

Regional Economic Analysis Profile

San Francisco Bay Area Region

June 2014



Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties





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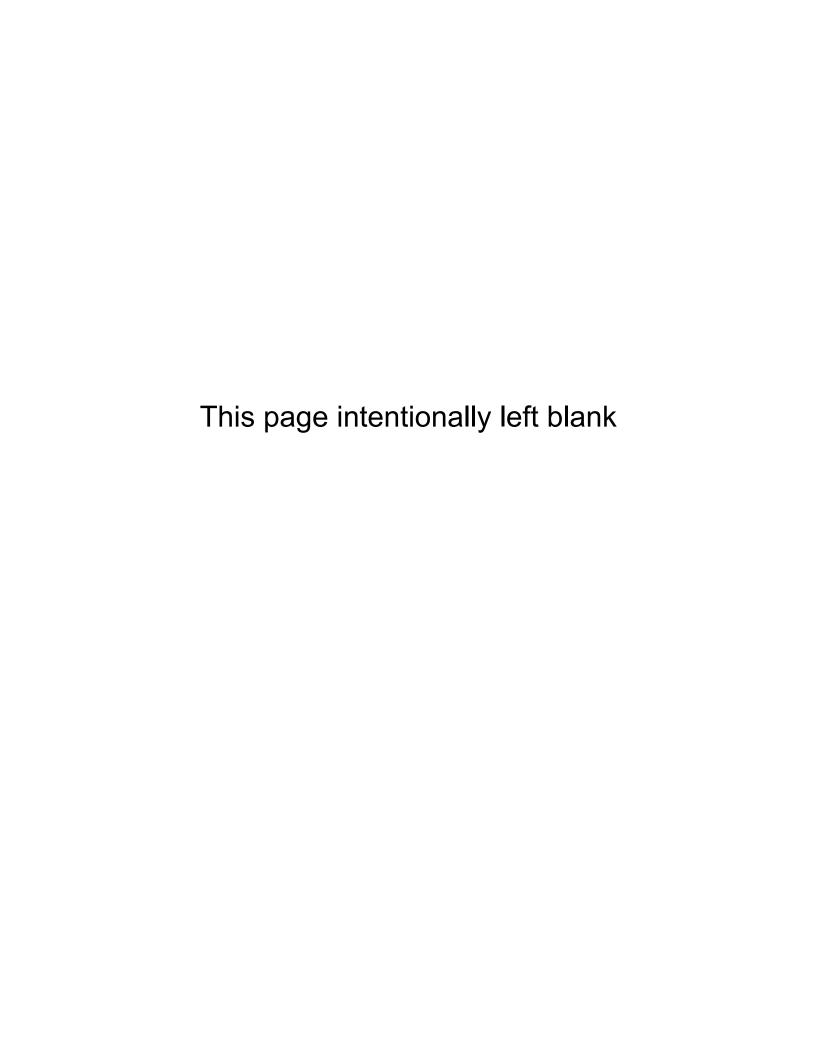


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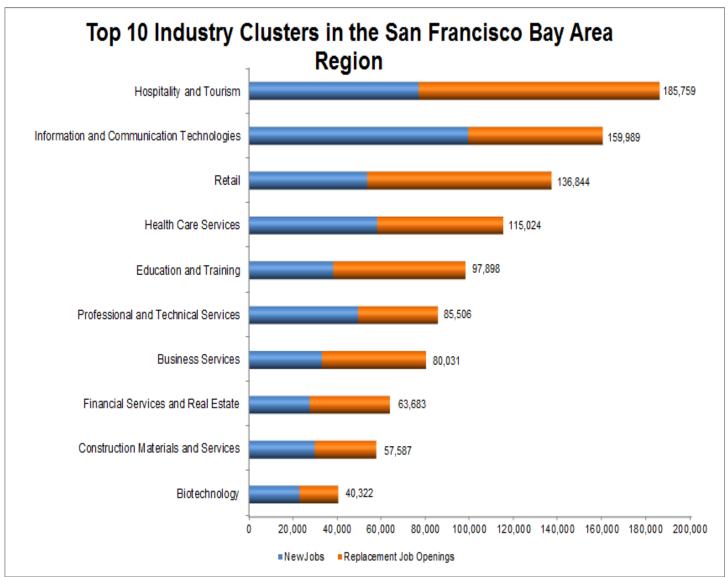
SUMMARY OF SAN FRANCISCO BAY AREA INDUSTRY CLUSTERS

What is an Industry Cluster?

Industry clusters are groups of associated industries in a region that stimulate the creation of new businesses and job opportunities in a particular field. The application of workforce and economic development resources toward the continual development of industry clusters will help stimulate regional economic growth and boost the number of employment opportunities for a regional labor force.

Purpose of this Report

The purpose of this report is to help align the state's workforce institutions and programs around the needs of regional industry clusters. This report focuses on the future employment demand of regional industry clusters and features them as primary investment opportunities for the California workforce development system. The goal of this report is to account for industry clusters with the largest number of future job opportunities and help the California workforce development system prepare the state's workforce to compete for these future employment opportunities.



Source: California Employment Development Department, Projections of Employment 2010-2020. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 employment projections available online at www.labormarketinfo.edd.ca.gov.

SUMMARY OF SAN FRANCISCO BAY AREA INDUSTRY CLUSTERS

The table below lists the estimated numbers of new jobs, replacement needs, and total job openings for the top 10 industry clusters in the region for the 2010-2020 projections period.

Top 10 Industry Clusters in the San Francisco Bay Area Region	New Jobs ¹	Replacement Needs ²	Total Job Openings ³
Hospitality and Tourism	76,710	109,049	185,759
Information and Communication Technologies	99,160	60,829	159,989
Retail	53,430	83,414	136,844
Health Care Services	57,890	57,134	115,024
Education and Training	38,070	59,828	97,898
Professional and Technical Services	49,300	36,206	85,506
Business Services	32,960	47,071	80,031
Financial Services and Real Estate	27,490	36,193	63,683
Construction Materials and Services	29,740	27,847	57,587
Biotechnology	22,790	17,532	40,322

Source: California Employment Development Department, Projections of Employment 2010-2020.

Labor Market Information Division

¹ New jobs are only openings due to growth and do not include job declines. If an occupation's employment change is negative, there is no job growth and new jobs are set to zero.

Replacement needs estimate the number of job openings created when workers retire or permanently leave an occupation and need to be

replaced.

Total job openings are the sum of new jobs and replacement needs.

INDUSTRY CLUSTER DESCRIPTIONS

The **Hospitality and Tourism** industry cluster includes interrelated industries such as eating establishments, hotels and motels, casinos, museums, and sightseeing transportation. For 2012-2013*, this cluster included more than 354,00 workers, or 10.6 percent of the region's total employment. Industries within this cluster that have the most projected job openings include:

- Restaurants and Other Eating Places
- Traveler Accommodation
- Other Amusement and Recreation Industries
- Special Food Services
- Drinking Places (Alcoholic Beverages)

The Information and Communication Technologies industry cluster includes interdependent industries related to computers and peripheral equipment, as well as software design and manufacturing, computer programming services, installation services, and wireless telecommunications carriers. For 2012-2013*, this cluster employed almost 363,000 workers, or 10.8 percent of the region's total employment. Industries with the highest number of expected job openings include:

- Computer Systems Design and Related Services
- Computer and Peripheral Equipment Manufacturing
- Semiconductor and Other Electronic Component Manufacturing
- Software Publishers
- Other Information Services

The **Retail** industry cluster includes grocery and department stores, dollar stores, retail pharmacies, and clothing specialty stores. For 2012-2013*, this cluster employed more than 290,000 workers, or 8.7 percent of the region's total employment. Industries projected to have the largest number of jobs (new and replacement) include:

- Grocery Stores
- Clothing Stores
- Other General Merchandise Stores
- Department Stores
- · Building Material and Supplies Dealers

The **Health Care Services** industry cluster includes acute care and outpatient hospitals, nursing home and rehabilitation centers, adult day care centers, and community service agencies for the elderly. For 2012-2013*, this cluster employed nearly 281,000 workers, or 8.4 percent of the region's total employment. Top industries within this cluster include:

- General Medical and Surgical Hospitals (Public and Private)
- Outpatient Care Centers
- Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly
- Nursing Care Facilities (Skilled Nursing Facilities)
- · Offices of Dentists

The **Education and Training** industry cluster is comprised of public and private elementary and high schools, community colleges, universities, and professional schools with programs such as dental, law, and medical. Other establishments include English as a Second Language (ESL) programs, test preparation and tutoring, or driving instruction. For 2012-2013*, this cluster comprised almost 88,000 workers, or 2.6 percent of the region's total employment. Top industries within this cluster include:

- Elementary and Secondary Schools
- Colleges, Universities, and Professional Schools
- Other Schools and Instruction
- Junior Colleges
- Educational Support Services

^{*} Quarterly Census of Employment and Wages (QCEW), a federal-state cooperative program, for the period July 2012 through June 2013.

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INDUSTRY CLUSTER DESCRIPTIONS

The **Professional and Technical Services** industry cluster is comprised of interrelated industries that include engineering and architectural firms, law offices, advertising companies, and accounting firms. For 2012-2013*, this cluster comprised almost 185,000 workers, or 5.5 percent of the region's total employment. Top industries within this cluster include:

- Management, Scientific, and Technical Consulting Services
- Architectural, Engineering, and Related Services
- Legal Services
- Accounting, Tax Preparation, Bookkeeping, and Payroll Services
- Advertising, Public Relations, and Related Services

The **Business Services** industry cluster is comprised of industries that include temporary help agencies, employer organizations, janitorial services, security systems services, and carpet cleaning establishments. For 2012-2013*, this cluster comprised more than 248,000 workers, or 7.4 percent of the region's total employment. Top industries in this cluster include:

- Employment Services
- Services to Buildings and Dwellings
- Management of Companies and Enterprises
- Investigation and Security Services
- Office Administrative Services

The **Financial Services and Real Estate** industry cluster includes commercial banks, savings institutions, credit unions, credit card companies, insurance firms, and real estate appraisers or property management companies. For 2012-2013*, this cluster employed almost 162,000 workers, or 4.8 percent of the region's total employment. Industries showing the highest projected job openings include:

- Depository Credit Intermediation
- Other Financial Investment Activities
- Agencies, Brokerages, and Other Insurance Related Activities
- Securities and Commodity Contracts
 Intermediation and Brokerage
- Activities Related to Real Estate

The **Construction Materials and Services** industry cluster is comprised of builders of mechanical systems such as electrical, heating, and water; specialty trades outfits such as drywall, flooring, and painting contractors; residential and commercial builders; and contractors who complete foundation and framing work. For 2012-2013*, this cluster comprised more than 152,000 workers, or 4.6 percent of the region's total employment. Top industries in this cluster include:

- Building Equipment Contractors
- Residential Building Construction
- Building Finishing Contractors
- Nonresidential Building Construction
- Other Specialty Trade Contractors

The **Biotechnology** industry cluster is comprised of establishments whose efforts result in the discovery, design, and manufacture of a wide range of products and processes including medicines, vaccines, and treatments; medical devices; plant-based packaging; cosmetics; biofuels; and agricultural products. For 2012-2013*, this cluster included close to 86,000, or 2.56 percent of the region's total employment. Top industries in this cluster include:

- Scientific Research and Development Services
- Pharmaceutical and Medicine Manufacturing
- Medical Equipment and Supplies Manufacturing

^{*} Quarterly Census of Employment and Wages (QCEW), a federal-state cooperative program, for the period July 2012 through June 2013.

INDUSTRY CLUSTER DEFINITIONS

The following is a list of the North American Industry Classification System (NAICS) codes and corresponding industries that fall under each of the top 10 industry clusters in the San Francisco Bay Area.

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Services 6113 Colleges, Universities, and Professional				
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and Maintenance	J			30,000

INDUSTRY CLUSTER DEFINITIONS

Educa	ation and Training (Continued)	Const	ruction Materials and Services
6114	Business Schools and Computer and	2123	Nonmetallic Mineral Mining and Quarrying
	Management Training	2213	Water, Sewage and Other Systems
6115	Technical and Trade Schools	2361 2362	Residential Building Construction
6116	Other Schools and Instruction	2372	Nonresidential Building Construction Land Subdivision
6117	Educational Support Services	2372	Highway, Street, and Bridge Construction
Profes	ssional and Technical Services	2379	Other Heavy and Civil Engineering
5411	Legal Services	2010	Construction
5412	Accounting, Tax Preparation,	2381	Foundation, Structure, and Building Exterior
	Bookkeeping, and Payroll Services	2301	_
5413	Architectural, Engineering, and Related	2202	Contractors
	Services	2382 2383	Building Equipment Contractors
5414	Specialized Design Services	2389	Building Finishing Contractors Other Specialty Trade Contractors
5416	Management, Scientific, and Technical	3211	Sawmills and Wood Preservation
	Consulting Services	3271	Clay Product and Refractory Manufacturing
5418	Advertising, Public Relations, and Related	3272	Glass and Glass Product Manufacturing
	Services	3273	Cement and Concrete Product Manufacturing
5419	Other Professional, Scientific, and	3274	Lime and Gypsum Product Manufacturing
0110	Technical Services	3279	Other Nonmetallic Mineral Product
Busin	ess Services		Manufacturing
5511	Management of Companies and	3339	Other General Purpose Machinery
	Enterprises	3351	Manufacturing
5611	Office Administrative Services		Electric Lighting Equipment Manufacturing
5612	Facilities Support Services		chnology
5613	Employment Services	3254	Pharmaceutical and Medicine Manufacturing
5614	Business Support Services	3391	Medical Equipment and Supplies
5616	Investigation and Security Services	5447	Manufacturing
5617	Services to Buildings and Dwellings	5417	Scientific Research and Development Services
5619	Other Support Services		
5621	Waste Collection		
5622	Waste Treatment and Disposal		
5629	Remediation and Other Waste		
	Management Services		
	cial Services and Real Estate		
	Monetary Authorities-Central Bank		
5221	Depository Credit Intermediation		
5222 5223	Nondepository Credit Intermediation Activities Related to Credit Intermediation		
5231	Securities and Commodity Contracts		
J2J I	Intermediation and Brokerage		
5232	Securities and Commodity Exchanges		
5239	Other Financial Investment Activities		
5241	Insurance Carriers		
5242	Agencies, Brokerages, and Other		
	Insurance Related Activities		
5251	Insurance and Employee Benefit Funds		
5259	Other Investment Pools and Funds		
5311	Lessors of Real Estate		
5312	Offices of Real Estate Agents and Brokers		
5313	Activities Related to Real Estate		



Occupational Analysis: Hospitality and Tourism

San Francisco Bay Area Region

June 2014

Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties



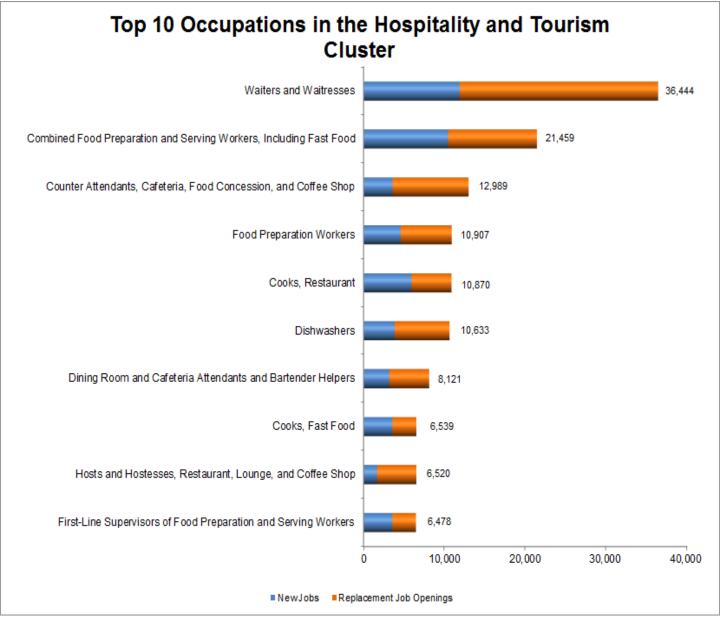


What is the Hospitality and Tourism Cluster?

The Hospitality and Tourism cluster is comprised of 14 industries that provide goods and services related to lodging, food, recreation, travel, conventions, and transportation. The workers employed within this cluster span all skill levels and share skills and work activities both within the cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training.

Top 10 Occupations in the Hospitality and Tourism Cluster

The graph below identifies the top 10 occupations in the Hospitality and Tourism cluster, based on the region's new job growth plus replacement openings. In sum, these 10 occupations represent more than two-thirds of the 185,759 total job openings projected in this cluster between 2010 and 2020. Moreover, many share the same required skills such as active listening, coordination, critical thinking, service orientation, social perception and speaking.⁴



Source: California Employment Development Department, Projections of Employment 2010-2020. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 employment projections available online at www.labormarketinfo.edd.ca.gov.

⁴ U.S. Department of Labor's Occupational Information Network (O*NET) at www.onetonline.org

Top 10 Occupations and Recent Job Demand in the Hospitality and Tourism Cluster

The table below further profiles the top 10 occupations in the Hospitality and Tourism cluster by listing the total job openings for 2010-2020, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLineTM (HWOL) data series over a 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ⁵ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ⁶	HWOL Job Advertisements ⁷ (120 days)
Waiters and Waitresses	36,444	\$9.53	\$19,834	Less than high school	2,285
Combined Food Preparation and Serving Workers, Including Fast Food	21,459	\$9.71	\$20,201	Less than high school	2,314
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	12,989	\$10.11	\$21,025	Less than high school	652
Food Preparation Workers	10,907	\$10.35	\$21,533	Less than high school	706
Cooks, Restaurant	10,870	\$12.02	\$25,011	Less than high school	2,239
Dishwashers	10,633	\$9.53	\$19,821	Less than high school	906
Dining Room and Cafeteria Attendants and Bartender Helpers	8,121	\$9.36	\$19,466	Less than high school	529
Cooks, Fast Food	6,539	\$9.75	\$20,286	Less than high school	188
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	6,520	\$9.34	\$19,429	Less than high school	561
First-Line Supervisors of Food Preparation and Serving Workers	6,478	\$15.74	\$32,744	High school diploma or equivalent	6,308

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLine[™] (HWOL) Data Series, 120-day period ending May 2, 2014.

⁵ Total job openings are the sum of new jobs and replacement needs.

⁶ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

⁷ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

Top Occupations for the Hospitality and Tourism by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics 2012 entry-level education requirements, within the Hospitality and Tourism cluster. The table includes the San Francisco Bay Area region's projected total job openings and median hourly and annual wages. In addition, recent totals of online job advertisements over 120-day period are included. Grouping occupations by education levels allows individuals to better gauge the potential for skills transference and upward mobility within the cluster.

Occupations	Total Job Openings ⁸ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Advertisements (120 days)
Requires a Bachelor's Degree or High	ner			
General and Operations Managers	833	\$58.47	\$121,612	3,714
Coaches and Scouts	782	NA	\$39,568	687
Meeting, Convention, and Event Planners	350	\$26.81	\$55,774	384
Accountants and Auditors	238	\$36.76	\$76,460	8,072
Recreation Workers	132	\$12.22	\$25,416	621
Requires Some College, Postseconda	ary Non-Degree Av	ward, or Associa	ite's Degree	
Massage Therapists	168	\$18.39	\$38,254	484
Audio and Video Equipment Technicians	91	\$25.02	\$52,048	212
Skincare Specialists	33	\$17.94	\$37,302	323
Computer Support Specialists	23	\$30.85	\$64,162	5,163
Manicurists and Pedicurists	17	\$9.43	\$19,616	76
Requires a High School Diploma or E	quivalent or Less			
Waiters and Waitresses	36,444	\$9.53	\$19,834	2,285
Combined Food Preparation and Serving Workers, Including Fast Food	21,459	\$9.71	\$20,201	2,314
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	12,989	\$10.11	\$21,025	652
Food Preparation Workers	10,907	\$10.35	\$21,533	706
Cooks, Restaurant	10,870	\$12.02	\$25,011	2,239

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⁸ Total job openings are the sum of new jobs and replacement needs.

Skill Requirements in the Hospitality and Tourism Cluster

The table below lists the top 10 skills required for the top Hospitality and Tourism cluster, categorized by entry-level education requirements. Active listening and critical thinking are the most commonly shared skills, followed by coordination, monitoring, and speaking. The skills and work activities identified for each occupation are from the U.S. Department of Labor's Occupational Information Network (O*NET).

											Sł	cills												
Occupation	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Instructing	Judgment and Decision Making	Learning Strategies	Management of Personnel Resources	Mathematics	Monitoring	Negotiation	Operation Monitoring	Operations Analysis	Persuasion	Quality Control Analysis	Reading Comprehension	Service Orientation	Social Perceptiveness	Speaking	Systems Analysis	Systems Evaluation	Time Management	Writing
Requires a Bachelor's Degree or Higher				1							ı	ı												
Accountants and Auditors ⁹	•	•			•		•			•	•						•			•	•			•
Coaches and Scouts		•		•	•	•	•		•		•								•	•		•		
General and Operations Managers	•	•		•	•				•		•						•		•	•				•
Meeting, Convention, and Event Planners		•		•	•						•	•		•			•	•		•			•	
Recreation Workers		•		•	•	•			•		•						•	•	•	•				
Requires Some College, Postsecondary Non-	-De	gre	e A	war	d, c	or A	ssociat	e's	Degr	ee														
Audio and Video Equipment Technicians	•	•		•	•	•					•		•				•			•				•
Computer Support Specialists ¹⁰	•	•		•	•	•					•						•	•		•				•
Manicurists and Pedicurists	•	•		•	•		•				•							•	•	•			•	
Massage Therapists	•	•			•		•				•						•	•	•	•				•
Skincare Specialists	•	•	•	•	•		•				•						•	•		•				
Requires a High School Diploma or Equivaler	nt o	r Le	ess	ı			1		ı		ı	ı												
Combined Food Preparation and Serving Workers, Including Fast Food		•		•	•	•	•	•	•									•	•	•				
Cooks, Restaurant	•	•		•	•	•	•				•					•				•			•	
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop		•	•	•	•										•		•	•	•	•				•
Food Preparation Workers		•	•	•	•		•				•							•	•	•			•	
Waiters and Waitresses		•		•	•	•	•	•			•				•			•	•					Ш

⁹ Skills listed represent Accountants, a specialty occupation of Accountants and Auditors.

¹⁰ Skills listed represent Computer User Support Specialists, a new classification that replaces Computer Support Specialists.

Work Activities in the Hospitality and Tourism Cluster

The table below lists the top 10 work activities required for the top occupations in the Hospitality and Tourism cluster, categorized by entry-level education requirements. The most common include establishing and maintaining interpersonal relationships; communicating with supervisors, peers, or subordinates; identifying objects, actions, and events; and organizing, planning, and prioritizing work.

													V	/ork	Act	tivit	ies												
Occupation	Analyzing Data or Information	Assisting and Caring for Others	Coaching and Developing Others	Communicating with Persons Outside Organization	Communicating with Supervisors, Peers, or Subordinates	Controlling Machines and Processes	Coordinating the Work and Activities of Others	Establishing and Maintaining Interpersonal Relationships	Evaluating Information to Determine Compliance with Standards	Getting Information	Handling and Moving Objects	dentifying Objects, Actions, and Events	nspecting Equipment, Structures, or Material	nteracting With Computers	Judging the Qualities of Things, Services, or People	Making Decisions and Solving Problems	Monitor Processes, Materials, or Surroundings	Monitoring and Controlling Resources	Organizing, Planning, and Prioritizing Work	Performing Administrative Activities	Performing for or Working Directly with the Public	Performing General Physical Activities	Processing Information	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Selling or Influencing Others	Thinking Creatively	Training and Teaching Others	Updating and Using Relevant Knowledge
Requires a Bachelor's Degree or Higher																										11.52			
Accountants and Auditors ¹¹	•				•			•	•	•						•			•	•			•						•
0 1 1 0 1 -												_			•				•		l			•	•			•	
Coaches and Scouts			•				•	•				•			•				•			•		_		_			
Coaches and Scouts General and Operations Managers			•	•	•		•	•				•				•		•	•			•		•	•		•		
			•	•	•		_	-		•	•	•				•		•			•	•		+	•		•		
General and Operations Managers		•	•	1	+		_	•		•	•					•		•	•		•	•		•			•		
General and Operations Managers Meeting, Convention, and Event Planners	Degi		•	•	•	Asso	•	•	De							•		•	•					•					
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers	Degr		•	•	•	Asso	•	•	De					•		•	•	•	•					•					•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-E	Degr		•	•	• or /	_	•	• • te's	Deg			•		•			•	•	•				•	•	•		•		•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-Education and Video Equipment Technicians	Degr		•	•	• or /	_	•	• • te's	Deg	gree		•				•	•	•	•				•	•	•	•	•		
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-E Audio and Video Equipment Technicians Computer Support Specialists ¹²	Degr	ree	•	• ard,	• or /	_	•	• • te's	De	gree)	•				•		•	•		•		•	•	•	•	•		•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-E Audio and Video Equipment Technicians Computer Support Specialists ¹² Manicurists and Pedicurists	Degr	ree	•	• ard,	• or /	_	•	• te's •	De	gree)	•				•		•	•		•	•	•	•	•	•	•		•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-Database Computer Support Specialists Manicurists and Pedicurists Massage Therapists Skincare Specialists Requires a High School Diploma or Equivalent		•	Awa	• ard,	• or /	_	• • ocia	• • te's •	De	gree	•	•				•	•	•	•		•	•	•	•	•		•		•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-Database Computer Support Specialists Computer Support Specialists Manicurists and Pedicurists Massage Therapists Skincare Specialists Requires a High School Diploma or Equivalent Combined Food Preparation and Serving		•	Awa	• ard,	• or /	_	• • ocia	• • te's •	De	gree	•	•				•	•	•	•		•	•	•	•	•		•	•	•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-Database Computer Support Specialists 12 Manicurists and Pedicurists Massage Therapists Skincare Specialists Requires a High School Diploma or Equivalent Combined Food Preparation and Serving Workers, Including Fast Food		•	Awa	• ard,	• • • • • • • • • • • • • • • • • • •	_	• • • • • • • • • • • • • • • • • • •	• te's	Dee	•	•	•				•	•		•		•	•	•	•	•		•		•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-Database Computer Support Specialists 12 Manicurists and Pedicurists Massage Therapists Skincare Specialists Requires a High School Diploma or Equivalent Combined Food Preparation and Serving Workers, Including Fast Food Cooks, Restaurant		•	Awa	• ard,	• or /	_	• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •	Deg	•	•	•				•	•	•	•		•	•	•	•	•		•	•	•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-E Audio and Video Equipment Technicians Computer Support Specialists 12 Manicurists and Pedicurists Massage Therapists Skincare Specialists Requires a High School Diploma or Equivalent Combined Food Preparation and Serving Workers, Including Fast Food Cooks, Restaurant Counter Attendants, Cafeteria, Food Concession,		•	Awa	• ard,	• • • • • • • • • • • • • • • • • • •	_	• • • • • • • • • • • • • • • • • • •	• te's	Deg	•	•	•				•	•		•		•	•	•	•	•		•		•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-E Audio and Video Equipment Technicians Computer Support Specialists 12 Manicurists and Pedicurists Massage Therapists Skincare Specialists Requires a High School Diploma or Equivalent Combined Food Preparation and Serving Workers, Including Fast Food Cooks, Restaurant Counter Attendants, Cafeteria, Food Concession, and Coffee Shop		•	Awa	• ard,	• • • • • • • • • • • • • • • • • • •	_	• • • • • • • • • • • • • • • • • • •	• te's	De	•	•	•				•	•		•		•	•	•	•	•	•	•	•	•
General and Operations Managers Meeting, Convention, and Event Planners Recreation Workers Requires Some College, Postsecondary Non-E Audio and Video Equipment Technicians Computer Support Specialists 12 Manicurists and Pedicurists Massage Therapists Skincare Specialists Requires a High School Diploma or Equivalent Combined Food Preparation and Serving Workers, Including Fast Food Cooks, Restaurant Counter Attendants, Cafeteria, Food Concession,		•	Awa	• ard,	• or /	_	• • • • • • • • • • • • • • • • • • •	te's	De	•	•	•	•			•	•		•		•	•	•	•	•	•	•	•	•

¹¹ Work Activities listed represent Accountants, a specialty occupation of Accountants and Auditors.

¹² Work Activities listed represent Computer User Support Specialists, a new classification that replaces Computer Support Specialists.

Related Occupations for the Hospitality and Tourism Cluster

The table below lists top occupations in the Hospitality and Tourism cluster by entry-level education requirements, and for each provides a sample of related occupations. With additional preparation, these related occupations match the skills, education, and work experience needed for the top Hospitality and Tourism cluster occupations.

Hospitality and Tourism Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	·
General and Operations Managers	 Purchasing Managers Storage and Distribution Managers Logistics Managers
Coaches and Scouts	 Training and Development Managers Health Educators Directors, Religious Activities and Education
Meeting, Convention, and Event Planners	 Advertising and Promotions Managers Marketing Managers Public Relations and Fundraising Managers
Accountants and Auditors	 Compensation, Benefits, and Job Analysis Specialists Credit Analysts Financial Analysts
Recreation Workers	 Coaches and Scouts Recreational Therapists First-Line Supervisors of Personal Service Workers
Requires Some College, Postsecondary	Non-Degree Award, or Associate's Degree
Massage Therapists	 Skincare Specialists Tour Guides and Escorts Fitness Trainers and Aerobics Instructors
Audio and Video Equipment Technicians	 Computer User Support Specialists Audio-Visual and Multimedia Collections Specialists Technical Directors/Managers
Skincare Specialists	 Self-Enrichment Education Teachers Massage Therapists Dental Assistants
Computer Support Specialists	 Web Administrators Electrical Engineering Technicians Audio-Visual and Multimedia Collections Specialists
Manicurists and Pedicurists	Massage TherapistsGaming DealersSkincare Specialists
Requires a High School Diploma or Equ	ivalent or Less
Waiters and Waitresses	 Dining Room and Cafeteria Attendants and Bartender Helpers Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop Counter Attendants, Cafeteria, Food Concession, and Coffee Shop
Combined Food Preparation and Serving Workers, Including Fast Food	 Counter Attendants, Cafeteria, Food Concession, and Coffee Shop Waiters and Waitresses Food Servers, Nonrestaurant
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	 Food Servers, Nonrestaurant Dining Room and Cafeteria Attendants and Bartender Helpers Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop
Food Preparation Workers	 Food Servers, Nonrestaurant Dining Room and Cafeteria Attendants and Bartender Helpers Janitors and Cleaners, Except Maids and Housekeeping Cleaners
Cooks, Restaurant	Bakers Butchers and Meat Cutters Food Cooking Machine Operators and Tenders

Employer Demand for the Hospitality and Tourism Cluster

The following table lists the region's employers in the Hospitality and Tourism cluster who posted the most job advertisements during the 120-day period ending June 3, 2014. The table also includes the number of job advertisements from the previous year's period, as well as the numerical change and year-over percent change in these postings for the same 120-day period.

Hospitality and Tourism Cluster Employers	Recent Job Advertisements ¹³ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change
Marriott	603	809	-206	-25.5%
24 Hour Fitness	365	354	11	3.1%
Starbucks	360	103	257	249.5%
Hilton Hotels & Resorts	329	307	22	7.2%
Chipotle	193	24	169	704.2%
Med Travelers	162	138	24	17.4%
Pizza Hut	150	60	90	150.0%
Hyatt	145	203	-58	-28.6%
McDonald's Corporation	124	15	109	726.7%
Panda Express	113	7	106	1,514.3%
The Ritz-Carlton Hotel Company, L.L.C.	109	9	100	1,111.1%
Embassy Suites	104	90	14	15.6%
The Cheesecake Factory	102	13	89	684.6%
Jamba Juice Company	90	57	33	57.9%
Sodexo Inc.	85	83	2	2.4%
Hyatt Hotels	83	8	75	937.5%
Gold's Gym	75	0	75	N/A
Landry's Restaurants, Inc.	67	4	63	1,575.0%
Hotwire	59	1	58	5,800.0%
Wyndham International	58	24	34	141.7%

Source: The Conference Board Help Wanted OnLineTM (HWOL) Data Series: Period ending June 3, 2014.

¹³ Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Hospitality and Tourism Occupations

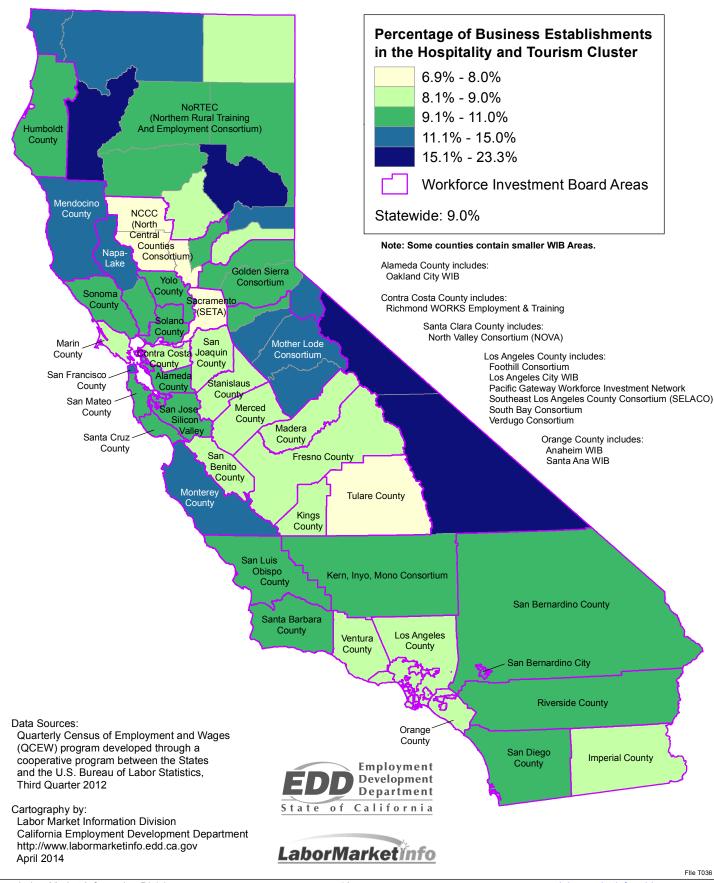
The table below provides examples of instructional programs related to top occupations in the Hospitality and Tourism cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Hospitality and Tourism cluster. To view a more complete list of training programs, select the source links under the table below. The Taxonomy of Programs categorizes and describes instructional programs only for California Community Colleges.

Occupation	Classifica	tion of Instructional Program (CIP)	Тах	conomy of Programs (TOP)			
	CIP Code	CIP Title	TOP Code	TOP Title			
Audio and Video Equipment	01.0802	Agricultural Communication/ Journalism					
Technicians	10.0201	Photographic and Film/Video Technology/Technician and Assistant	N/A	N/A			
Combined Food Preparation and Serving Workers, Including Fast Food	N/A	N/A	N/A	N/A			
	11.1006	Computer Support Specialist					
Computer Support Specialists	11.0201	Computer Programming/ Programmer, General	N/A	N/A			
	11.0501	Computer Systems Analysis/ Analyst					
Cooks, Restaurant	12.0500	Cooking and Related Culinary Arts, General	130630	Culinary Arts			
	12.0503	Culinary Arts/Chef Training					
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	N/A	N/A	N/A	N/A			
Food Preparation Workers	N/A	N/A	130630	Culinary Arts			
Manicurists and Pedicurists	12.0401	Cosmetology/Cosmetologist, General	300700	Cosmetology and Barbering			
Manicunsts and Fedicunsts	12.0410	Nail Technician/Specialist and Manicurist	300700	Cosmetology and Barbering			
Managa Thoronists	51.3502	Asian Bodywork Therapy	100000	Managara Tharany			
Massage Therapists	51.3503	Somatic Bodywork	126200	Massage Therapy			
	12.0401	Cosmetology/Cosmetologist, General					
Skincare Specialists	12.0409	Aesthetician/Esthetician and Skin Care Specialist	300700	Cosmetology and Barbering			
	12.0414	Master Aesthetician/Esthetician					
Waiters and Waitresses	N/A	N/A	N/A	N/A			

Source: U.S. Department of Education <u>Integrated Postsecondary Education Data System (IPEDS)</u> at www.nces.ed.gov; <u>California Community Colleges</u> TOP-to-CIP Crosswalk 6th Edition (2009), www.cccco.edu

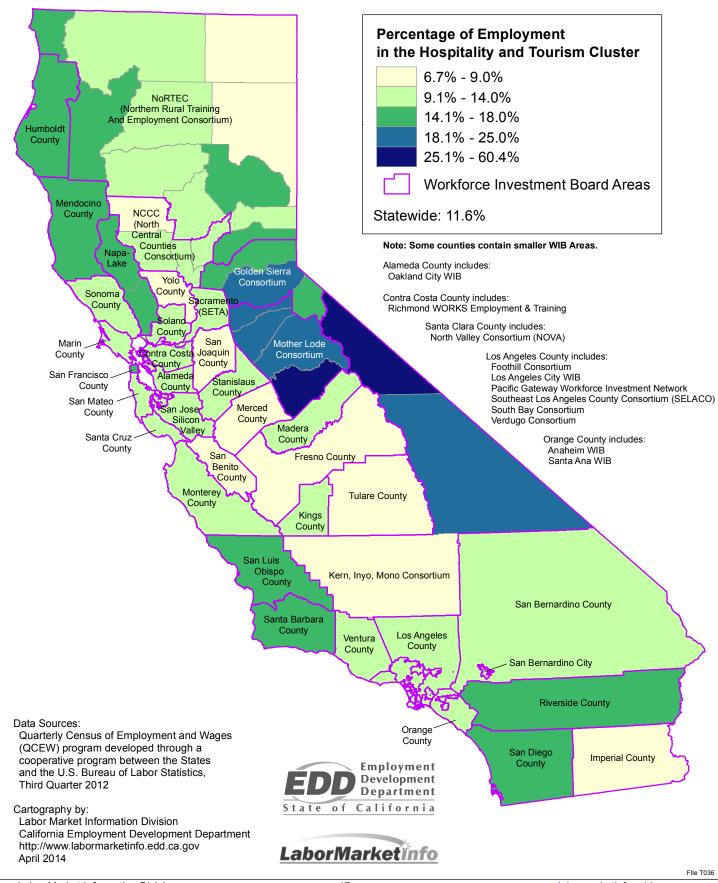
California Hospitality and Tourism Cluster

Percentage of Total County Establishments, 2012



California Hospitality and Tourism Cluster

Percentage of Total County Employment, 2012





Occupational Analysis: Information and Communication Technologies

San Francisco Bay Area Region

June 2014

Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties



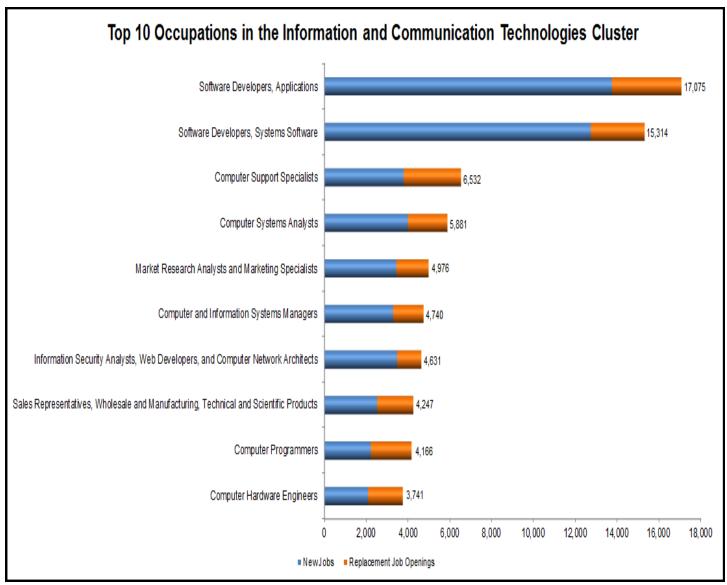


What is the Information and Communication Technologies Cluster?

The Information and Communication Technologies cluster includes interdependent industries related to computers and peripheral equipment, as well as software design and manufacturing, computer programming services, installation services, and wireless telecommunications carriers. The workers employed within this cluster span all skill levels and share skills and work activities both within the cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training.

Top 10 Occupations in the Information and Communication Technologies Cluster

The graph below identifies the top 10 occupations in the Information and Communication Technologies cluster, based on the region's new job growth plus replacement openings. In sum, these 10 occupations represent almost one-half of the 159,989 total job openings projected in this cluster between 2010 and 2020. Moreover, many share the same required skills such as critical thinking, active listening, reading comprehension, active learning, judgment and decision making, and writing.¹⁴



Source: California Employment Development Department, Projections of Employment 2010-2020. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 employment projections available online at www.labormarketinfo.edd.ca.gov.

¹⁴ U.S. Department of Labor's Occupational Information Network (O*NET) at www.onetonline.org

Top 10 Occupations and Recent Job Demand in the Information and Communication Technologies Cluster

The table below further profiles the top 10 occupations in the Information and Communication Technologies cluster by listing the total job openings for 2010-2020, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLineTM (HWOL) data series over a 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ¹⁵ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ¹⁶	HWOL Job Advertisements ¹⁷ (120 days)
Software Developers, Applications	17,075	\$57.41	\$119,422	Bachelor's degree	24,492
Software Developers, Systems Software	15,314	\$60.53	\$125,914	Bachelor's degree	4,015
Computer Support Specialists	6,532	\$30.85	\$64,162	Some college, no degree	5,107
Computer Systems Analysts	5,881	\$48.21	\$100,271	Bachelor's degree	7,223
Market Research Analysts and Marketing Specialists	4,976	\$40.51	\$84,268	Bachelor's degree	4,880
Computer and Information Systems Managers	4,740	\$79.08	\$164,496	Bachelor's degree	3,262
Information Security Analysts, Web Developers, and Computer Network Architects ¹⁸	4,631	\$61.85	\$128,640	Bachelor's degree	14,105
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	4,247	\$45.66	\$94,956	Bachelor's degree	3,099
Computer Programmers	4,166	\$44.19	\$91,922	Bachelor's degree	3,140
Computer Hardware Engineers	3,741	\$62.48	\$129,959	Bachelor's degree	1,512

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q. 2014; The Conference Board Help Wanted OnLine (HWOL) Data Series, 120-day period ending May 28, 2014.

¹⁸ Wages for this occupation represent Computer Network Architects.

¹⁵ Total job openings are the sum of new jobs and replacement needs.

¹⁶ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

Top Occupations for the Information and Communication Technologies by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics 2012 entry-level education requirements, within the Information and Communication Technologies cluster. The table includes the San Francisco Bay Area region's projected total job openings and median hourly and annual wages. In addition, recent totals of online job advertisements over 120-day period are included. Grouping occupations by education levels allows individuals to better gauge the potential for skills transference and upward mobility within the cluster.

Occupations	Total Job Openings ¹⁹ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Advertisements (120 days)
Requires a Bachelor's Degree or Higher				
Software Developers, Applications	17,075	\$57.41	\$119,422	24,492
Software Developers, Systems Software	15,314	\$60.53	\$125,914	4,015
Computer Systems Analysts	5,881	\$48.21	\$100,271	7,223
Market Research Analysts and Marketing Specialists	4,976	\$40.51	\$84,268	4,880
Computer and Information Systems Managers	4,740	\$79.08	\$164,496	3,262
Requires Some College, Postsecondary Non-	Degree Award,	or Associate's	s Degree	
Computer Support Specialists	6,532	\$30.85	\$64,162	5,107
Telecommunications Equipment Installers and Repairers, Except Line Installers	1,370	\$32.23	\$67,041	436
Electrical and Electronics Engineering Technicians	863	\$30.65	\$63,754	708
Semiconductor Processors	565	\$17.45	\$36,298	26
Computer, Automated Teller, and Office Machine Repairers	561	\$20.75	\$43,157	26
Requires a High School Diploma or Equivale	nt or Less			
Customer Service Representatives	2,985	\$20.07	\$41,747	6,003
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,023	\$28.44	\$59,163	3,752
Inspectors, Testers, Sorters, Samplers, and Weighers	1,696	\$20.31	\$42,237	499
Executive Secretaries and Executive Administrative Assistants	1,683	\$31.28	\$65,056	6,902
Electrical and Electronic Equipment Assemblers	1,633	\$16.82	\$34,985	292

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending May 28,2014.

¹⁹ Total job openings are the sum of new jobs and replacement needs.

Skill Requirements in the Information and Communication Technologies Cluster

The table below lists the top 10 skills required for the top Information and Communication Technologies cluster, categorized by entry-level education requirements. Critical thinking and reading comprehension are the most commonly shared skills, followed by active listening and speaking. The skills and work activities identified for each occupation are from the U.S. Department of Labor's Occupational Information Network (O*NET).

													Ski	ills												
Occupation	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Equipment Maintenance	Instructing	Judgment and Decision Making	Mathematics	Monitoring	Negotiation	Operation and Control	Operation Monitoring	Persuasion	Programming	Quality Control Analysis	Reading Comprehension	Repairing	Service Orientation	Social Perceptiveness	Speaking	Systems Analysis	Systems Evaluation	Time Management	Troubleshooting	Writing
Requires a Bachelor's Degree or Higher																										
Computer and Information Systems Managers	•	•	•		•		•			•							•				•		•			•
Computer Systems Analysts	•	•			•			•							•	•	•					•	•		•	
Market Research Analysts and Marketing Specialists	•	•	•		•			•									•				•	•	•			•
Software Developers, Applications		•	•		•			•	•						•		•					•	•		•	
Software Developers, Systems Software	•	•	•		•			•	•	•							•				•					•
Requires Some College, Postsecondary Non-D	Degi	ree	Awa	ırd,	or A	ssc	ciat	te's	Deg	gree	•									<u> </u>	<u> </u>					
Computer Support Specialists ²⁰	•	•		•	•		•			•							•		•		•					•
Computer, Automated Teller, and Office Machine Repairers	•	•		•	•					•		•	•				•	•							•	
Electrical and Electronics Engineering Technicians ²¹	•	•	•	•	•					•			•			•	•									•
Semiconductor Processors		•			•	•		•		•		•	•			•	•				•					
Telecommunications Equipment Installers and Repairers, Except Line Installers	•	•	•		•					•			•			•	•	•							•	
Requires a High School Diploma or Equivalent	or	Les	s																							
Customer Service Representatives		•	•	•	•					•				•			•		•	•	•					
Electrical and Electronic Equipment Assemblers	•	•		•	•					•		•	•				•				•			•		
Executive Secretaries and Executive Administrative Assistants		•		•	•					•							•		•	•	•			•		•
Inspectors, Testers, Sorters, Samplers, and Weighers		•		•	•			•		•			•			•	•				•					•
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	•	•			•			•			•			•			•		•	•	•					

²⁰ Skills listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

²¹ Skills listed represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technician.

Work Activities in the Information and Communication Technologies Cluster

The table below lists the top 10 work activities required for the top occupations in the Information and Communication Technologies cluster, categorized by entry-level education requirements. The most common include updating and using relative knowledge; communicating with supervisors, peers, or subordinates; establishing and maintaining interpersonal relationships; and organizing, planning, and prioritizing work.

poperating and Developing Others Coaching and Developing Others Communicating with Supervisors, Peers, or Subordinates Communicating Machines and Processes Developing and Building Teams Developing and Building Teams Developing and Building Teams Developing objectives and Strategies DecumentingRecording Information Establishing and Maintaining Interpersonal Relationships Evaluating Information Guiding, Directing, and Motivating Subordinates Handling and Moving Objects Activities, or Material Interacting With Computers Oudging the Qualities of Things, Services, or People Making Decisions and Solving Problems Monitor Processes, Materials, or Surroundings Organizing, Planning, and Prioritizing Work Performing for or Working Directly with the Public Performing General Physical Activities Performing General Physical Activities Performing General Physical Activities Performing and Maintaining Electronic Equipment	Repairing and Maintaining Mechanical Equipment	ving Conflicts and Negotiating with Others	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	ncing Others	ively	Indating and Using Relevant Knowledge
Analyzing Coaching Coaching Communi Comtrolling Controlling Developin Develo	اين	3000	Resolvir	Scheduling	Selling or Influencing Others	Thinking Creatively	Indating an
Requires a Bachelor's Degree or Higher				0,	<u> 07</u>		
Computer and Information Systems Managers						•	•
Computer Systems Analysts				•		•	•
Market Research Analysts and Marketing Specialists							•
Software Developers, Applications						•	•
Software Developers, Systems Software						•	•
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree							
Computer Support Specialists ²²						•	•
Computer, Automated Teller, and Office Machine Repairers • • • • • • • •	•					•	•
Electrical and Electronics Engineering Technicians ²³ • • • • • • • • • • • • • • • • • • •	$\cdot \mid \ \mid$					•	•
Semiconductor Processors		Ī					•
Telecommunications Equipment Installers and Repairers, Except Line Installers	•					•	•
Requires a High School Diploma or Equivalent or Less							
Customer Service Representatives		•	•				•
Electrical and Electronic Equipment Assemblers							•
Executive Secretaries and Executive Administrative Assistants							•
Inspectors, Testers, Sorters, Samplers, and				\Box			•
Weighers Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products		•	•		•	•	•

Source: U.S. Department of Labor's Occupational Information Network (O*NET) at www.onetonline.org

²² Work activities listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

²³ Work Activities listed represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technician.

Related Occupations for the Information and Communication Technologies Cluster

The table below lists top occupations in the Information and Communication Technologies cluster by entry-level education requirements, and for each provides a sample of related occupations. With additional preparation, these related occupations match the skills, education, and work experience needed for the top Information and Communication Technologies cluster occupations.

Information and Communication Technologies Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	
Computer and Information Systems Managers	 Computer Systems Engineers/Architects Logistics Engineers Software Developers, Systems Software
Computer Systems Analysts	 Software Developers, Systems Software Information Security Analysts Computer Programmers
Market Research Analysts and Marketing Specialists	Risk Management SpecialistsRegulatory Affairs SpecialistsFinancial Analysts
Software Developers, Applications	 Computer Systems Analysts Information Security Analysts Software Developers, Systems Software
Software Developers, Systems Software	 Computer Systems Analysts Geographic Information Systems Technicians Computer Systems Engineers/Architects
Requires Some College, Postsecondary	Non-Degree Award, or Associate's Degree
Computer Support Specialists	 Web Administrators Electrical Engineering Technicians Audio-Visual and Multimedia Collections Specialists
Computer, Automated Teller, and Office Machine Repairers	 Computer User Support Specialists Audio and Video Equipment Technicians Security and Fire Alarm Systems Installers
Electrical and Electronic Engineering Technicians	Computer User Support SpecialistsManufacturing Production TechniciansMedical Equipment Repairers
Semiconductor Processors	 Solderers and Brazers Engine and Other Machine Assemblers Print Binding and Finishing Workers
Telecommunications Equipment Installers and Repairers, Except Line Installers	 Electricians Heating and Air Conditioning Mechanics and Installers Telecommunications Line Installers and Repairers
Requires a High School Diploma or Equ	ivalent or Less
Customer Service Representatives	 Bill and Account Collectors Medical Records and Health Information Technicians Receptionists and Information Clerks
Electrical and Electronic Equipment Assemblers	 Solderers and Brazers Team Assemblers Inspectors, Testers, Sorters, Samplers, and Weighers
Executive Secretaries and Executive Administrative Assistants	 Bookkeeping, Accounting, and Auditing Clerks Secretaries and Administrative Assistants, Except Legal, Medical, and Executive Paralegals and Legal Assistants
Inspectors, Testers, Sorters, Samplers, and Weighers	 Shipping, Receiving, and Traffic Clerks Team Assemblers Solderers and Brazers
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	 Retail Salespersons Property, Real Estate, and Community Association Managers Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products

Employer Demand for the Information and Communication Technologies Cluster

The following table lists the region's employers in the Information and Communication Technologies cluster who posted the most job advertisements during the 120-day period ending May 28, 2014. The table also includes the number of job advertisements from the previous year's period, as well as the numerical change and year-over percent change in these postings for the same 120-day period.

Information and Communication Technologies Cluster Employers	Recent Job Advertisements ²⁴ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change
Google Inc.	1,968	1,377	591	42.9%
VMware	1,045	995	50	5.0%
Collabera	847	551	296	53.7%
Hewlett-Packard Company	745	1,135	-390	-34.4%
Intel	660	1,117	-457	-40.9%
TEKsystems	656	710	-54	-7.6%
Verizon	651	198	453	228.8%
Modis	640	980	-340	-34.7%
Salesforce.com	613	785	-172	-21.9%
Facebook	603	599	4	0.7%
Broadcom	590	743	-153	-20.6%
Apple Inc.	563	760	-197	-25.9%
Cisco	440	1,345	-905	-67.3%
Walmart	440	147	293	199.3%
Oracle Corporation	424	628	-204	-32.5%
Microsoft	403	592	-189	-31.9%
PayPal	399	377	22	5.8%
Nvidia Corporation	394	824	-430	-52.2%
Intuit Inc.	387	563	-176	-31.3%
Autodesk, Inc. Source: The Conference Board He	375	226	149	65.9%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending May 28, 2014.

²⁴ Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Information and Communication Technologies Occupations

The table below provides examples of instructional programs related to top occupations in the Information and Communication Technologies cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Information and Communication Technologies cluster. To view a more complete list of training programs, select the source links under the table below. The Taxonomy of Programs categorizes and describes instructional programs only for California Community Colleges.

	Classific	ation of Instructional Program		Taxonomy of Programs
Occupation		(CIP)		(TOP)
	CIP Code	CIP Title	TOP Code	TOP Title
	11.1006	Computer Support Specialist		
Computer Support Specialists	51.0709	Medical Office Computer Specialist/ Assistant	N/A	N/A
	01.0106	Agricultural Business Technology		
Computer, Automated Teller, and Office Machine	47.0104	Computer Installation and Repair Technology/Technician	093410	Computer Electronics
Repairers	47.0102	Business Machine Repair		
Customer Service Representatives	52.0411	Customer Service Support/Call Center/Teleservice Operation	051800	Customer Service
- toprocontain oc	52.0406	Receptionist		
Electrical and Electronic	N/A	N/A	093420	Industrial Electronics
Equipment Assemblers	14/7 (14/7	093430	Telecommunications Technology
	15.0305	Telecommunications Technology/ Technician		
Electrical and Electronic	15.0306	Integrated Circuit Design	N/A	N/A
Engineering Technicians	15.0303	Electrical, Electronic and Communications Engineering Technology/Technician		
Executive Secretaries and Executive Administrative	52.0401	Administrative Assistant and Secretarial Science, General	051400	Office Technology/Office Computer Applications
Assistants	52.0402	Executive Assistant/Executive Secretary	051420	Medical Office Technology
Inspectors, Testers, Sorters, Samplers, and Weighers	15.0702	Quality Control Technology/ Technician	095680	Industrial Quality Control
Sales Representatives, Wholesale and	52.1801	Sales, Distribution, and Marketing Operations, General	050900	Marketing and Distribution
Manufacturing, Except Technical and Scientific	52.1909	Special Products Marketing Operations	050960	Display
Products	52.1902	Fashion Merchandising	59900	Other Business and Management
Semiconductor Processors	47.0105	Industrial Electronics Technology/ Technician	093420	Industrial Electronics
Conficonductor Fracesors	15.0616	Semiconductor Manufacturing Technology	030720	maddiai Licotoffica
Telecommunications Equipment Installers and Repairers, Except Line Installers	47.0103	Communications Systems Installation and Repair Technology	093430	Telecommunications Technology

Source: U.S. Department of Education <u>Integrated Postsecondary Education Data System (IPEDS)</u> at www.nces.ed.gov; <u>California Community Colleges</u> <u>TOP-to-CIP Crosswalk</u> 6th Edition (2009), www.cccco.edu

California Information and Communication Technologies Cluster Percentage of Total County Establishments, 2012 **Percentage of Business Establishments** in the Information and Communication **Technologies Cluster** 0.3% - 1.5% 1.6% - 2.5% **NoRTEC** 2.6% - 4.0% (Northern Rural Training Humboldt And Employment Consortium) 4.1% - 6.0% County 6.1% - 10.4% Workforce Investment Board Areas Mendocino NCCC County Statewide: 4.2% (North Central Note: Some counties contain smaller WIB Areas. Counties Napa-Consortium) Lake Alameda County includes: Golden Sierra Oakland City WIB Consortium County Contra Costa County includes: County Richmond WORKS Employment & Training (SETA) Solano Santa Clara County includes: County North Valley Consortium (NOVA) San Marin Mother Lode ntra Costa Joaquin County Consortium Los Angeles County includes: County County Foothill Consortium Alameda San Francisco Los Angeles City WIB Stanislaus County Pacific Gateway Workforce Investment Network County Southeast Los Ángeles County Consortium (SELACO) San Mateo Merced San Jose South Bay Consortium County County Silicon Verdugo Consortium Madera Valley Santa Cruz Orange County includes: County County Anaheim WIB Fresno County Santa Ana WIB Benito County Monterey Tulare County County County San Luis Kern, Inyo, Mono Consortium San Bernardino County Santa Barbara Los Angeles Ventura County San Bernardino City Riverside County Data Sources: Orange Quarterly Census of Employment and Wages County (QCEW) program developed through a San Diego Imperial County cooperative program between the States County **Employment** and the U.S. Bureau of Labor Statistics, Development Third Quarter 2012 Department State of California Cartography by: Labor Market Information Division California Employment Development Department http://www.labormarketinfo.edd.ca.gov LaborMarketinfo May 2014

Percentage of Total County Employment, 2012 Percentage of Employment in the **Information and Communication Technologies Cluster** 0.1% - 1.5% 1.6% - 3.5% **NoRTEC** 3.6% - 7.0% (Northern Rural Training Humboldt And Employment Consortium) 7.1% - 13.0% County 13.1% - 22.7% Workforce Investment Board Areas Mendocino NCCC County Statewide: 4.9% (North Central Note: Some counties contain smaller WIB Areas. Counties Napa-Consortium) Lake Alameda County includes: Golden Sierra Oakland City WIB Yolo Consortium County Sonoma Contra Costa County includes: Sacramento County Richmond WORKS Employment & Training Soland Santa Clara County includes: County North Valley Consortium (NOVA) San Marin Mother Lode Contra Costa Joaquin County Consortium Los Angeles County includes: County Foothill Consortium San Francisco Alameda Los Angeles City WIB Stanislaus Pacific Gateway Workforce Investment Network Southeast Los Ángeles County Consortium (SELACO) San Mateo San Jose Merced South Bay Consortium County Silicon County Verdugo Consortium Madera Santa Cruz Orange County includes: County County Anaheim WIB Fresno County Santa Ana WIB Benito County Monterey Tulare County County County San Luis Obispo Kern, Inyo, Mono Consortium San Bernardino County Santa Barbara County Los Angeles Ventura County San Bernardino City Riverside County Data Sources: Orange Quarterly Census of Employment and Wages County (QCEW) program developed through a San Diego Imperial County cooperative program between the States County **Employment** and the U.S. Bureau of Labor Statistics, Development Third Quarter 2012 Department State of California Cartography by: Labor Market Information Division California Employment Development Department http://www.labormarketinfo.edd.ca.gov LaborMarketinfo May 2014

California Information and Communication Technologies Cluster



Occupational Analysis: Retail

San Francisco Bay Area Region

June 2014

Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties



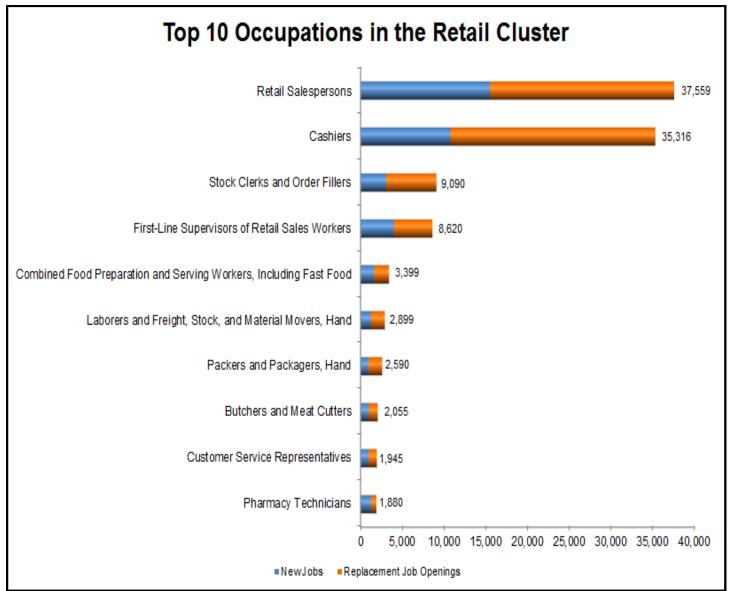


What is the Retail Cluster?

The Retail cluster is comprised of 19 industries involved in the sales of goods both familiar and esoteric, everything from groceries and automobiles to musical instruments and surfboards. The workers employed within this cluster span all skill levels and share skills and work activities both within the cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training.

Top 10 Occupations in the Retail Cluster

The graph below identifies the top 10 occupations in the Retail cluster, based on the region's new job growth plus replacement openings. In sum, these 10 occupations represent more than three-quarters of the 136,844 job openings projected in this cluster between 2010 and 2020. The top common skills required for these occupations include listening, coordination, critical thinking and reading comprehension.²⁵



Source: California Employment Development Department, Projections of Employment 2010-2020. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 employment projections available online at www.labormarketinfo.edd.ca.gov.

²⁵ U.S. Department of Labor's Occupational Information Network (O*NET) at www.onetonline.org

Top 10 Occupations and Recent Job Demand in the Retail Cluster

The table below further profiles the top 10 occupations in the Retail cluster by listing the total job openings for 2010-2020, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLineTM (HWOL) data series over a 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ²⁶ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ²⁷	HWOL Job Advertisements ²⁸ (120 days)
Retail Salespersons	37,559	\$11.52	\$23,969	Less than high school	8,617
Cashiers	35,316	\$11.14	\$23,158	Less than high school	1,042
Stock Clerks and Order Fillers	9,090	\$12.77	\$26,566	Less than high school	2,172
First-Line Supervisors of Retail Sales Workers	8,620	\$20.67	\$43,000	High school diploma or equivalent	7,093
Combined Food Preparation and Serving Workers, Including Fast Food	3,399	\$9.71	\$20,201	Less than high school	2,368
Laborers and Freight, Stock, and Material Movers, Hand	2,899	\$13.56	\$28,197	Less than high school	869
Packers and Packagers, Hand	2,590	\$10.53	\$21,893	Less than high school	58
Butchers and Meat Cutters	2,055	\$16.25	\$33,813	Less than high school	33
Customer Service Representatives	1,945	\$20.07	\$41,747	High school diploma or equivalent	6,146
Pharmacy Technicians	1,880	\$21.92	\$45,595	High school diploma or equivalent	402

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLineTM (HWOL) Data Series, 120-day period ending May 6, 2014.

²⁶ Total job openings are the sum of new jobs and replacement needs.

²⁷ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.
²⁸ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

Top Occupations for the Retail by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics 2012 entry-level education requirements, within the Retail cluster. The table includes the San Francisco Bay Area region's projected total job openings and median hourly and annual wages. In addition, recent totals of online job advertisements over 120-day period are included. Grouping occupations by education levels allows individuals to better gauge the potential for skills transference and upward mobility within the cluster.

Occupations	Total Job Openings ²⁹ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Advertisements (120 days)
Requires a Bachelor's Degree or Hig	her			
Pharmacists	1,496	\$66.50	\$138,318	390
Sales Managers	1,146	\$69.67	\$144,923	4,752
General and Operations Managers	1,067	\$58.47	\$121,612	3,764
Interior Designers	175	\$32.05	\$66,660	349
Cost Estimators	169	\$34.96	\$72,730	508
Requires Some College, Postsecond	ary Non-Degree Awa	rd, or Associate	e's Degree	
Computer, Automated Teller, and Office Machine Repairers	325	\$20.75	\$43,157	34
Computer Support Specialists	293	\$30.85	\$64,162	5,134
Electronic Equipment Installers and Repairers, Motor Vehicles	168	\$14.78	\$30,749	20
Electronic Home Entertainment Equipment Installers and Repairers	154	\$16.14	\$33,579	90
First-Line Supervisors of Production and Operating Workers	154	\$30.78	\$64,016	2,248
Requires a High School Diploma or E	Equivalent or Less			
Retail Salespersons	37,559	\$11.52	\$23,969	8,617
Cashiers	35,316	\$11.14	\$23,158	1,042
Stock Clerks and Order Fillers	9,090	\$12.77	\$26,566	2,172
First-Line Supervisors of Retail Sales Workers	8,620	\$20.67	\$43,000	7,093
Combined Food Preparation and Serving Workers, Including Fast Food	3,399	\$9.71	\$20,201	2,368

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLineTM (HWOL) Data Series, 120-day period ending May 6, 2014.

²⁹ Total job openings are the sum of new jobs and replacement needs.

Skill Requirements in the Retail Cluster

The table below lists the top 10 skills required for the top Retail cluster, categorized by entry-level education requirements. Active listening, critical thinking, and speaking are the most commonly shared skills, followed by coordination and reading. The skills and work activities identified for each occupation are from the U.S. Department of Labor's Occupational Information Network (O*NET).

														Sk	ills											_		
Occupation	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Equipment Maintenance	Installation	Instructing	Judgment and Decision Making	Learning Strategies	Management of Financial Resources	Management of Personnel Resources	Mathematics	Monitoring		Operation and Control	Operation Monitoring	Persuasion	Quality Control Analysis	Reading Comprehension	Repairing	Science	Service Orientation	Social Perceptiveness	Speaking	Time Management	Troubleshooting	Writing
Requires a Bachelor's	De	gre	e or	Hiç	jhei																							
Cost Estimators	•	•	•		•						•		•	•						•					•			•
General and Operations Managers	•	•		•	•							•		•						•				•	•			•
Interior Designers		•	•	•	•										•			•		•			•		•			•
Pharmacists	•	•			•			•	•					•						•		•			•			•
Sales Managers			•	•	•				•			•		•				•						•	•	•		
Requires Some Colleg	e, I	os	tse c	ond	lary	No	n-D	egr	ee /	Awa	rd,	or A	SSO	cia	te's	De	gree	•										
Computer Support Specialists ²⁹	•	•		•	•			•						•						•			•		•			•
Computer, Automated Teller, and Office Machine Repairers	•	•		•	•									•		•	•			•	•						•	
Electronic Equipment Installers and Repairers, Motor Vehicles		•	•		•	•	•										•			•	•				•		•	
Electronic Home Entertainment Equipment Installers and Repairers	•	•	•		•	•													•	•	•		•				•	
First-Line Supervisors of Production and Operating Workers		•	•	•	•							•								•				•	•	•		•
Requires a High School	ם ופ	_	oma		_	ıvaı	ent	or	Les	S		1	l	Ι.	1	_									l .	l .	ı	
Cashiers Combined Food Preparation and Serving Workers, Including Fast Food		•		•	•			•	•	•		•		•						•			•	•	•	•		•
First-Line Supervisors of Retail Sales Workers					•			•				•		•	•			•		•				•	•	•		
Retail Salespersons		•		٠	٠									•	•			•		•			•	٠	•			
Stock Clerks- Stockroom, Warehouse, or Storage Yard		•	•	•	•				•						•			•					•		•	•		

Source: U.S. Department of Labor's Occupational Information Network (O*NET) at www.onetonline.org

³⁰ Skills listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

Work Activities in the Retail Cluster

The table below lists the top 10 work activities required for the top occupations in the Retail cluster, categorized by entry-level education requirements, The most common include communicating with supervisors, peers, or subordinates; establishing and maintaining interpersonal relationships; making decisions and solving problems; and organizing, planning, and prioritizing work.

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				1	11	T				ı	ı		۷	Vork	Act	ivitie	es															
Occupation	Analyzing Data or Information	Assisting and Caring for Others	Coaching and Developing Others	Communicating with Persons Outside Organization	Communicating with Supervisors, Peers, or Subordinates	Controlling Machines and Processes	Coordinating the Work and Activities of Others	Documenting/Recording Information	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment	Establishing and Maintaining Interpersonal Relationships	Estimating the Quantifiable Characteristics of Products, Events, or Information	Evaluating Information to Determine Compliance with Standards	Getting Information	Guiding, Directing, and Motivating Subordinates	Handling and Moving Objects	Identifying Objects, Actions, and Events	nteracting With Computers	Making Decisions and Solving Problems	Monitor Processes, Materials, or Surroundings	Monitoring and Controlling Resources	Organizing, Planning, and Prioritizing Work	Performing for or Working Directly with the Public	Performing General Physical Activities	Processing Information	Provide Consultation and Advice to Others	Repairing and Maintaining Electronic Equipment	Repairing and Maintaining Mechanical Equipment	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Selling or Influencing Others	Thinking Creatively	Iraning and Teaching Others Updating and Using Relevant Knowledge
Requires a Bachelor's De	_		_		<u> </u>	U									<u> </u>	_		<u></u> "											0,	07	<u>' "</u>	
Cost Estimators	•			ĺ				•			•		•					•			•			•	•							•
General and Operations				_	_					_																	H			1	Ţ	
Managers				•	•		•			•								•		•	•							•	•		•	
Interior Designers				•			•		•	•			•					•			•									•	•	•
Pharmacists	٠	•								•		٠				•			•		•	•		•								•
Sales Managers			•	•	•		•			•				•				•			•							•		•		
Requires Some College,	Pos	stse	cond	dary N	lon-De	gre	e Av	vard	l, or A	ssocia	te's De	gree																				
Computer Support																	•															١.
Specialist ³⁰																																
Computer, Automated Teller, and Office Machine																																
Repairers					•					•						•	•	•			•					•					1	•
Electronic Equipment																																
Installers and Repairers,						•				•			•		•				•		•		•			•					•	•
Motor Vehicles																																
Electronic Home																																
Entertainment Equipment										•					•	•		•	•		•		•			•						• •
Installers and Repairers First-Line Supervisors of					-																									-	-	-
Production and Operating														•											•			•				
Workers																																
Requires a High School I	Dipl	oma	or	Equiv	alent	or L	ess																									
Cashiers				•	•					•			•		•			•				•	•					•		•		
Combined Food																															1	
Preparation and Serving															•							•										•
Workers, Including Fast																												-				
Food		_	-		-	-					-					_										_	Н	_		\dashv	+	-
First-Line Supervisors of Retail Sales Workers			•		•					•			•		•			•			•	•						•	•			
Retail Salespersons				•	•					•					•			•			•	•								•	•	•
Stock Clerks- Stockroom,																																
Warehouse, or Storage		i	1	I	•	•	ı	l		I -	i	i .									_										- 1	1
Yard					•	•				•			•		•	•					•	•	•	•								

³¹ Work activities listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

Related Occupations for the Retail Cluster

The table below lists top occupations in the Retail cluster by entry-level education requirements, and for each provides a sample of related occupations. With additional preparation, these related occupations match the skills, education, and work experience needed for the top Retail cluster occupations.

Retail Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	
Pharmacists	 Health Specialties Teachers, Postsecondary Medical Scientists, Except Epidemiologists Nursing Instructors and Teachers, Postsecondary
Sales Managers	 Financial Manager, Branch or Department Logistics Managers Sales Representative, Wholesale and Manufacturing, Technical and Scientific Products
General and Operations Managers	 First-Line Supervisors of Office and Administrative Support Workers Logistics Managers Wholesale and Retail Buyers, Except Farm Products
Interior Designers	 Landscape Architects Marketing Managers Graphic Designers
Cost Estimators	 Logistics Managers Market Research Analysts and Marketing Specialists Supply Chain Managers
Requires Some College, Postsecondary	Non-Degree Award, or Associate's Degree
Computer, Automated Teller, and Office Machine Repairers	 Computer User Support Specialist Electrical Engineering Technicians Avionics Technicians
Computer Support Specialists	 Web Administrator Electrical Engineering Technicians Broadcast Technicians
Electronic Equipment Installers and Repairers, Motor Vehicles	 Automotive Specialty Technicians Automotive Master Mechanics Heating and Air Conditioning Mechanics and Installers
Electronic Home Entertainment Equipment Installers and Repairers	 Electrical Engineering Technician Medical Equipment Repairers Security and Fire Alarm Systems Installers
First-Line Supervisors of Production and Operating Workers	 Industrial Production Managers Non-Destructive Testing Specialist First-Line Supervisor of Logging Workers
Requires a High School Diploma or Equiv	
Retail Salespersons	 Counter and Rental Clerks First-Line Supervisors of Retail Sales Workers Tellers
Cashiers	 Host and Hostesses, Restaurant, Lounge, and Coffee Shop Waiters and Waitresses Cooks, Fast Food
Stock Clerks and Order Fillers	 Shipping, Receiving and Traffic Clerks Marking Clerks Stock Clerks -Stockroom, Warehouse, or Storage Yard Hotel, Motel, and Resort Desk Clerks
First-Line Supervisors of Retail Sales Workers	 Dispatchers, Except Police, Fire and Ambulance Wholesale and Retail Buyers, Except Farm Products
Combined Food Preparation and Serving Workers, Including Fast Food	 Cooks, Fast Food Food Servers, Non-restaurant Waiters and Waitresses

Employer Demand for the Retail Cluster

The following table lists the region's employers in the Retail cluster who posted the most job advertisements during the 120-day period ending May 7, 2014. The table also includes the number of job advertisements from the previous year's period, as well as the numerical change and year-over percent change in these postings for the same 120-day period.

Retail Cluster Employers	Recent Job Advertisements ³² (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change
Apple Inc.	2,237	1,223	1,014	82.9%
Amazon.com	893	963	-70	-7.3%
Macy's	821	557	264	47.4%
Gap Inc.	679	665	14	2.1%
Sears Holdings Corporation	634	688	-54	-7.8%
Whole Foods	596	7	589	8,414.3%
DELL	452	273	179	65.6%
Safeway Companies	384	526	-142	-27.0%
Nordstrom	346	434	-88	-20.3%
Lowe's	325	303	22	7.3%
Wheel Works	276	34	242	711.8%
Chevron	274	455	-181	-39.8%
Best Buy	240	46	194	421.7%
T-Mobile	199	306	-107	-35.0%
Tesla Motors	198	302	-104	-34.4%
AutoNation	195	129	66	51.2%
CVS Caremark	178	393	-215	-54.7%
Home Depot	174	448	-274	-61.2%
Firestone	165	12	153	1,275.0%
Staples	154	91	63	69.2%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending May 7, 2014.

³² Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Retail Occupations

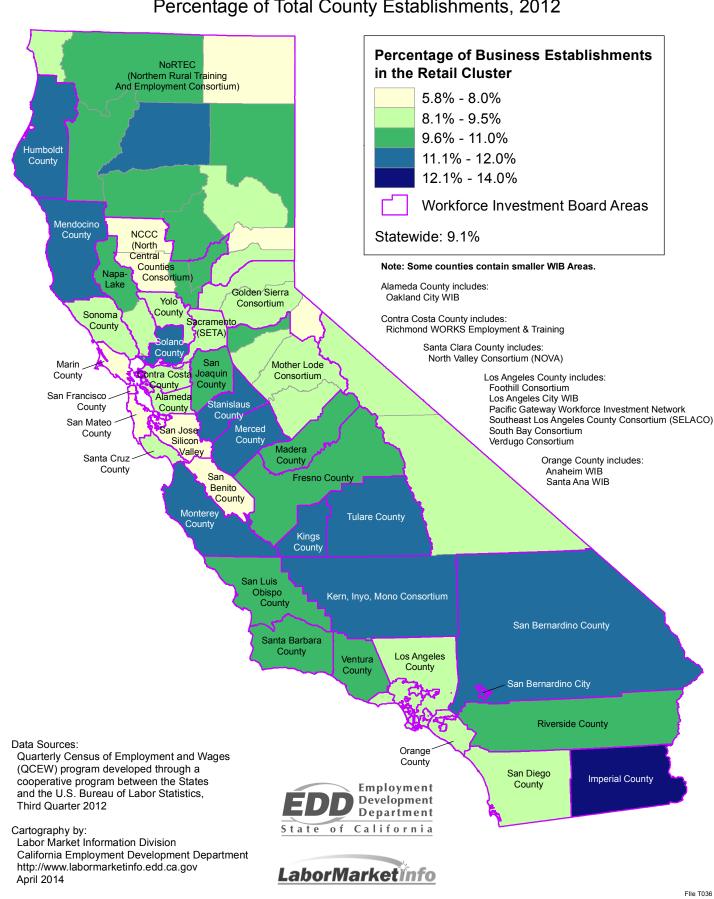
The table below provides examples of instructional programs related to top occupations in the Retail cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Retail cluster. To view a more complete list of training programs, select the source links under the table below. The Taxonomy of Programs categorizes and describes instructional programs only for California Community Colleges.

Occupation	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)		
	CIP Code	CIP Title	TOP Code	TOP Title	
Cashiers	N/A	N/A	050650	Retail Store Operations and Management	
Combined Food Preparation and Serving Workers, Including Fast Food	N/A	N/A	N/A	N/A	
Computer, Automated Teller, and Office Machine Repairers	47.0102	Business Machine Repair		Computer Electronics	
	47.0104	Computer Installation and Repair Technology/Technician	093410		
Computer Support Specialists	11.1006	Computer Support Specialist		N/A	
	51.0709	Medical Office Computer Specialist/Assistant	N/A		
Electronic Equipment Installers and Repairers, Motor Vehicles	47.0604	Automobile/Automotive Mechanics Technology/Technician	094800	Automotive Technology	
Electronic Home Entertainment Equipment Installers and Repairers	47.0103	Communications Systems Installation and Repair Technology	093430	Telecommunications Technology	
First-Line Supervisors of Production and Operating Workers	52.0205	Operations Management and Supervision	N/A	N/A	
First-Line Supervisors of Retail Sales Workers	19.0203	Consumer Merchandising/Retailing Management	050650	Retail Store Operations and Management	
	52.0212	Retail Management	059900	Other Business and Management	
	52.1803	Retailing and Retail Operations			
Retail Salespersons	N/A	N/A	050650	Retail Store Operations and Management	
			050900	Marketing and Distribution	
			050940	Sales and Salesmanship	
Stock Clerks and Order Fillers	N/A	N/A	050650	Retail Store Operations and Management	

Source: U.S. Department of Education <u>Integrated Postsecondary Education Data System (IPEDS)</u> at www.nces.ed.gov; <u>California Community Colleges</u> <u>TOP-to-CIP Crosswalk</u> 6th Edition (2009), www.ccco.edu

California Retail Cluster

Percentage of Total County Establishments, 2012



California Retail Cluster

Percentage of Total County Employment, 2012

