	OC: 110	OC: 108			
	TTL: 516	TTL: 562			
Middle-Skill Total	**516**	**562**	**N/A**	**N/A**	**N/A**
Total	**838**	**562**	**N/A**	**N/A**	**N/A**

Demand:

- The number of jobs related to these fashion occupations is projected to decrease 6% through 2027, resulting in 838 projected annual job openings.
- Hourly entry-level wages for these fashion occupations range from $9.71 to $28.06 in Orange County; however, nearly 63% annual job openings have entry-level wages above the living wage.
- There were 1,279 online job postings for these fashion occupations over the past 12 months. The highest number of postings were for seamstresses, fashion designers, and tailors.
- The typical entry-level education for these fashion occupations ranges from no formal education credential to a bachelor's degree.
- Between 25% and 28% of workers in these occupations have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 337 awards conferred by 10 community colleges in Los Angeles and Orange Counties from 2019 to 2022.
- Non-community college institutions conferred an average of 225 awards from 2019 to 2021.
- Due to a low number of students and insufficient data, the following metrics are unavailable:

- o Median annual wage of Orange County community college students that exited fashion production programs in the 2020-21 academic year as well as the percentage of these students who attained the regional living wage.
- o The percentage of Orange County fashion production students that exited their program in 2019-20 and reported that they are working in a job closely related to their field of study is not available.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for all three fashion occupations from 2017 through 2027. Though there was a 7% decline across all occupations from 2019 to 2020 in Los Angeles and Orange counties due to the COVID-19 pandemic, employment for the three fashion occupations decreased only 1% in Orange County during the same period. Employment continued to decline in 2021 but experienced a significant spike in 2022.

In the three years preceding the pandemic, employment for these occupations experienced a continuous increase through 2019. After declines in employment from 2019 to 2021 and an increase through 2022, employment is projected to plateau through 2027, at which point employment across all occupations is expected to increase 1%.

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

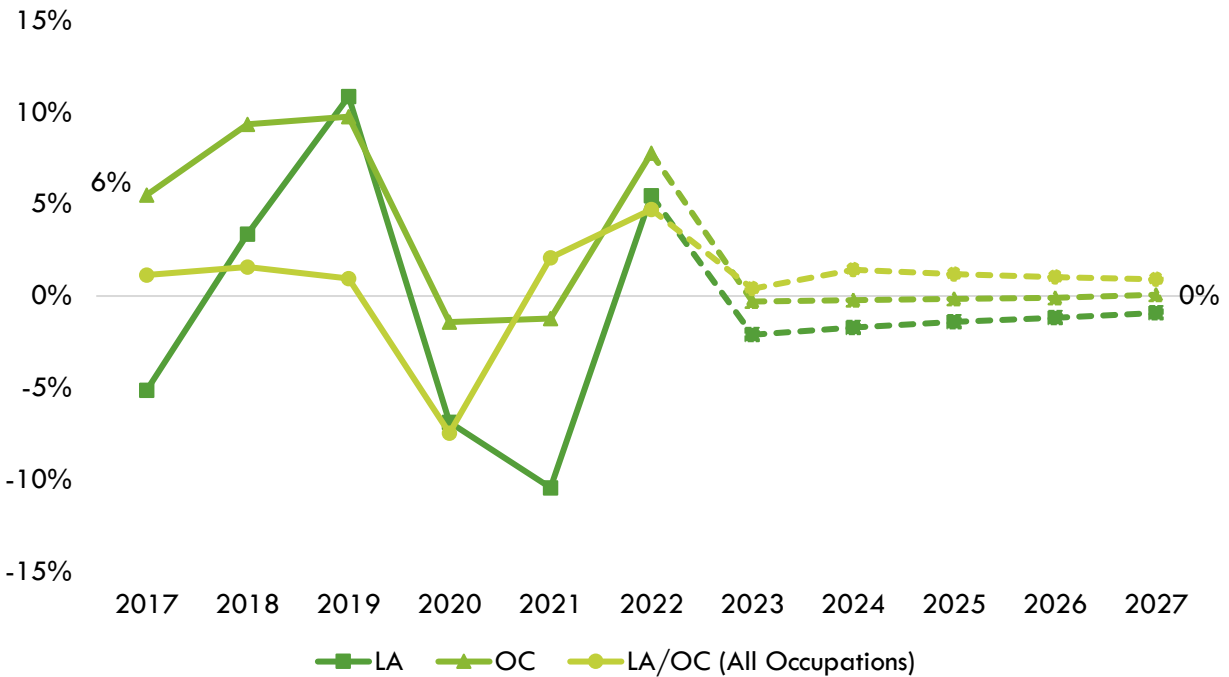
Exhibit 3 shows the five-year occupational demand projections for *tailors, dressmakers, and custom sewers*^ and *fabric and apparel patternmakers*^, the two below middle-skill occupations included in this report. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to decrease by 15% through 2027. There is projected to be 322 jobs available annually.

Exhibit 3: Below 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	2,174	1,833	(341)	(16%)	258
Orange	516	461	(55)	(11%)	63
Total	**2,691**	**2,294**	**(396)**	**(15%)**	**322**

Exhibit 4 shows the five-year occupational demand projections for *fashion designers,* the only middle-skill occupation analyzed in this report. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to decrease 2% through 2027. There is projected to 516 jobs available annually.

Exhibit 4: Middle-Skill Occupational Demand in Los Angeles and Orange Counties[1]
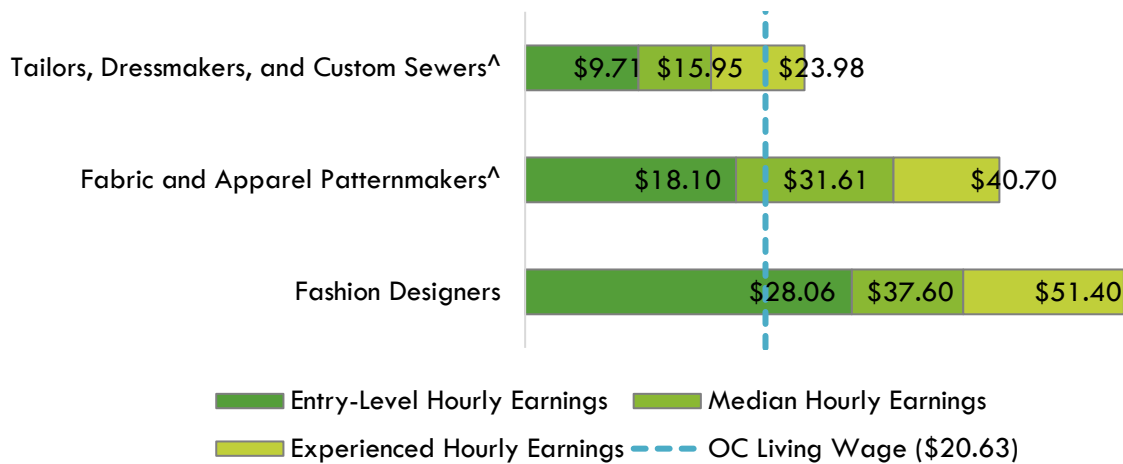
Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	4,645	4,500	(145)	(3%)	406
Orange	1,105	1,149	44	4%	110
Total	**5,750**	**5,649**	**(101)**	**(2%)**	**516**

Wages:

The labor market endorsement in this report considers the entry-level hourly wages for these fashion 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.

Nearly 63% of all annual openings for these fashion occupations have entry-level wages above the living wage for one adult ($20.63 in Orange County). Typical entry-level hourly wages range between $9.71 and $28.06. Orange County's average wages of $37.07 are above the average statewide wage of $35.13 for these occupations. Exhibit 5 shows the wage range for each of the three fashion occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.
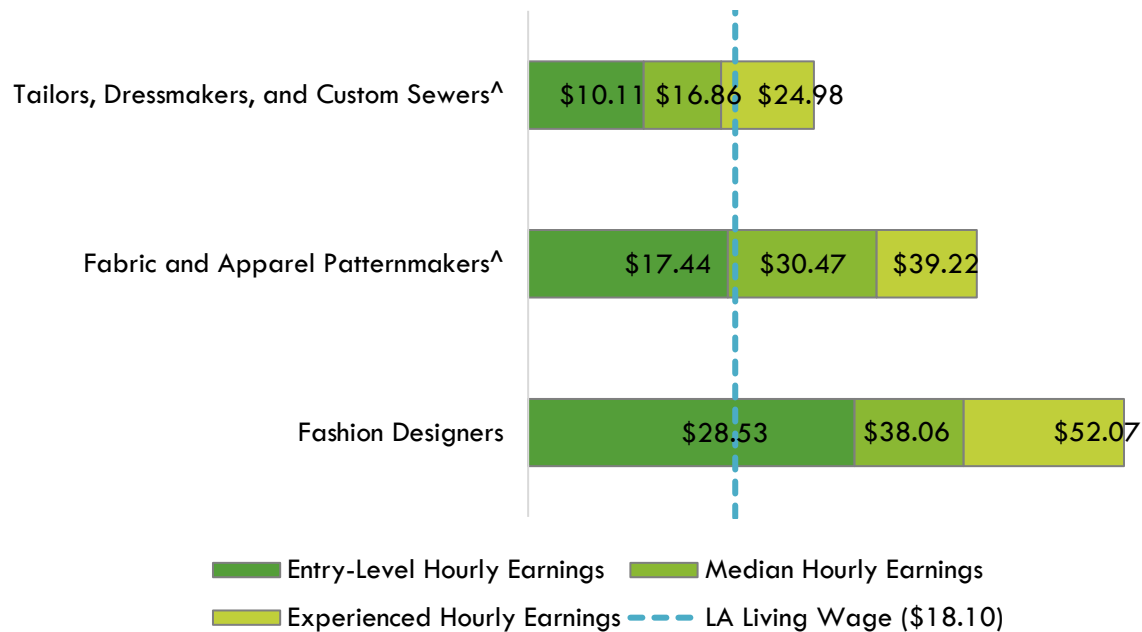
Exhibit 3: Wages by Occupation in Orange County

Tailors, Dressmakers, and Custom Sewers^: $9.71 $15.95 $23.98
Fabric and Apparel Patternmakers^: $18.10 $31.61 $40.70
Fashion Designers: $28.06 $37.60 $51.40

- ▇ Entry-Level Hourly Earnings
- ▇ Median Hourly Earnings
- ▇ Experienced Hourly Earnings
- ▪ ▪ ▪ OC Living Wage ($20.63)

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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.

Nearly 61% of all annual openings for these fashion 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 $10.11 and $28.53. Los Angeles County's average wages of $37.58 are above the average statewide wage of $35.13 for these occupations. Exhibit 6 shows the wage range for each of the three fashion occupations in Los Angeles County how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 4: Wages by Occupation in Los Angeles County

Tailors, Dressmakers, and Custom Sewers^	$10.11 $16.86 $24.98	
Fabric and Apparel Patternmakers^	$17.44 $30.47 $39.22	
Fashion Designers	$28.53 $38.06 $52.07	

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

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.

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[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 1,279 online job postings related to the three fashion occupations listed in the past 12 months. Of those, most were for *fashion designers*, followed by *tailors, dressmakers, and custom sewers^*. Exhibit 7 shows the number of job postings by occupation.

Exhibit 5: Number of Job Postings by Occupation (n=1,279)

Occupation	Job Postings	Percentage of Job Postings
Fashion Designers	768	60%
Tailors, Dressmakers, and Custom Sewers^	446	35%
Fabric and Apparel Patternmakers^	65	5%
Total Postings	**1,279**	**100%**

The top employers for *tailors, dressmakers, and custom sewers^* and *fabric and apparel patternmakers^* in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 6: Top Below Middle-Skill Employers by Number of Job Postings (n=511)

Employer	Job Postings	Percentage of Job Postings
Nordstrom	37	7%
David's Bridal	29	6%
Men's Wearhouse	16	3%
Neiman Marcus	15	3%
Galls	8	2%
Gucci	8	2%
Levi Strauss	8	2%
Bloomingdale's	7	1%
Louis Vuitton	6	1%
Buckle	5	1%

The top employers for *fashion designers* in the region, by number of job postings, are shown in Exhibit 9.

Exhibit 7: Top Middle-Skill Employers by Number of Job Postings (n=768)

Employer	Job Postings	Percentage of Job Postings
24 Seven	29	4%
Kellwood Company	29	4%
adidas	23	3%
Skechers	21	3%
Nordstrom	17	2%
Disney	13	2%
The Workshop La	11	1%
Boot Barn	10	1%
Revolve	9	1%
Volcom	8	1%

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for *tailors, dressmakers, and custom sewers*^ and *fabric and apparel patternmakers*^ in Exhibit 10.

Exhibit 8: Top Skills for Below Middle-Skill Occupation by Number of Job Postings (n=511)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Sewing (207)	Communication (150)	AutoCAD (16)
Garment Alterations (206)	Customer Service (121)	Adobe Illustrator (10)
Textiles (91)	Detail Oriented (102)	SolidWorks (CAD) (9)
Merchandising (88)	Sales (81)	SketchUp (3D Modeling Software) (8)
Machinery (59)	English Language (74)	Adobe Photoshop (7)
Selling Techniques (56)	Management (73)	V-Ray (7)
Garment Construction (42)	Teamwork (58)	Microsoft Excel (5)
Beadwork (38)	Enthusiasm (56)	Microsoft Office (5)
Inventory Management (32)	Problem Solving (55)	Adobe Creative Suite (4)
Embroidery (31)	Quality Control (51)	Microsoft Word (4)

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for *fashion designers* in Exhibit 11.
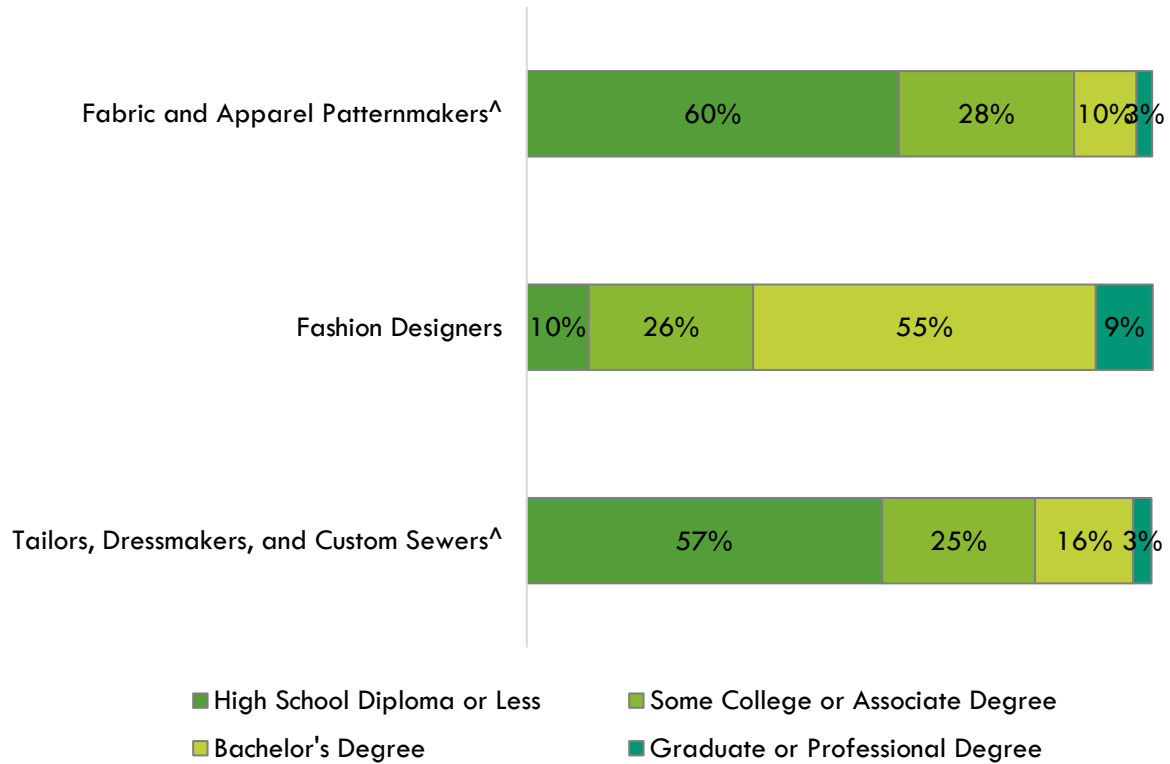
Exhibit 9: Top Skills for Middle-Skill Occupations by Number of Job Postings (n=768)

Top Specialized Skills	Top Soft Skills	Top Software and Computer Skills
Adobe Illustrator (433)	Communication (402)	Adobe Illustrator (433)
Adobe Photoshop (340)	Detail Oriented (273)	Adobe Photoshop (340)
Textiles (316)	Research (191)	Microsoft Excel (99)
Fashion Design (295)	Sales (182)	Adobe Creative Suite (83)
New Product Development (214)	Multitasking (145)	Microsoft Office (72)
Garment Construction (198)	Presentations (138)	Microsoft Outlook (61)
Merchandising (173)	Management (134)	Microsoft PowerPoint (56)
Technical Design (134)	Time Management (128)	Adobe InDesign (41)
Sketching (123)	Innovation (122)	Design Software (37)
Pattern Making (116)	Self-Motivation (111)	Microsoft Word (23)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists no formal education credential as the typical entry-level education for *tailors, dressmakers, and custom sewers*^, a high school diploma or equivalent for *fabric and apparel patternmakers*^, and a bachelor's degree for *fashion designers*. The national-level educational attainment data indicates 26% of workers in the middle-skill occupation have completed some college or an associate degree as their highest level of education. In addition, nearly between 25% and 28% of workers in the below 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.

Exhibit 10: National-level Educational Attainment for Occupations

Fabric and Apparel Patternmakers^
60% | 28% | 10% | 3%

Fashion Designers
10% | 26% | 55% | 9%

Tailors, Dressmakers, and Custom Sewers^
57% | 25% | 16% | 3%

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

Conversely, of the 22% of the postings for the below middle-skill occupations that listed a minimum education requirement, 89% (102) requested a high school diploma or an associate degree and 11% (12) requested a bachelor's degree.

Of the 47% of the cumulative job postings for the middle-skill occupation that listed a minimum education requirement in Los Angeles/Orange County, 73% (263) requested a bachelor's degree and 25% (89) requested a high school diploma or an associate 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: Fashion (1303.00), Fashion Design (1303.10), Fashion Merchandising (1303.20), and Fashion Production (1303.30). The colleges with the most completions in the region are: LA Trade, Santa Monica, and Mt. San Antonio. Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

Exhibit 11: 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
1303.00	Fashion	El Camino	4	6	6	5
		Pasadena	19	18	27	21
		LA Subtotal	**23**	**24**	**33**	**27**
		Fullerton	2	5	0	2
		Orange Coast	0	13	3	5
		Santa Ana	11	6	13	10
		OC Subtotal	**13**	**24**	**16**	**18**
		Supply Subtotal/Average	**36**	**48**	**49**	**44**
1303.10	Fashion Design	El Camino	0	1	1	1
		LA Trade	65	63	53	60
		Long Beach	7	4	8	6
		Mt San Antonio	55	8	8	24
		Santa Monica	25	26	33	28
		LA Subtotal	**152**	**102**	**103**	**119**
		Fullerton	6	5	5	5
		Orange Coast	8	8	15	10
		Saddleback	17	7	10	11
		Santa Ana	7	2	6	5
		OC Subtotal	**38**	**22**	**36**	**32**
		Supply Subtotal/Average	**190**	**124**	**139**	**151**
1303.20	Fashion Merchandising	El Camino	4	5	0	3
		LA Trade	9	21	11	14
		Long Beach	10	15	4	10
		Mt San Antonio	28	19	26	24
		Santa Monica	40	27	24	30
		LA Subtotal	**91**	**87**	**65**	**81**
		Fullerton	8	12	7	9
		Orange Coast	19	13	16	16

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		Saddleback	2	17	19	13
		Santa Ana	4	4	7	5
		OC Subtotal	**33**	**46**	**49**	**43**
	Supply Subtotal/Average		**124**	**133**	**114**	**124**
1303.30	Fashion Production	LA Trade	3	1	4	3
		LA Subtotal	**3**	**1**	**4**	**3**
		Fullerton	3	1	1	2
		Orange Coast	14	4	17	12
		Santa Ana	0	3	4	2
		OC Subtotal	**17**	**8**	**22**	**16**
	Supply Subtotal/Average		**20**	**9**	**26**	**18**
	Supply Total/Average		**370**	**314**	**328**	**337**

Exhibit 14 shows the annual average community college awards by type from 2019-20 through 2021-22. The plurality of the awards are for associate degrees, followed by certificates between 30 and less than 60 semester units and certificates between 16 and less than 30 semester units.

Exhibit 12: Annual Average Community College Awards by Type, 2019-2022
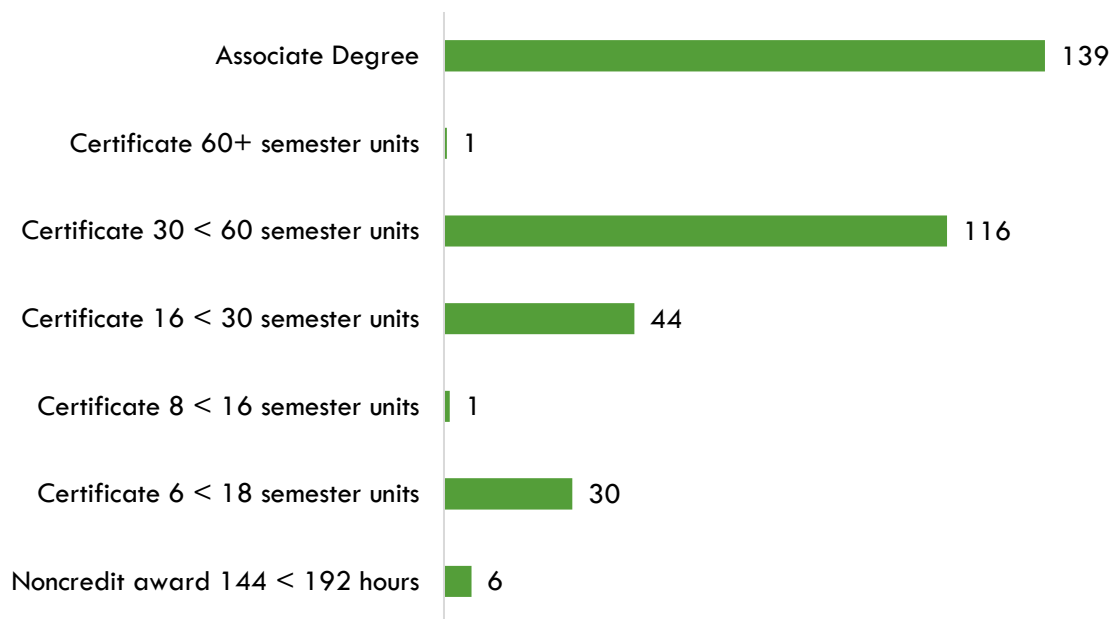
Community College Student Outcomes:

Exhibit 15 shows the Strong Workforce Program (SWP) metrics for fashion production programs in North Orange County Community College District (NOCCCD), the Orange County Region, and California. According to Chancellor's Office Curriculum Inventory (COCI) data, there are six active fashion production programs in Orange County, one of which is hosted at an NOCCCD college. However, due to insufficient data, several metrics are not available at the district and county levels for the related TOP code.

SWP Metric	NOCCCD	OC Region	California
SWP Students	Insufficient Data	15	421
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	Insufficient Data	Insufficient Data	39%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	Insufficient Data	Insufficient Data
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	Insufficient Data	Insufficient Data	16
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	Insufficient Data	Insufficient Data	23
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	Insufficient Data	Insufficient Data	45%
Median Annual Earnings for SWP Exiting Students	Insufficient Data	Insufficient Data	$34,264 ($16.47)
Median Change in Earnings for SWP Exiting Students	Insufficient Data	Insufficient Data	29%
SWP Exiting Students Who Attained the Living Wage	Insufficient Data	Insufficient Data	43%

Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering fashion training programs. Exhibit 16 displays the annual and two-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) Codes: Apparel and Textile Manufacture (19.0902), Fashion/Apparel Design (50.0407), and Costume Design (50.0510). No awards were conferred for the following CIP code: Fashion and Fabric Consultant (19.0906).

The available data covers 2019 to 2021. During this period, non-community college institutions in the region conferred an average of 225 awards annually in related training programs.

Exhibit 14: Regional Non-Community College Awards, 2019-2021

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2-Year Award Average
19.0902	Apparel and Textile Manufacturing	Beverly Hills Design Institute	2	1	2
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	19	11	15
	Supply Subtotal/Average		21	12	17
50.0407	Fashion/Apparel Design	Beverly Hills Design Institute	1	0	1

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

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2-Year Award Average
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	164	143	154
		Otis College of Art and Design	21	25	23
		Woodbury University	10	10	10
Supply Subtotal/Average			196	178	187
50.0510	Costume Design	California Institute of the Arts	3	0	2
		FIDM-Fashion Institute of Design & Merchandising-Los Angeles	19	21	20
Supply Subtotal/Average			22	21	22
Supply Total/Average			239	211	225

Regional Demographics

This section examines demographic data for Orange County community college students in fashion production programs compared to the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs. However, due to a low number of students, ethnicity-, age-, and sex-related metrics are masked or unknown for Orange County community college fashion production students. Therefore, the following analyses focuses primarily on demographic data for the county population relative to occupational data.

Ethnicity:

Exhibit 17 compares the ethnicity of individuals in the county population compared to occupation-specific data for the three fashion occupations included in this report. The plurality of workers in the field are Hispanic or Latino (42%), followed by Asian individuals who account for 34% of workers. Both groups hold higher representation in these occupations' workforce relative to the county population, which comprises of 34% and 21% Hispanic or Latino and Asian individuals, respectively. Conversely, though accounting for the plurality (40%) of the population, white individuals represent only 22% of workers in the field.

Examining disaggregated data for each occupation (not shown), white individuals account for the plurality of *fashion designers* (43%). This occupation has the highest ($28.06) entry-level wage and education requirement of all three fashion occupations. Hispanic or Latino workers compose the plurality and/or majority of workers in the remaining two occupations, both of which are below middle-skill occupations. In addition, *tailors, dressmakers, and custom sewers*^ has the highest percentages of Asian (37%). This occupation has the lowest entry-level wages ($9.17) and education requirements amongst all three fashion occupations.

Exhibit 15: Program and County Demographics by Ethnicity
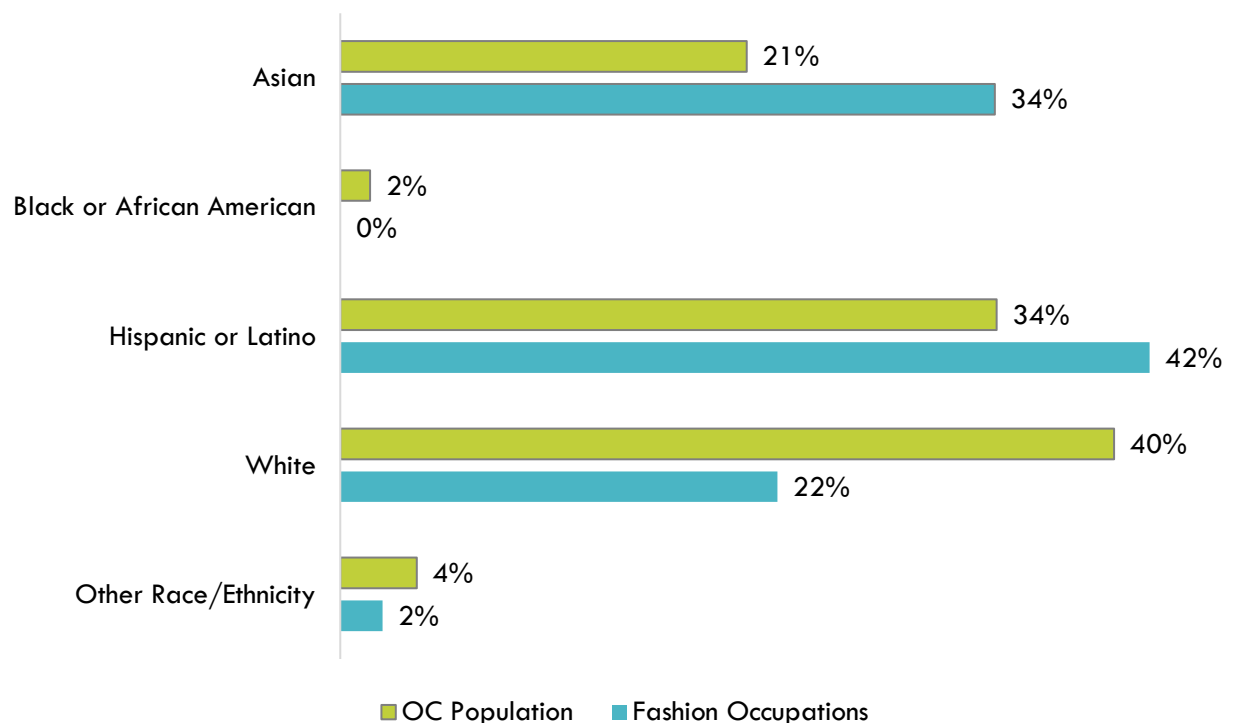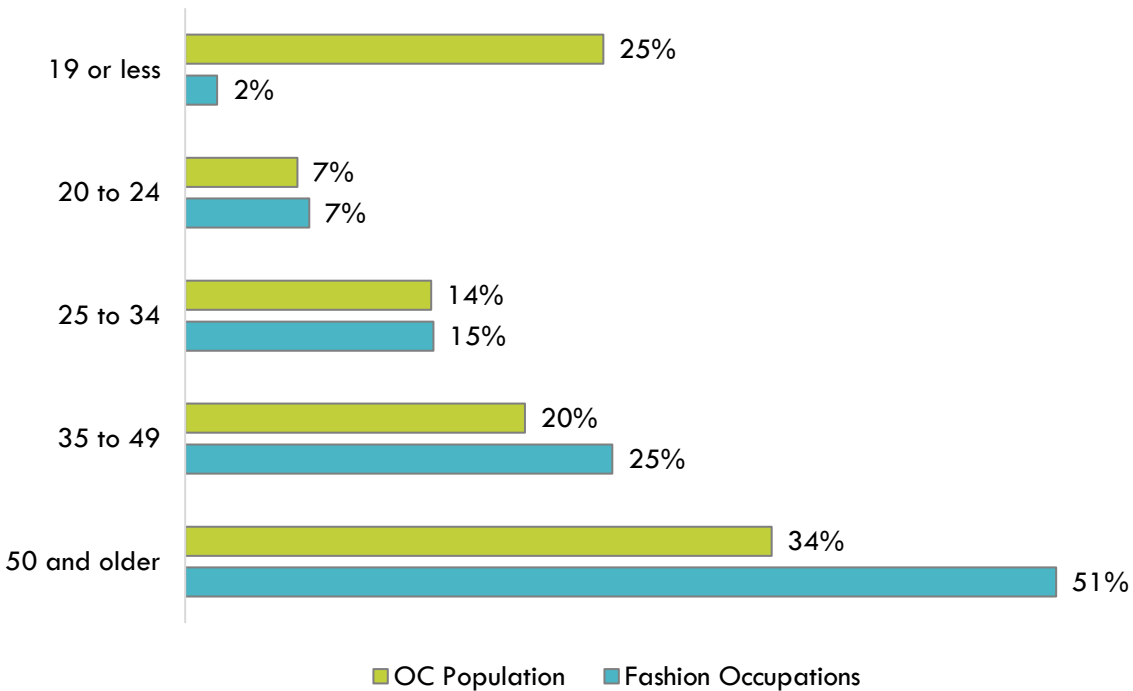
Age:

Exhibit 18 compares the age of individuals in the county population compared to occupation-specific data for the three fashion occupations included in this report.

A large majority of workers in these fashion occupations are age 35 and older (76%), which is significantly above the population (54%). Alone, individuals 50 and older account for the majority and/or the plurality of workers in the field and individuals in the county population. Alternatively, though accounting for only almost a third of the county population, (32%), individuals 24 or less comprise only 9% of workers in the field.

Examining disaggregated data for each occupation (not shown), individuals 50 and older represent the plurality and/or majority of workers in *tailors, dressmakers, and custom sewers*^ (63%) and *fabric and apparel patternmakers*^ (46%). Though education requirements for these occupations range from no formal educational credential to a high school diploma or equivalent, *tailors, dressmakers, and custom sewers*^ has the lowest entry-level wages ($9.17) and *fabric and apparel patternmakers*^ has the second highest/lowest wage ($18.10) of the three fashion occupations.

Exhibit 16: Program and County Demographics by Age

19 or less — 25% (OC Population), 2% (Fashion Occupations)
20 to 24 — 7% (OC Population), 7% (Fashion Occupations)
25 to 34 — 14% (OC Population), 15% (Fashion Occupations)
35 to 49 — 20% (OC Population), 25% (Fashion Occupations)
50 and older — 34% (OC Population), 51% (Fashion Occupations)

OC Population   Fashion Occupations

Sex:

Exhibit 19 compares the sex of individuals in the county population compared to occupation-specific data for the three fashion occupations included in this report.

Though the population is nearly split evenly between men and women, only 41% of workers in the field are men. Examining disaggregated data for each occupation (not shown), the majority of workers in these occupations are women, except *fabric and apparel patternmakers*^ in which men account for 73% of workers and offers an entry-level wage of $18.10 per hour.

Exhibit 17: Program and County Demographics by Sex

	Female	Male
OC Population	51%	49%
Fashion Occupations	59%	41%

☐ Female   ☐ Male   ☐ Masked or Unknown
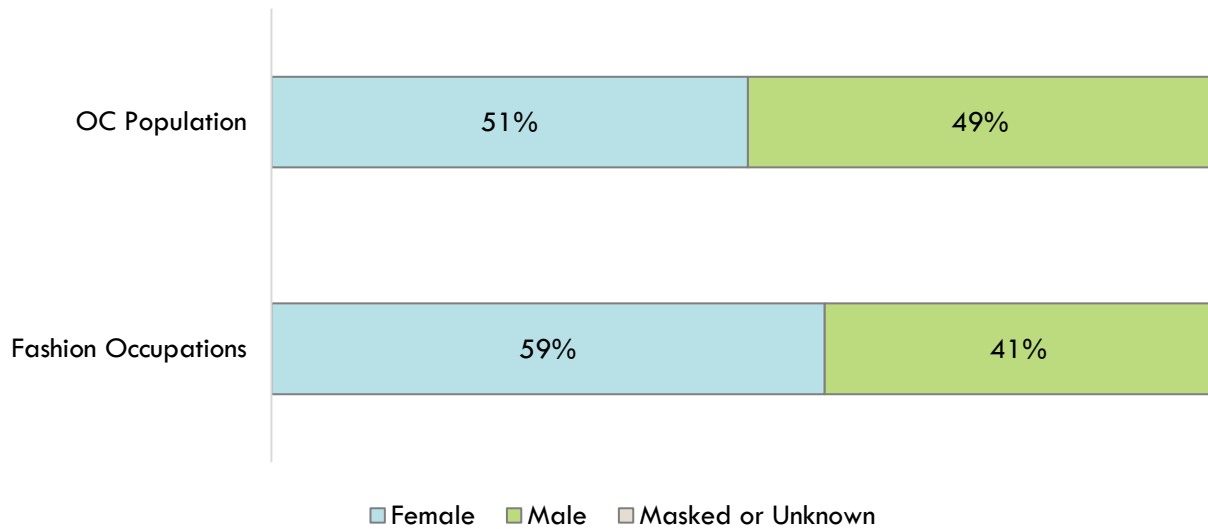
Appendix A: Methodology

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	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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