

Labor Market Analysis: 0113.00 – Food Processing and Related Technologies
Brewing Technology – Certificate requiring 8 to fewer than 16 semester units
 Los Angeles Center of Excellence, April 2024

Program Endorsement:	Endorsed: All Criteria Met <input checked="" type="checkbox"/>	Endorsed: Some Criteria Met <input type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Living Wage: (Entry-Level, 25 th)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Emerging Occupation(s)			
	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

SUMMARY

This report analyzes whether local labor market demand is being met by community college programs aligned with the identified middle-skill occupations¹ or whether a shortage of workers exists. Labor market demand is measured by annual job openings while education supply is measured by the number of awards (degrees and certificates) conferred on average each year.

Based on the available data, there appears to be a supply gap for the two identified middle-skill occupations in the region. Furthermore, entry-level wages exceed the self-sufficiency standard wage in Los Angeles County, and more than one-third of current workers in the field have completed some college or an associate degree.

Recommendation: Due to all three program endorsement criteria being met, the Los Angeles Center of Excellence for Labor Market Research (LA COE) endorses this proposed program.

Key Findings

Supply Gap

- 255 annual job openings are projected in the region through 2027. This number is greater than the three-year average of 0 awards conferred by educational institutions in the region.

Living Wage

- Both occupations have entry-level wages **above** Los Angeles County's self-sufficiency standard hourly wage (\$18.10/hour).²

¹ Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree. The COE classifies middle-skill jobs as the following:

- 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.

² Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: <http://selfsufficiencystandard.org/california>.

Educational Attainment

- 57% of the annual job openings typically require a high school diploma or equivalent for middle-skill occupations related to program in the LA/OC region.
- 35%-42% of workers in the field have completed some college or an associate degree, according to national educational attainment data.

Community college supply

- No community colleges issued awards related to food processing and/or brewing technology in the greater LA/OC region in the past three years.

Other postsecondary supply

- No other educational institutions in the LA/OC region offer programs related to brewing technology.

TARGET OCCUPATIONS

LA COE prepared this report to provide regional labor market and postsecondary supply data related to two middle-skill occupations. [For full occupation descriptions, please see Appendix.](#)

- **Food Science Technicians (19-4013)**³
- **Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (51-9012)**⁴

OCCUPATIONAL DEMAND

Exhibit 1 shows the five-year occupational demand projections for these occupations related to brewing technology. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 4% through 2027. There will be more than 250 job openings per year through 2027 due to job growth and replacements. It is important to note that the *food science technicians* (19-4013) SOC code includes all food science, and not solely brewing technology. Additionally, the *separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders* (51-9012) SOC code includes employees that operate various vat-type machinery, and not solely brewers. Since the data in Exhibit 1 includes employees who work with a variety of food, beverage, and machinery, Exhibit 1 is likely overstated for brewing technology occupations. The majority of jobs in 2022 for these occupations related to brewing technology (75%) were located in Los Angeles County.

Exhibit 1: Current employment and occupational demand, Los Angeles and Orange counties⁵

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	1,620	1,669	49	3%	187
Orange	550	587	38	7%	68
Total	2,169	2,256	87	4%	255

³ [Agricultural and Food Science Technicians \(bls.gov\)](#)

⁴ [Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders \(bls.gov\)](#)

⁵ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Detailed Occupation Data

Exhibit 2 displays the current employment and projected occupational demand for each of the target occupations in Los Angeles County. The percentage of workers aged 55+ and automation index is included in order to visualize upcoming replacement demand for these occupations.

Separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders have a higher-than-average risk of automation and a smaller share of older workers in the field.

Exhibit 2: Current employment, projected occupational demand, percentage of workers aged 55+, Los Angeles County⁶

Occupation	2022 Jobs	2027 Jobs	5-Yr % Change	Annual Openings	% Aged 55 and older*	Automation Index**
Food Science Technicians	600	607	1%	82	28%	94.8
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	1,020	1,061	4%	105	21%	115.3
Total	1,620	1,669	3%	187	-	-

*The average percentage of workers aged 55 and older across all occupations in the greater LA/OC region is 27%. Food science technicians have a larger share of older workers, which typically indicates greater replacement needs to offset the amount of impending retirements.

**The automation index captures an occupation's risk of being affected by automation with a base of 100. An automation index greater than 100 indicates a higher-than average risk of automation; less than 100 indicates a lower-than-average risk.

WAGES

The labor market endorsement in this report considers the entry-level hourly wages for these occupations related to brewing technology in Los Angeles County as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the greater Los Angeles/Orange County region.

Los Angeles County

Both occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$19.34 and \$20.91 (Exhibit 3). Experienced workers can expect to earn wages between \$28.95 and \$29.76.

⁶ 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 3: Earnings for occupations in Los Angeles County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Food Science Technicians	\$20.91	\$23.32	\$29.76	\$48,500
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	\$19.34	\$22.63	\$28.95	\$47,100

*Rounded to the nearest \$100

Orange County

Both occupations have entry-level wages below the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$18.42 and \$20.59 (Exhibit 4). Experienced workers can expect to earn wages between \$27.52 and \$29.37, which are higher than the self-sufficiency standard.

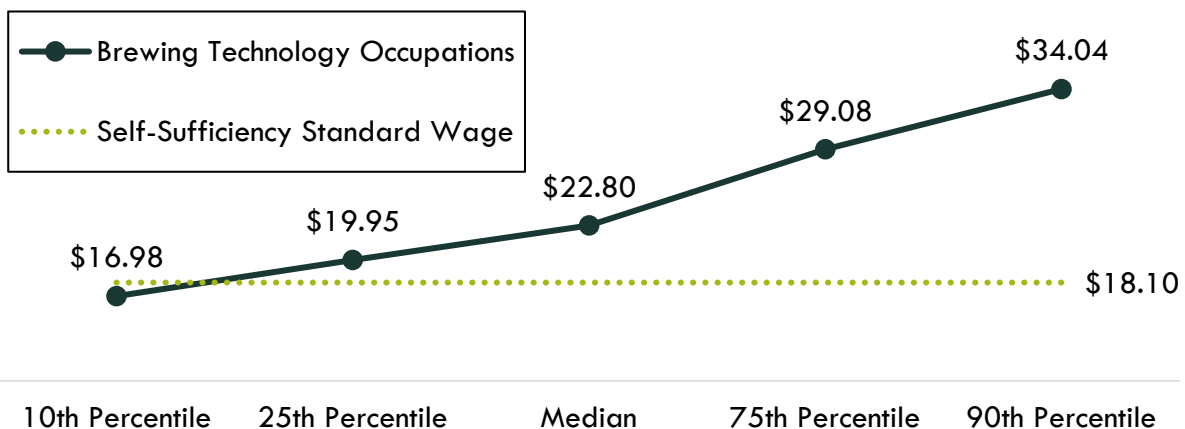
Exhibit 4: Earnings for occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Food Science Technicians	\$20.59	\$22.98	\$29.37	\$47,800
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	\$18.42	\$21.54	\$27.52	\$44,800

*Rounded to the nearest \$100

Across the greater Los Angeles and Orange County region, the average entry-level hourly earnings for the occupations in this report are \$19.95; this is above the living wage for one single adult in Los Angeles County (\$18.10). Exhibit 5 shows the average hourly wage for the occupations in this report, for entry-level to experienced workers.

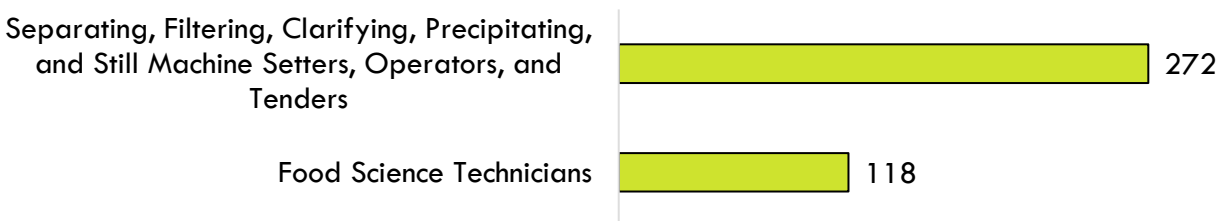
Exhibit 5: Average hourly earnings for brewing technology occupations, Los Angeles and Orange counties



JOB POSTINGS

There were 390 online job postings related to the occupations in this report listed in the past 12 months in Los Angeles and Orange counties. Exhibit 6 displays the number of job postings by occupation. The majority of job postings (70%) were for *separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders*, followed by *food science technicians* (30%).

Exhibit 6: Job postings by occupation (last 12 months), Los Angeles and Orange counties



Job postings were analyzed for the most common job titles, skills, and employers associated with the target occupations in this report (Exhibit 7).

Exhibit 7: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> • Processing technicians • Utility operators • Brewers • Heat treat technicians • Data processing technicians 	<ul style="list-style-type: none"> • Good manufacturing practices • Food safety and sanitation • Warehousing • Food quality assurance and control • Machinery 	<ul style="list-style-type: none"> • Alcoa* • Aerotek* • Flag Solutions* • Octapharma • Howmet

Cicerone Certification

Cicerone beer server certification⁷ was mentioned on 80 job postings in the Los Angeles/Orange County region over the past 12 months. This certification was most commonly featured on job postings for bartenders (11 job postings), sales representatives (11 job postings) and customer service representatives (11 job postings). Exhibit 8 displays the most common job titles, skills, and employers listed on job postings that mentioned the Cicerone beer certification.

⁷ [Cicerone Certification Levels](#)

Exhibit 8: Job titles, skills and employers listed on job postings requesting Cicerone Certification, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> • Beertenders • Tasting room associates • Craft beer specialists • Bartenders • Bartenders/servers • Brand ambassadors • Sales representatives/sales associates 	<ul style="list-style-type: none"> • Restaurant operation • Selling techniques • Marketing • Merchandising • Point-of-sale 	<ul style="list-style-type: none"> • Ballast Point • Stone Brewing Company • Bootlegger’s Brewery • Glacier Design Systems • Firestone Walker Brewing Company • Stereo Brewing Company • The Bruery

In the greater Los Angeles/Orange County region, 49% of the brewing technology-related occupations job postings listed a minimum educational requirement. The number and percentage of job postings by educational level appear in exhibit 9.

Exhibit 9: Education levels requested in job postings for occupations related to brewing technology, Los Angeles and Orange counties

Education Level	Job Postings	% of Job Postings
Bachelor's degree	17	9%
Associate degree	14	7%
High school diploma or vocational training	159	84%

EDUCATIONAL ATTAINMENT

In the greater Los Angeles/Orange County region, the majority of annual job openings (57%) typically require a high school diploma or equivalent (Exhibit 10). However, the national-level data indicates between 35% and 42% of workers in the field have completed some college or an associate degree as their highest level of educational attainment. The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

Exhibit 10: Entry-level education preferred by employers nationally, Bureau of Labor Statistics

Occupation	Education Level
Food Science Technicians	Associate degree
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	High school diploma or equivalent

EDUCATIONAL SUPPLY

Community College Supply

Currently, there are no Food Processing and Related Technologies (TOP 0113.00) programs in the Los Angeles/Orange County region. Exhibit 11 shows the California community colleges that have or have recently had programs related to brewing technology and/or beer studies.

MiraCosta College Community Education & Workforce Development in San Diego offers Craft Brewing Technician (BrewTech) Certificate, a workforce training class. This 210-hour BrewTech program is designed to train students to become productive brewers while gaining confidence in the brewhouse, cellar, or packaging line.⁸

Exhibit 11: Community college brewing programs

TOP Code	TOP Title	Program	College	Status
0104.00	Viticulture, Enology, and Wine Business	Wine and Beer Studies	College of the Canyons	Active
0113.00	Food Processing and Related Technologies	Fermentation Management	San Diego Mesa	Active
(Not in COCI)	(Not in COCI)	Craft Brewing Technician (BrewTech) Certificate	MiraCosta	(Not in COCI)
0113.00	Food Processing and Related Technologies	Brewing	Santa Rosa	Inactive

Other Postsecondary Supply

For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for brewing technology. It is difficult to assess the supply data for brewing technology programs, as there are no other postsecondary programs in California that have conferred awards within the past three years under these related CIP programs: Brewing Science (01.1003) or Brewery/Brewpub Operations/Management (52.0910).

However, online research shows that brewing programs at postsecondary institutions in California are included under Food Science programs. For instance, students at UC Davis can earn a Food Science and Technology Bachelor of Science degree, with an emphasis in brewing. There are currently no other postsecondary institutes in the Los Angeles/Orange County region that offer brewing technology programs.

⁸ [Craft Brewing Technician \(BrewTech\) Certificate | Community Education & Workforce Development \(miracosta.edu\)](https://www.miracosta.edu/cewd/craft-brewing-technician-brewtech-certificate)

APPENDIX: OCCUPATION DESCRIPTIONS

LA COE prepared this report to provide regional labor market supply and demand data related to these target occupations:

- **Food Science Technicians (19-4013)** Work with food scientists or technologists to perform standardized qualitative and quantitative tests to determine physical or chemical properties of food or beverage products. Includes technicians who assist in research and development of production technology, quality control, packaging, processing, and use of foods.⁹
- **Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (51-9012)** Set up, operate, or tend continuous flow or vat-type equipment; filter presses; shaker screens; centrifuges; condenser tubes; precipitating, fermenting, or evaporating tanks; scrubbing towers; or batch stills. These machines extract, sort, or separate liquids, gases, or solids from other materials to recover a refined product. Includes dairy processing equipment operators.¹⁰

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DATA SOURCES

- O*NET Online
- Lightcast (formerly Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

Important Disclaimer: All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District, nor California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon components or recommendations contained in this study.

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⁹ [Agricultural and Food Science Technicians \(bls.gov\)](https://www.bls.gov)

¹⁰ [Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders \(bls.gov\)](https://www.bls.gov)