Labor Market Analysis for Program Recommendation: 1306.00/Nutrition, Foods, and Culinary Arts *(Food Science Associate in Science Degree)* *(Food Science Certificate)*

Orange County Center of Excellence, March 2025

FOR LABOR MARKET RESEARCH
ORANGE COUNTY

Summary

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

Program LMI Endorsement Criteria		
Supply Gap:	Yes ☑	No ☐
	Comments: there is projected to be **117 annual job openings** throughout Los Angeles and Orange counties for *food science technicians*, which **is more than the 158 awards conferred by educational institutions.** However, per COCI, there are only three food science-related programs in the region and supply is overstated.	
Self-Sufficiency Standard Living Wage[1]:	Yes ☐	No ☑
	Comments: **entry-level wages** for *food science technicians* are **$20.53, which is significantly below the OC living wage of $27.13.**	
Education:	Yes ☑	No ☐
	Comments: typical entry-level education is an associate degree and **41% of workers in the field have completed some college or an associate degree as their highest level of education.**	

Additional Considerations			
Emerging Occupation(s):	Yes ☐	Some ☐	No ☑
	Comments: N/A		
OC Resilient Job(s):	Yes ☐	Some ☐	No ☑
	Comments: See Resilient Jobs and US News & World Report Best Jobs		
U.S. News & World Report 2025 Best Jobs List[2]:	Yes ☐	Some ☐	No ☑
	Comments: See Resilient Jobs and US News & World Report Best Jobs		

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 one middle-skill occupation:

- *Food Science Technician (19-4013)*

[1] At the direction of the California Community College Chancellor's Office, the living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage, to determine Orange County's living wage of $27.13, last updated in March 2024.
[2] "100 Best Jobs," U.S. News & World Report, accessed January 28, 2025, https://money.usnews.com/careers/best-jobs/rankings/the-100-best-jobs.

Based on the available data there appears to be a supply gap for *food science technicians* and typical education requirements for this occupation align with a community college education. However, entry-level wages are significantly below the Self-Sufficiency Standard 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 (25th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Food Science Technician (19-4013)	LA: 86 OC: 31	LA: 112 OC: 46	OC: $20.53	Associate degree	41%
Total	**117**	**158**	**N/A**	**N/A**	**N/A**

Demand:

- The number of jobs related to *food science technicians* is projected to increase by 2% through 2028, equating to 117 annual job openings.
- Hourly entry-level wages for *food science technicians* are $20.53 in Orange County, which is significantly below the Self-Sufficiency Standard living wage.
- There were 67 online job postings for *food science technicians* over the past 12 months. The highest number of postings were for food technicians, quality assurance lead technicians, and food safety quality assurance technicians.
- The typical entry-level education for *food science technicians* is an associate degree.
- Approximately 41% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 148 awards conferred by 20 community colleges in Los Angeles and Orange Counties from 2020 to 2023.
    - Per COCI, regional community colleges only offer three food science-related programs; however, it is not possible to isolate their supply. Therefore, supply may be overstated.
- Non-community college institutions conferred an average of 10 awards from 2019 to 2022.
- Orange County community college students that exited nutrition, foods, and culinary arts programs in the 2020-21 academic year had a median annual wage of $36,026 ($17.32 per hour) after exiting the program and 36% attained the regional living wage.
- Throughout Orange County, 62% of nutrition, foods, and culinary arts students that exited their program in 2019-20 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 *food science technicians* from 2018 through 2028. Though there was a 7% decline across all occupations in Los Angeles and Orange counties from 2019 to 2020 due to the COVID-19 pandemic, employment for *food science technicians* decreased by 17% in Orange County during the same period.

In the two years preceding the pandemic, employment for this occupation fluctuated in Orange County, with an decrease in 2019 following an increase in 2018. After a decrease in employment in 2020 and an increase through 2023, with spike of 47% in 2022, employment for *food science technicians* in Orange County is projected to grow by 1% through 2028, experiencing a similar rate relative to all occupations in Los Angeles and Orange counties.

Exhibit 2: Annual Percent Change in Jobs for Food Science Technicians, 2018-2028

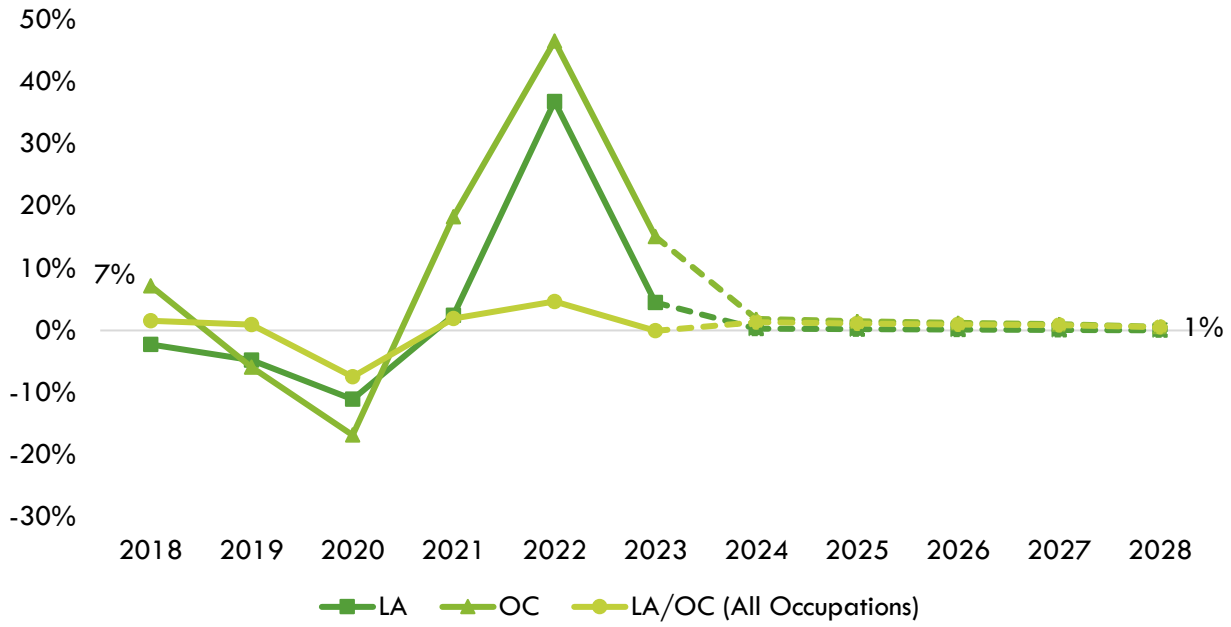


Exhibit 3 shows the five-year occupational demand projections for *food science technicians*. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to increase by 2% through 2028. There is projected to be 117 jobs available annually.

Exhibit 3: Occupational Demand in Los Angeles and Orange Counties[3]

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
Los Angeles	639	643	5	1%	86
Orange	207	221	13	6%	31
Total	**846**	**864**	**18**	**2%**	**117**

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

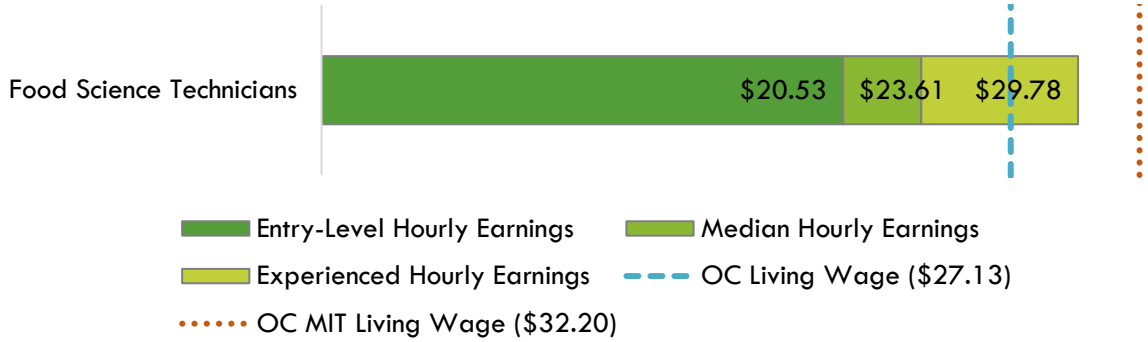
Wages:

The labor market endorsement in this report considers the entry-level hourly wages for *food science technicians* in Orange County as they relate to the county's living wage. Los Angeles County wages are included below to provide a complete analysis of the LA/OC region.

At the direction of the California Community College Chancellor's Office, the living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage, to determine Orange County's living wage of $27.13, last updated in March 2024. Additionally, data for the MIT Living Wage, updated on February 10, 2025, is provided as a reference. Currently, the MIT Living Wage in Orange County is $32.20. Both figures, which account for geographic-specific costs of necessities such as housing, food, health care, and transportation to assess the cost of living, are notated in the exhibits below.

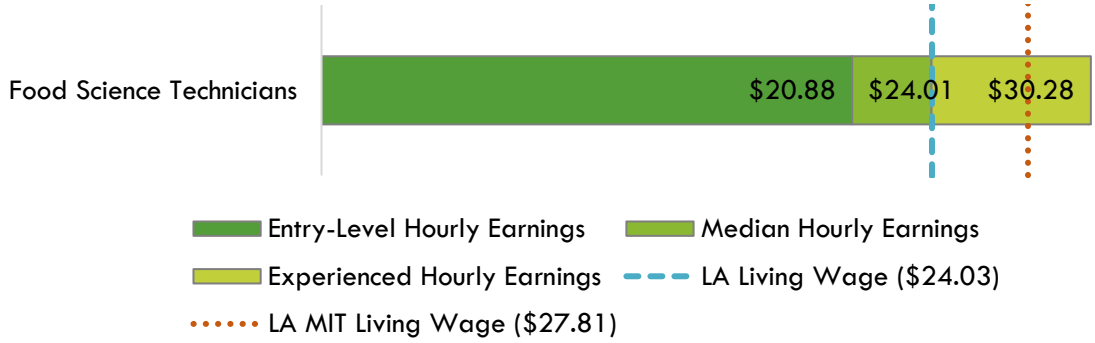
Entry-level hourly wages for *food science technicians* are $20.53, which is significantly below the Self-Sufficiency Standard living wage for one adult ($27.13 in Orange County). Median hourly wages and experienced hourly wages are $23.61 and $29.78, respectively. Only experienced hourly wages are above the living wage. Orange County's average wages of $26.40 are slightly above the average statewide wage of $26.38 for this occupation. Exhibit 4 shows the wage range for *food science technicians* in Orange County and how it compares to the regional living wage.

Exhibit 4: Wages by Occupation in Orange County



Entry-level hourly wages for *food science technicians* are $20.88, which is significantly below the Self-Sufficiency Standard living wage for one adult ($24.03 in Los Angeles County). Median hourly wages and experienced hourly wages are $24.01 and $30.28, respectively. Only experienced hourly wages are above the living wage. Los Angeles County's average wages of $26.87 are slightly above the average statewide wage of $26.38 for this occupation. Exhibit 5 shows the wage range for *food science technicians* in Los Angeles County and how it compares to the regional living wage.

Exhibit 5: Wages by Occupation in Los Angeles County



Resilient Jobs and U.S. News & World Report Best Jobs:

Exhibit 6 shows if an occupation is considered an Orange County Great Recession-Resilient, COVID-19 Pandemic Recession-Resilient Job, or a 2025 U.S. News & World Report (USN&WR) Best Job. *Food science technicians* did not meet the criteria for any of these designations.

Exhibit 6: Resilient Jobs and USN&WR Best Jobs Designations

Occupation	Great Recession-Resilient Job	COVID-19 Pandemic Recession-Resilient Job	2025 USN&WR Best Job
Food Science Technicians	☐	☐	☐

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.*[4] *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 67 online job postings related to *food science technicians* listed in the past 12 months. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=67)

Occupation	Job Postings	Percentage of Job Postings
Food Science Technicians	67	100%
Total Postings	**67**	**100%**

The top employers in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Employers by Number of Job Postings (n=67)

Employer	Job Postings	Percentage of Job Postings
Actalent	8	12%
Astrix Technology Group	4	6%
Bento Sushi	4	6%
Astrix Technology	3	4%
King's Hawaiian	3	4%

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

Employer	Job Postings	Percentage of Job Postings
ManpowerGroup	3	4%
Virtusa	3	4%
Activ8 Recruitment & Solutions	2	3%
Felbro Food Products	2	3%
Flying Food Group	2	3%

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 9.

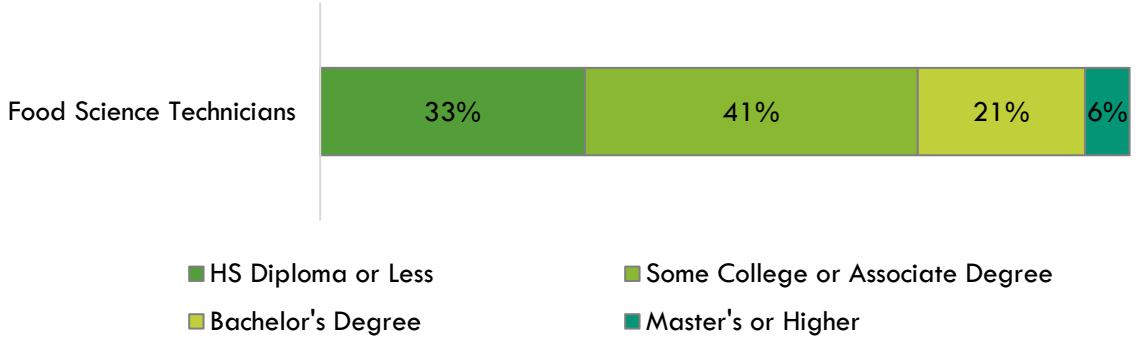
Exhibit 9: Top Skills by Number of Job Postings (n=67)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Food Safety And Sanitation (43)	Safety Assurance (31)	Microsoft Excel (17)
Hazard Analysis And Critical Control Points (HACCP) (35)	Quality Assurance (30)	Microsoft Outlook (15)
Auditing (33)	Sanitation (30)	Microsoft PowerPoint (11)
Food Manufacturing (31)	Communication (18)	Microsoft Office (7)
Good Manufacturing Practices (21)	Management (18)	Microsoft SharePoint (4)
Food Quality Assurance And Control (20)	Microsoft Excel (17)	Microsoft Word (4)
Food Science (18)	Packaging And Labeling (17)	Micro Focus ALM Quality Center (3)
Warehousing (14)	Quality Control (17)	Data Interfaces (2)
Bilingual (Spanish/English) (13)	Microsoft Outlook (15)	Inventory Control Systems (2)
Laboratory Equipment (13)	Computer Literacy (14)	Software Systems (2)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for *food science technicians*. In addition, the national-level educational attainment data indicates 41% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 10 shows the educational attainment for this occupation.

Exhibit 10: National-level Educational Attainment for Occupations



Of the 58% of the cumulative job postings for *food science technicians* that listed a minimum education requirement in Los Angeles/Orange County, 77% (30) requested a high school diploma or an associate degree and 23% (9) requested a bachelor's degree.

Educational Supply

The following supply tables displays the total supply for *food science technicians* that align with these TOP/CIP codes and program needs.

Community College Supply:

Exhibit 11 shows the three-year average number of awards conferred by community colleges in the related TOP code: Nutrition, Foods, and Culinary Arts (1306.00). No awards were conferred under the following related TOP code: Food Processing and Related Technologies (0113.00). The colleges with the most completions in the region are Mt. San Antonio, East LA and Long Beach. Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

It is important to note that these supply figures only reflect awards conferred under the TOP code: Nutrition, Foods, and Culinary Arts (1306.00). Per COCI, regional community colleges only offer three food science-related programs; however, it is not possible to isolate their supply. Therefore, supply may be overstated.

Exhibit 11: Regional Community College Awards (Certificates and Degrees), 2020-2023

TOP Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
1306.00	Nutrition, Foods, and Culinary Arts	Citrus	4	6	2	4
		East LA	18	21	16	18
		Glendale	0	6	8	5
		LA City	0	4	1	2
		LA Harbor	0	3	1	1
		LA Mission	7	4	7	6
		LA Southwest	2	2	4	3
		LA Trade	0	3	0	1
		Long Beach	19	16	20	18
		Mt San Antonio	19	25	29	24
		Pasadena	10	3	1	5
		Rio Hondo	3	1	1	2
		Santa Monica	9	11	8	9
		West LA	4	5	2	4
		LA Subtotal	**95**	**110**	**100**	**102**
		Cypress	1	3	0	1
		Fullerton	17	13	12	14
		Orange Coast	17	11	9	12
		Saddleback	24	12	12	16
		Santa Ana	1	2	1	1
		Santiago Canyon	0	0	4	1
		OC Subtotal	**60**	**41**	**38**	**46**
		Supply Total/Average	**155**	**151**	**138**	**148**

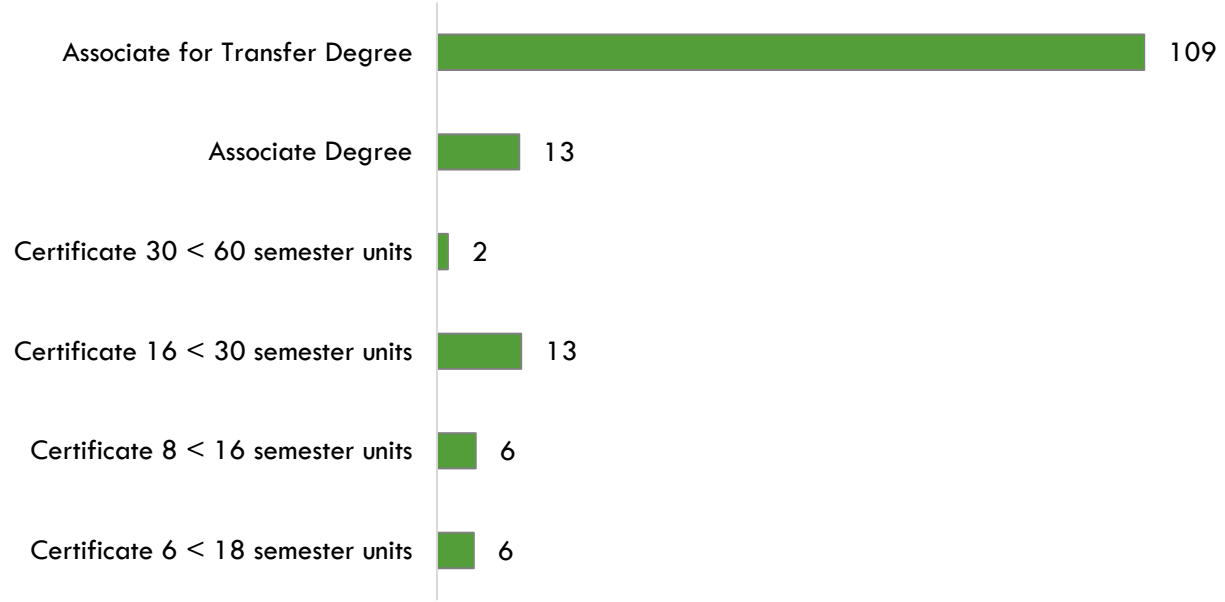
As noted previously, community colleges throughout Los Angeles and Orange counties only offer three food science-related programs. Exhibit 12 shows the college, TOP code, program name, award type, and approval date for food science related programs offered by regional community colleges.

Exhibit 12: Regional Community College Food Science Programs

TOP Code/Title	College	Program Name	Award Type	CCCCO Approval Date
1306.00/Nutrition, Foods, and Culinary Arts	Cypress	Food Science Fundamentals	Certificate	6/2/21
1306.00/Nutrition, Foods, and Culinary Arts	Orange Coast	Culinology(R) and Food Science: Level II Professional Level	A.S. Degree	8/13/2012
		Level 1 - Culinary Food Science Assistant	Certificate	8/13/2012

Exhibit 13 shows the annual average community college awards by type from 2020-21 to 2022-23. The plurality of the awards are for associate for transfer degrees, distantly followed by associate degrees and certificates between 16 and less than 30 semester units.

Exhibit 13: Annual Average Community College Awards by Type, 2020-2023



Community College Student Outcomes:

Exhibit 14 shows the Strong Workforce Program (SWP) metrics for nutrition, food, and culinary art programs in North Orange County Community College District (NOCCCD), the Orange County Region, and California. Of the 5,591 Orange County nutrition, foods, and culinary arts students in the 2021-22 academic year, 44% (2,454) attended an NOCCCD college.

NOCCCD students that exited nutrition, foods, and culinary arts programs in the 2021-22 academic year had lower median annual earnings ($31,696 or $15.24 per hour) compared to all nutrition, foods, and culinary arts students in Orange County ($36,026 or $17.32 per hour). A lower percentage of NOCCCD nutrition, foods, and culinary arts students attained the living wage (29%) when compared to all nutrition, foods, and culinary arts students in Orange County (36%).

Exhibit 14: Nutrition, Foods, and Culinary Arts (1306.00) Strong Workforce Program Metrics, 2021-22[5]

SWP Metric	NOCCCD	OC Region	California
SWP Students	2,454	5,591	47,798
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	13%	14%	15%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	82	87	80%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	15	41	422
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	193	445	4,503
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	83	62%	59%
Median Annual Earnings for SWP Exiting Students (2020-21)	$31,696 ($15.24)	$36,026 ($17.32)	$34,280 ($16.48)
Median Change in Earnings for SWP Exiting Students (2020-21)	39%	33%	30%
SWP Exiting Students Who Attained the Living Wage (2020-21)	29%	36%	48%

Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering nutrition, foods, and culinary arts programs. Exhibit 15 displays the annual and three-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) code: Food Technology and Processing (01.1002). The available data covers 2019 to 2022. During this period, non-community college institutions in the region conferred an average of 10 awards annually in related programs.

Exhibit 15: Regional Non-Community College Awards, 2019-2022

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
01.1002	Food Technology and Processing	California State University-Los Angeles	15	8	8	10
		Supply Total/Average	**15**	**8**	**8**	**10**

[5] All SWP metrics are for 2021-22 unless otherwise noted.

Regional Demographics

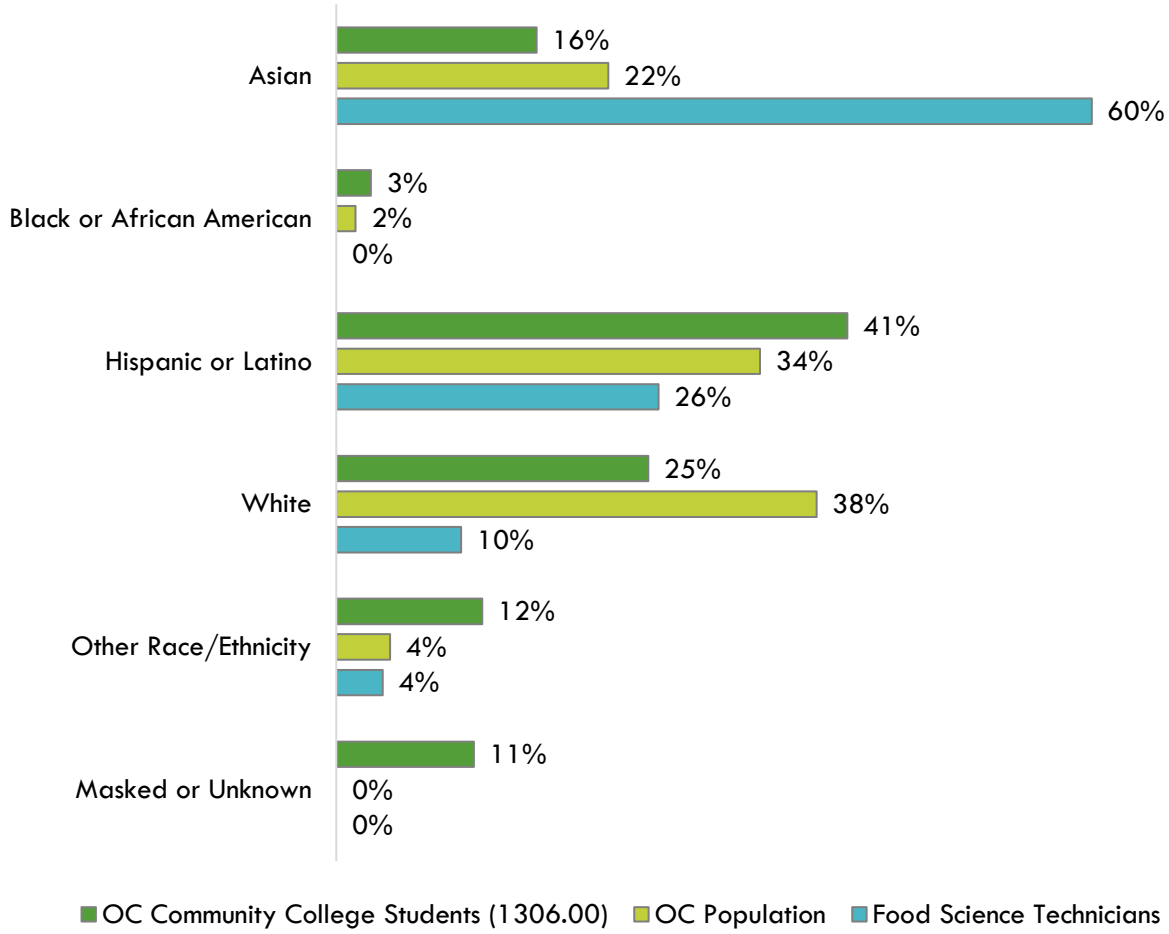
This section examines demographic data for Orange County community college students in nutrition, foods, and culinary arts programs compared to the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs.

Ethnicity:

Exhibit 16 compares the ethnicity of Orange County community college students enrolled in nutrition, foods, and culinary arts programs, the overall Orange County population, and occupation-specific data for *food science technicians*.

Notably, 60% of workers employed as *food science technicians* are Asian, which is much higher than the population (22%) and community college nutrition, foods, and culinary arts students (16%). Conversely, 26% of workers in the field are Hispanic or Latino, which lower than the population (34%) and community college nutrition, foods, and culinary arts students (41%).

Exhibit 16: Program and County Demographics by Ethnicity

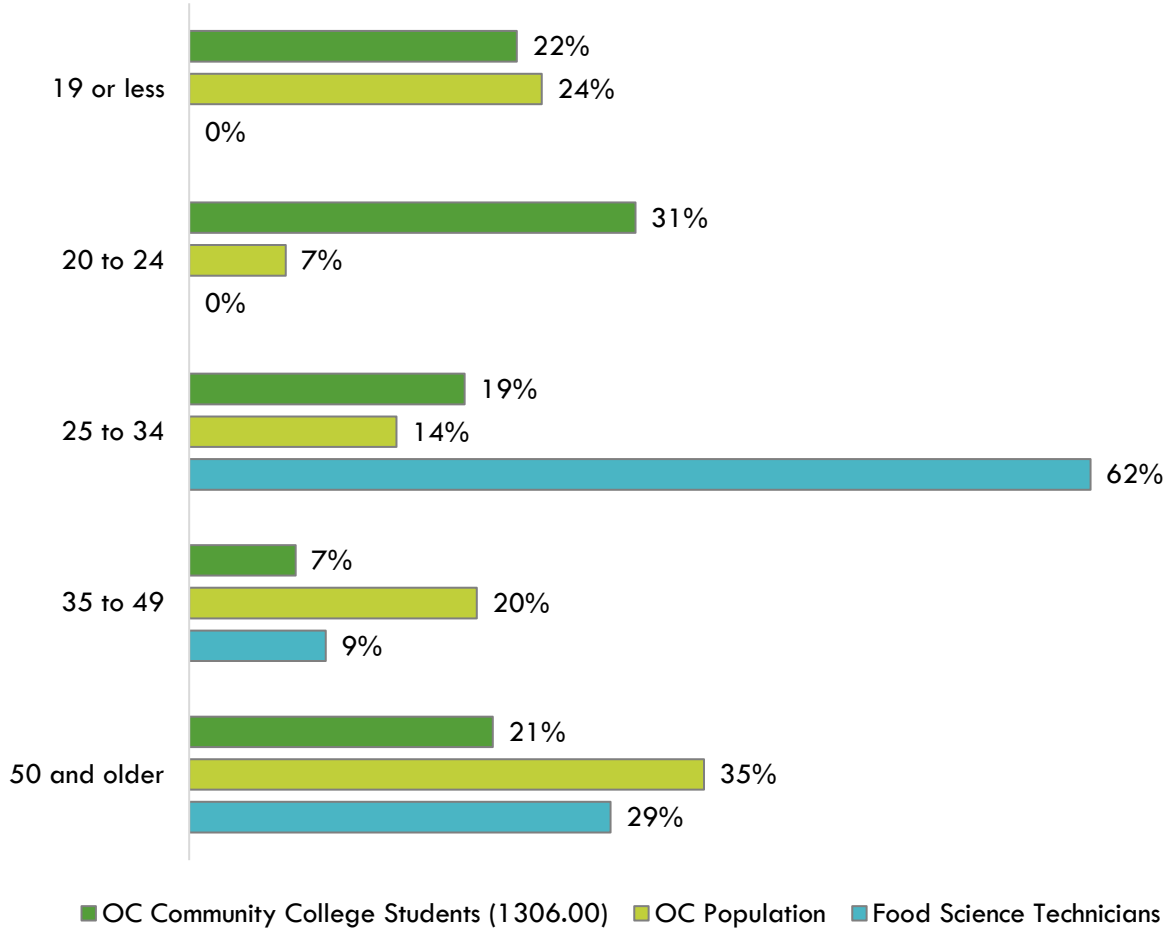


Age:

Exhibit 17 compares the age of Orange County community college students enrolled in nutrition, foods, and culinary arts programs, the overall Orange County population, and occupation-specific data for *food science technicians*.

Nearly 62% of workers employed as *food science technicians* are aged between 25 and 34, which is significantly higher than the population (14%) and community college nutrition, foods, and culinary arts students (19%). Conversely, 29% of workers in the field are aged 50 and older, which is lower than the population (35%) but higher than the community college nutrition, foods, and culinary arts students (21%).

Exhibit 17: Program and County Demographics by Age

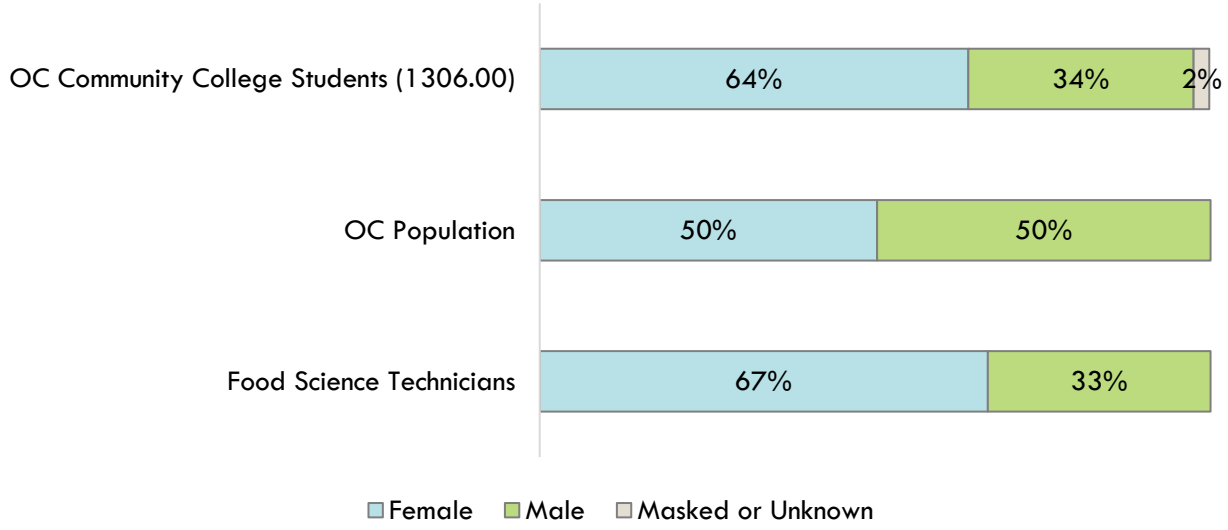


Sex:

Exhibit 18 compares the sex of Orange County community college students enrolled in nutrition, foods, and culinary arts programs, the overall Orange County population, and occupation-specific data for *food science technicians*.

Though the population is split evenly between women and men, only 34% of community college nutrition, foods, and culinary arts students and 33% of workers in the field are men.

Exhibit 18: 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	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/
Living Wage	"Living Wage" measures the income necessary for an individual or family to afford basic expenses by assessing the costs such as housing, food, child care, health care, transportation, and taxes. Per the CCCCCO's this report's endorsement criteria uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard last updated in March 2024, which is $27.13 per hour ($56,451 annually) in Orange County. For more information, see: http://www.selfsufficiencystandard.org/California The MIT Living Wage, updated on February 10, 2025, is a nationally recognized living wage metric and is provided for reference. The current MIT Living Wage in Orange County is $32.20. For more information, see: https://livingwage.mit.edu/counties/06059
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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