

Regional Economic Analysis Profile

San Francisco Bay Area Economic Market February 2015



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





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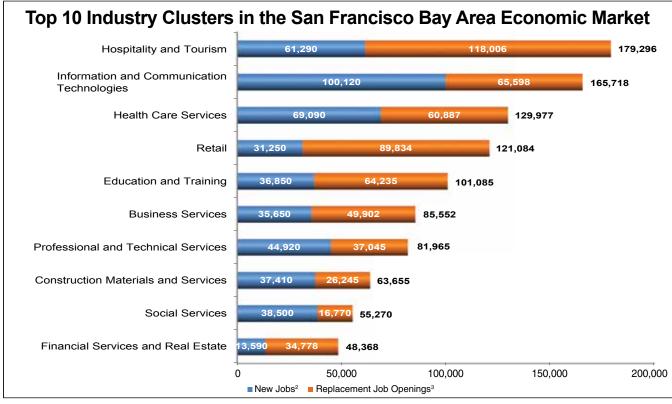
SUMMARY OF THE SAN FRANCISCO BAY AREA ECONOMIC MARKET INDUSTRY CLUSTERS

What is an Industry Cluster?

Industry clusters are groups of associated industries in an economic market 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 economic growth and boost the number of employment opportunities for the 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 the San Francisco Bay Area Economic Market industry clusters. In the first generation, the San Francisco Bay Area Region report (June 2014) highlighted the top three industry clusters ranked by the projected total job openings: Hospitality and Tourism, Information and Communication Technologies, and Retail. In this second generation, the San Francisco Bay Area Economic Market report (February 2015) will again highlight the Information and Communication Technologies cluster, as well as bring attention to the Health Care Services and Education and Training clusters. This report focuses on the future employment demand of economic market 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 projected total job openings and help the California workforce development system prepare the state's workforce to compete for these future job opportunities.



Source: California Employment Development Department, Projections of Employment 2012-2022. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 employment projections available online at www.labormarketinfo.edd.ca.gov.

¹ Total job openings are the sum of new jobs and replacement job openings.

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.

³ Řeplacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

INDUSTRY CLUSTER DESCRIPTIONS

The following are descriptions of the San Francisco Bay Area Economic Market's top 10 industry clusters followed by a list of the top industries with the highest projected total job openings in the cluster.

The **Hospitality and Tourism** industry cluster includes interrelated industries such as eating establishments, hotels and motels, casinos, museums, and sightseeing transportation. During 2013-2014,* this cluster was comprised of almost 370,000 workers, or 11.4 percent of the economic market's employment. Industries within this cluster with 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 2013-2014,* this cluster employed nearly 382,000 workers, or 11.8 percent of the economic market's total employment. Industries with the highest number of expected job openings include:

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

The **Health Care Services** industry cluster includes acute care and outpatient hospitals, nursing homes and rehabilitation centers, adult day care centers, and community service agencies for the elderly. It employed nearly 322,000 people in the economic market during 2013-2014,* accounting for 9.9 percent of the workforce. Industries in this cluster may include both public and private employment. Top industries within this cluster include:

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

The **Retail** industry cluster includes grocery and department stores, dollar stores, retail pharmacies, and clothing specialty stores. During 2013-2014,* this cluster employed almost 296,000 workers, or 9.1 percent of the economic market's total employment. Industries projected to have the largest number of jobs (new and replacement) include:

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

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. During 2013-2014,* this cluster employed almost 276,000 people in the economic market, accounting for 8.5 percent of the workforce. 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 April 2013 through March 2014.

INDUSTRY CLUSTER DESCRIPTIONS

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. This cluster employed nearly 262,000 people during 2013-2014,* or 8.1 percent of the economic market's workforce. Top industries in this cluster include:

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

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. In 2013-2014,* more than 189,000 people were employed in the economic market, or 5.8 percent of the workforce. 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
- Other Professional, Scientific, and Technical Services

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. During 2013-2014,* more than 160,000 workers made up the cluster's employment, representing 4.9 percent of the economic market's total workforce. Industries showing the highest projected job openings include:

- Building Equipment Contractors
- · Residential Building Construction
- · Building Finishing Contractors
- Nonresidential Building Construction
- Foundation, Structure, and Building Exterior Contractors

The **Social Services** industry cluster is comprised of establishments and agencies (public and private) that provide non-residential services for the welfare of children, adults, the elderly, and disabled. Examples include nonmedical in-home care programs, day care centers, and community food banks. In total, the cluster employed almost 140,000 people and accounted for 4.3 percent of the economic market's workforce in 2013- 2014.* Industries include:

- Individual and Family Services
- Child Day Care Services
- Vocational Rehabilitation Services
- Community Food and Housing, and Emergency and Other Relief 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. In total, the cluster employed more than 161,000 people, which accounted for over 5 percent of the economic market's workforce in 2013-2014.* Industries showing the highest projected job openings include:

- Depository Credit Intermediation
- Other Financial Investment Activities
- · Lessors of Real Estate
- Activities Related to Real Estate
- Agencies, Brokerages, and Other Insurance Related Activities

^{*} Quarterly Census of Employment and Wages (QCEW), a federal-state cooperative program, for the period April 2013 through March 2014.

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 Economic Market.

Hospit	tality and Tourism	Health	Care Services
4871	Scenic and Sightseeing Transportation, Land	6211	Offices of Physicians
4872	Scenic and Sightseeing Transportation, Water	6212	Offices of Dentists
4879	Scenic and Sightseeing Transportation, Other	6213	Offices of Other Health Practitioners
5615	Travel Arrangement and Reservation Services	6214	Outpatient Care Centers
7121	Museums, Historical Sites, and Similar	6215	Medical and Diagnostic Laboratories
	Institutions	6216	Home Health Care Services
7131	Amusement Parks and Arcades	6219	Other Ambulatory Health Care Services
7132	Gambling Industries	6221	General Medical and Surgical Hospitals
7139	Other Amusement and Recreation	6222	Psychiatric and Substance Abuse Hospitals
	Industries	6223	Specialty (except Psychiatric and Substance
7211	Traveler Accommodation		Abuse) Hospitals
7212	RV (Recreational Vehicle) Parks and	6231	Nursing Care Facilities (Skilled Nursing
7213	Recreational Camps Rooming and Boarding Houses	6232	Facilities) Residential Intellectual and Developmental
7213	Special Food Services	0232	Disability, Mental Health, and Substance
7224	Drinking Places (Alcoholic Beverages)		Abuse Facilities
7225	Restaurants and Other Eating Places	6233	Continuing Care Retirement Communities and
	•	0200	Assisted Living Facilities for the Elderly
Intorm	ation and Communication Technologies	6239	Other Residential Care Facilities
3341	Computer and Peripheral Equipment Manufacturing	Retail	
3342	Communications Equipment Manufacturing	4411	Automobile Dealers
3344	Semiconductor and Other Electronic	4412	Other Motor Vehicle Dealers
0011	Component Manufacturing	4413	Automotive Parts, Accessories, and Tire Stores
3359	Other Electrical Equipment and Component	4431	Electronics and Appliance Stores
	Manufacturing	4441	Building Material and Supplies Dealers
4251	Wholesale Electronic Markets and Agents and	4451	Grocery Stores
	Brokers	4452	Specialty Food Stores
5112	Software Publishers	4453	Beer, Wine, and Liquor Stores
5171	Wired Telecommunications Carriers	4461	Health and Personal Care Stores
5172	Wireless Telecommunications Carriers	4471	Gasoline Stations
	(except Satellite)	4481	Clothing Stores
5174	Satellite Telecommunications	4482	Shoe Stores
5179	Other Telecommunications	4483	Jewelry, Luggage, and Leather Goods Stores
5182	Data Processing, Hosting, and Related Services	4511	Sporting Goods, Hobby, and Musical Instrument Stores
5191	Other Information Services	4521	Department Stores
5415	Computer Systems Design and Related	4529	Other General Merchandise Stores
J-11J	Services	4532	Office Supplies, Stationery, and Gift Stores
8112	Electronic and Precision Equipment Repair	4533	Used Merchandise Stores
0112	and Maintenance	4542	Vending Machine Operators
	and manner and	· - · -	

INDUSTRY CLUSTER DEFINITIONS

Educa	ation and Training	Const	ruction Materials and Services (Continued
6111	Elementary and Secondary Schools	2382	Building Equipment Contractors
6112	Junior Colleges	2383	Building Finishing Contractors
6113	Colleges, Universities, and Professional	2389	Other Specialty Trade Contractors
	Schools	3211	Sawmills and Wood Preservation
6114	Business Schools and Computer and	3271	Clay Product and Refractory
	Management Training		Manufacturing
6115	Technical and Trade Schools	3272	Glass and Glass Product Manufacturing
6116	Other Schools and Instruction	3273	Cement and Concrete Product
6117	Educational Support Services		Manufacturing
Busin	ess Services	3274	Lime and Gypsum Product Manufacturing
5511	Management of Companies and Enterprises	3279	Other Nonmetallic Mineral Product
5611	Office Administrative Services		Manufacturing
5612	Facilities Support Services	3339	Other General Purpose Machinery
5613	Employment Services		Manufacturing
5614	Business Support Services	3351	Electric Lighting Equipment Manufacturing
5616	Investigation and Security Services Services to Buildings and Dwellings	Social	l Services
5617 5619	Other Support Services	6241	Individual and Family Services
5621	Waste Collection	6242	Community Food and Housing, and
5622	Waste Treatment and Disposal	0242	Emergency and Other Relief Services
5629	Remediation and Other Waste Management	6243	Vocational Rehabilitation Services
00_0	Services	6244	Child Day Care Services
Profes	ssional and Technical Services		cial Services and Real Estate
5411	Legal Services		
5412	Accounting, Tax Preparation, Bookkeeping,	5211 5221	Monetary Authorities-Central Bank Depository Credit Intermediation
	and Payroll Services	5222	Nondepository Credit Intermediation
5413	Architectural, Engineering, and Related	5223	Activities Related to Credit Intermediation
	Services	5231	Securities and Commodity Contracts
5414	Specialized Design Services	0201	Intermediation and Brokerage
5416	Management, Scientific, and Technical	5232	Securities and Commodity Exchanges
E440	Consulting Services	5239	Other Financial Investment Activities
5418	Advertising, Public Relations, and Related Services	5241	Insurance Carriers
5419	Other Professional, Scientific, and Technical	5242	Agencies, Brokerages, and Other Insurance
5419	Services	-	Related Activities
Canat		5251	Insurance and Employee Benefit Funds
	ruction Materials and Services	5259	Other Investment Pools and Funds
2123	Nonmetallic Mineral Mining and Quarrying	5311	Lessors of Real Estate
2213	Water, Sewage and Other Systems	5312	Offices of Real Estate Agents and Brokers
2361	Residential Building Construction	5313	Activities Related to Real Estate
2362	Nonresidential Building Construction		
2372	Land Subdivision		
2373	Highway, Street, and Bridge Construction		
2379	Other Heavy and Civil Engineering Construction		
2381	Foundation Structure and Building		

Exterior Contractors



Occupational Analysis: Information & Communication Technologies Cluster

San Francisco Bay Area Economic Market

February 2015

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



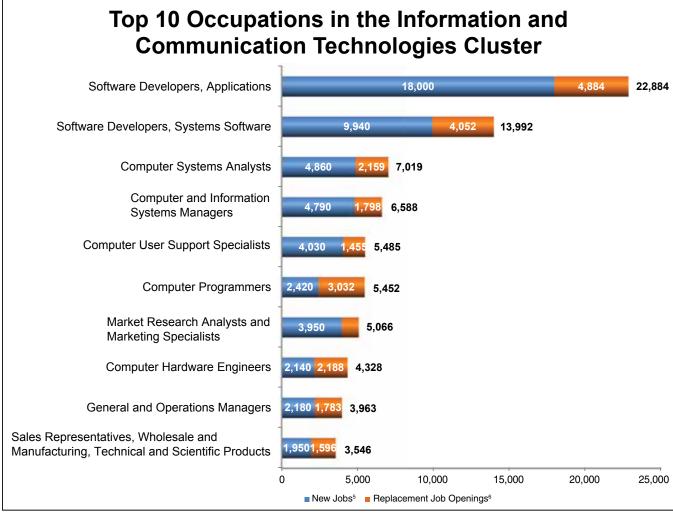


What is the Information and Communication Technologies Cluster?

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 San Francisco Bay Area Economic Market's new job growth plus replacement openings. In sum, these 10 occupations represent nearly half of the 165,718 total job openings projected in this cluster between 2012 and 2022. Moreover, many share the same required skills such as active listening, critical thinking, reading comprehension, and writing.⁴



Source: California Employment Development Department, Projections of Employment 2012-2022. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 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.

⁵ 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.

⁶ Replacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

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

The table below further profiles the San Francisco Bay Area Economic Market's top 10 occupations in the Information and Communication Technologies cluster by listing the total job openings for 2012-2022, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLine™ (HWOL) data series over a 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBS™ (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ⁷ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ⁸	HWOL Job Ads ⁹ (120 days)
Software Developers, Applications	22,884	\$58.08	\$120,805	Bachelor's degree	24,737
Software Developers, Systems Software	13,992	\$61.23	\$127,372	Bachelor's degree	3,327
Computer Systems Analysts	7,019	\$48.77	\$101,432	Bachelor's degree	7,998
Computer and Information Systems Managers	6,588	\$80.79	\$168,054	Bachelor's degree	3,488
Computer User Support Specialists	5,485	\$31.20	\$64,905	Some college, no degree	5,555
Computer Programmers	5,452	\$44.70	\$92,987	Bachelor's degree	2,911
Market Research Analysts and Marketing Specialists	5,066	\$41.39	\$86,091	Bachelor's degree	4,527
Computer Hardware Engineers	4,328	\$63.21	\$131,464	Bachelor's degree	1,309
General and Operations Managers	3,963	\$59.73	\$124,242	Bachelor's degree	3,513
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	3,546	\$46.72	\$97,176	Bachelor's degree	3,085

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 3rd Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending January 16, 2015.

⁷ Total job openings are the sum of new jobs and replacement job openings.

⁸ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

⁹ 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 Cluster by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics (BLS) 2012 entry-level education requirements, within the Information and Communication Technologies cluster. The table includes the San Francisco Bay Area Economic Market'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 ¹⁰ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Ads (120 days)
Requires a Bachelor's Degree or High	ner			
Software Developers, Applications	22,884	\$58.08	\$120,805	24,737
Software Developers, Systems Software	13,992	\$61.23	\$127,372	3,327
Computer Systems Analysts	7,019	\$48.77	\$101,432	7,998
Computer and Information Systems Managers	6,588	\$80.79	\$168,054	3,488
Computer Programmers	5,452	\$44.70	\$92,987	2,911
Requires Some College, Postseconda	ary Non-Degree	Award, or Asso	ociate's Degree	
Computer User Support Specialists	5,485	\$31.20	\$64,905	5,555
Web Developers	2,406	\$44.21	\$91,964	11,687
Computer Network Support Specialists	1,587	\$40.03	\$83,245	67
Telecommunications Equipment Installers and Repairers, Except Line Installers	1,394	\$32.64	\$67,879	475
Electrical and Electronics Engineering Technicians	958	\$31.01	\$64,493	632
Requires a High School Diploma or E	quivalent or Le	ss		
Customer Service Representatives	3,393	\$20.27	\$42,162	5,409
Office Clerks, General	1,214	\$18.14	\$37,740	2,152
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1,141	\$20.34	\$42,313	2,815
Electrical and Electronic Equipment Assemblers	1,026	\$16.99	\$35,343	268
First-Line Supervisors of Office and Administrative Support Workers	998	\$29.74	\$61,860	6,433

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 3rd Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending January 16, 2015.

 $^{^{\}rm 10}$ Total job openings are the sum of new jobs and replacement job openings.

Skill Requirements in the Information and Communication Technologies Cluster

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

													S	kil	ls											
Occupations	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Instructing	Judgment and Decision Making	Learning Strategies	Mathematics	Monitoring	Operation and Control	Operation Monitoring	Analysis		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		1	1	ı		1	ı																			
Software Developers, Applications		•	•		•		•		•						•		•					•	•		•	
Software Developers, Systems Software	•	•	•		•		•		•	•							•				•				Ш	•
Computer Systems Analysts		•			•		•								•	•	•					•	•		•	•
Computer and Information Systems Managers	•	•	•		•	•				•							•				•		•			•
Computer Programmers		•	•		•		•						•		•	•	•						•			•
Requires Some College, Postsecondary N	lol	n-E	Deç	jre	e <i>l</i>	٩w	arc	d, c	r A	Ass	soc	cia	te's	s C)eç	gre	е									
Computer User Support Specialists	•	•		•	•	•				•							•		•		•					•
Web Developers	•	•	•		•		•			•			•		•		•									•
Computer Network Support Specialists	•	•			•		•	•		•							•				•	•				•
Telecommunications Equipment Installers and Repairers, Except Line Installers		•	•		•					•		•				•	•	•			•				•	
Electrical and Electronics Engineering Technicians ¹¹	•	•	•		•				•	•		•				•	•								•	
Requires a High School Diploma or Equiv	/ale	en	t o	r L	es	S																				
Customer Service Representatives		•		•	•					•				•			•		•	•	•					•
Office Clerks, General		•		•	•					•							•		•	•	•			•		•
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	•	•			•					•							•		•	•	•			•		•
Electrical and Electronic Equipment Assemblers	•	•		•	•					•	•	•					•				•			•		
First-Line Supervisors of Office and Administrative Support Workers		•		•	•			•		•							•			•	•			•		•

 $Source: \textit{U.S. Department of Labor's } \underline{\textit{Occupational Information Network (O*NET)}} \text{ at www.onetonline.org.}$

¹¹ Skills represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technicians.

Work Activities in the Information and Communication Technologies Cluster

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

													,	Wc	ork	Α	cti	vit	ties	s											
Occupations	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	Developing and Building Teams	Developing Objectives and Strategies	Documenting/Recording Information	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment	Establishing and Maintaining Interpersonal Relationships	Evaluating Information to Determine Compliance with Standards	Getting Information	ting Subordinates		and Events		Making Decisions and Solving Problems	Monitor Processes, Materials, or Surroundings	Organizing, Planning, and Prioritizing Work	Performing Administrative Activities	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	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Thinking Creatively	Updating and Using Relevant Knowledge
Requires a Bachelor's Degree or I					0	O				_		ш.					_	_	~	2	Ü	<u> </u>	<u> </u>		<u></u>	ш.	<u></u>	ш.	0,		
Software Developers, Applications	•				•									•			•	•	•		•				•					•	•
Software Developers, Systems Software	•				•									•				•	•		•				•	•				•	•
Computer Systems Analysts					•							•	•					•	•		•				•				•	•	•
Computer and Information Systems Managers	•		•					•				•		•	•			•	•											•	•
Computer Programmers	•				•									•			•	•	•		•				•					•	•
Requires Some College, Postseco	nc	lar	y I	oV	n-	De	gr	ee	A۱	wa	rd	, o	r A	lss	50 0	ia	te'	's I	De	gr	ee										
Computer User Support Specialists					•							•		•			•	•	•		•				•					•	•
Web Developers					•									•			•	•	•		•				•	•				•	•
Computer Network Support Specialists					•							•		•				•		•	•				•	•				•	•
Telecommunications Equipment Installers and Repairers, Except Line Installers				•								•				•				•	•		•	•			•			•	•
Electrical and Electronics Engineering Technicians ¹²					•					•	•	•						•	•						•		•			•	•
Requires a High School Diploma of	or	Εq	uiv	<i>l</i> al	er	it c	or I	Les	ss																						
Customer Service Representatives			Ш	•	•							•		•			•		•		•				•			•	Ш	\square	•
Office Clerks, General		•	Ш		•					•		•		•				•			•				•				•	Ш	•
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive					•							•		•			•		•		•	•	•		•						•
Electrical and Electronic Equipment Assemblers					•	•			•			•		•		•			•	•	•										•
First-Line Supervisors of Office and Administrative Support Workers			•	•	•		•					•		•	•						•							•			•

 $Source: \textit{U.S. Department of Labor's } \underline{\textit{Occupational Information Network (O*NET)}} \text{ at www.onetonline.org.}$

¹² Work Activities represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technicians.

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 provides a sample of related occupations. These related occupations match many of 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 I	
Software Developers, Applications	 Information Security Analysts Network and Computer Systems Administrators Software Quality Assurance Engineers and Testers
Software Developers, Systems Software	 Computer Systems Engineers/Architects Geographic Information Systems Technicians Computer Programmers
Computer Systems Analysts	Software Developers, ApplicationsSoftware Developers, Systems SoftwareWeb Administrators
Computer and Information Systems Managers	 Computer Systems Engineers/Architects Logistics Engineers Logistics Managers
Computer Programmers	Computer Systems AnalystsSoftware Developers, Systems SoftwareWeb Developers
Requires Some College, Postseco	ondary Non-Degree Award, or Associate's Degree
Computer User Support Specialists	 Audio and Video Equipment Technicians Computer, Automated Teller, and Office Machine Repairers Web Administrators
Web Developers	 Computer User Support Specialists Database Administrators Software Quality Assurance Engineers and Testers
Computer Network Support Specialists	• N/A
Telecommunications Equipment Installers and Repairers, Except Line Installers	 Electrical and Electronics Repairers, Commercial and Industrial Equipment Electricians Heating and Air Conditioning Mechanics and Installers
Electrical and Electronics Engineering Technicians	 Electronics Engineering Technologists Manufacturing Production Technicians Medical Equipment Repairers
Requires a High School Diploma	or Equivalent or Less
Customer Service Representatives	 Bill and Account Collectors Medical Records and Health Information Technicians Receptionists and Information Clerks
Office Clerks, General	 Medical Records and Health Information Technicians Medical Secretaries Secretaries and Administrative Assistants, Except Legal, Medical, and Executive
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	 Executive Secretaries and Executive Administrative Assistants Hotel, Motel, and Resort Desk Clerks Office Clerks, General
Electrical and Electronic Equipment Assemblers	Inspectors, Testers, Sorters, Samplers, and WeighersSolderers and BrazersTeam Assemblers
First-Line Supervisors of Office and Administrative Support Workers	 Administrative Services Managers General and Operations Managers Human Resources Specialists

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

Employer Demand for the Information and Communication Technologies Cluster

The following table lists the San Francisco Bay Area Economic Market employers in the Information and Communication Technologies cluster who posted the most job advertisements during the 120-day period ending January 12, 2015. 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 ¹³ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change (HWOL Job Advertisements)			
Google	1,670	1,560	110	7.1%			
Collabera	1,170	958	212	22.1%			
Cisco	1,093	311	782	251.4%			
Facebook	892	659	233	35.4%			
Hewlett-Packard Company	733	566	167	29.5%			
Salesforce.com	728	693	35	5.1%			
Intel	687	606	81	13.4%			
Verizon	641	409	232	56.7%			
Nvidia Corporation	562	464	98	21.1%			
TEKsystems	541	669	-128	-19.1%			
Apple Inc.	505	655	-150	-22.9%			
NetApp	430	133	297	223.3%			
Modis International	412	653	-241	-36.9%			
VMware	411	1,626	-1,215	-74.7%			
CTG - Computer Task Group	384	18	366	2,033.3%			
Adobe Systems Incorporated	367	205	162	79.0%			
Walmart	358	424	-66	-15.6%			
Autodesk, Inc.	356	250	106	42.4%			
Citrix	346	165	181	109.7%			
Flextronics	338	182	156	85.7%			

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending January 16, 2015.

¹³ Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Information and Communication Technologies Cluster Occupations

The table below provides examples of instructional programs related to some of the 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.

Occupations	Classific	cation of Instructional Program (CIP)	Ta	axonomy of Programs (TOP)
	CIP Code	CIP Title	TOP Code	TOP Title
	01.0106	Agricultural Business Technology	070820	Computer Support
Computer User Support Specialists	11.1006	Computer Support Specialist		
Support Specialists	51.0709	Medical Office Computer Specialist/Assistant		
	11.0701	Computer Science	061430	Website Design and Development
Web Developers	11.0801	Web Page, Digital/Multimedia and Information Resources Design	070700	Computer Software Development
	11.1004	Web/Multimedia Management and Webmaster	070710	Computer Programming
	11.0201	Computer Programming/ Programmer, General	070700	Computer Software Development
Computer Network Support Specialists	11.0501	Computer Systems Analysis/ Analyst	070710	Computer Programming
	11.0701	Computer Science	070810	Computer Networking
Telecommunications Equipment Installers and Repairers, Except Line Installers	47.0103	Communications Systems Installation and Repair Technology	N/A	N/A
Electrical and	15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	N/A	N/A
Electronics Engineering Technicians	15.0305	Telecommunications Technology/ Technician		
	15.1201	Computer Engineering Technology/Technician		
Customer Service	52.0406	Receptionist	051800	Customer Service
Representatives	52.0411	Customer Service Support/Call Center/Teleservice Operation		
Office Clerks, General	52.0408	General Office Occupations and Clerical Services	N/A	N/A
Secretaries and Administrative	52.0401	Administrative Assistant and Secretarial Science, General	051400	Office Technology/Office Computer Applications
Assistants, Except Legal, Medical, and Executive 52.0402		Executive Assistant/Executive Secretary		
First-Line	52.0204	Office Management and Supervision	050630	Management Development and Supervision
Supervisors of Office and Administrative	52.0207	Customer Service Management	051440	Office Management
Support Workers	52.0208	E-Commerce/Electronic Commerce	070910	E-Commerce (technology emphasis)

Source: U.S. Department of Education <u>Integrated Postsecondary Education Data System (IPEDS)</u> at www.nces.ed.gov; <u>California Community Colleges TOP-to-CIP Crosswalk</u> 7th Edition (2010), www.ccco.edu.

Percentage of Total County Establishments, 2013 **Percentage of Business Establishments** in the Information and Communication **Technologies Cluster** 2.4% - 5.0% 5.1% - 7.0% NoRTEC (Northern Rural Training 7.1% - 10.0% And Employment Consortium) Humboldt 10.1% - 12.0% County 12.1% - 14.6% Workforce Investment Board Areas Mendocino NCCC County Statewide: 3.0% (North Central Note: Some counties contain smaller WIB Areas. Counties Napa-Consortium) Lake Alameda County includes: Oakland City WIB Golden Sierra Yolo Consortium County Contra Costa County includes: County Sacramen Richmond WORKS Employment & Training SETA) Soland Santa Clara County includes: County North Valley Consortium (NOVA) Marin Mother Lode Contra Costa Joaquin County Consortium Los Angeles County includes: County Foothill Consortium San Francisco Alameda Los Angeles City WIB Stanislaus County Pacific Gateway Workforce Investment Network County County Southeast Los Ángeles County Consortium (SELACO) San Mateo San Jose Merced South Bay Consortium 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 Kings County San Luis Obispo Kern, Inyo, Mono Consortium San Bernardino County Santa Barbara County Los Angeles Ventura 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 2013 Department State of California Cartography by: Labor Market Information Division California Employment Development Department http://www.labormarketinfo.edd.ca.gov LaborMarketinfo March 2015

California Information and Communication Technologies Cluster

Percentage of Total County Employment, 2013 Percentage of Employment in the Information and Communication **Technologies Cluster** 0.1% - 1.5% 1.6% - 3.0% **NoRTEC** (Northern Rural Training 3.1% - 6.0% And Employment Consortium) Humboldt 6.1% - 13.0% County 13.1% - 23.0% Workforce Investment Board Areas Mendocino NCCC County Statewide: 4.8% (North entral Counties Note: Some counties contain smaller WIB Areas. Consortium) Napa-Lake Alameda County includes: Golden Sierra Oakland City WIB Yolo Consortium County Sonoma Contra Costa County includes: Sacramento County Richmond WORKS Employment & Training SETA Soland Santa Clara County includes: County North Valley Consortium (NOVA) San Marin Mother Lode ontra Costa Joaquin County Consortium Los Angeles County includes: County County Foothill Consortium San Francisco Alameda Los Angeles City WIB Stanislaus Pacific Gateway Workforce Investment Network County County Southeast Los Ángeles County Consortium (SELACO) San Mateo Merced San Jose South Bay Consortium County County Silicon Verdugo Consortium Madera √allev 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 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 2013 Department State of California Cartography by: Labor Market Information Division California Employment Development Department http://www.labormarketinfo.edd.ca.gov LaborMarketinfo March 2015

California Information and Communication Technologies Cluster



Occupational Analysis: Health Care Services Cluster

San Francisco Bay Area Economic Market

February 2015

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



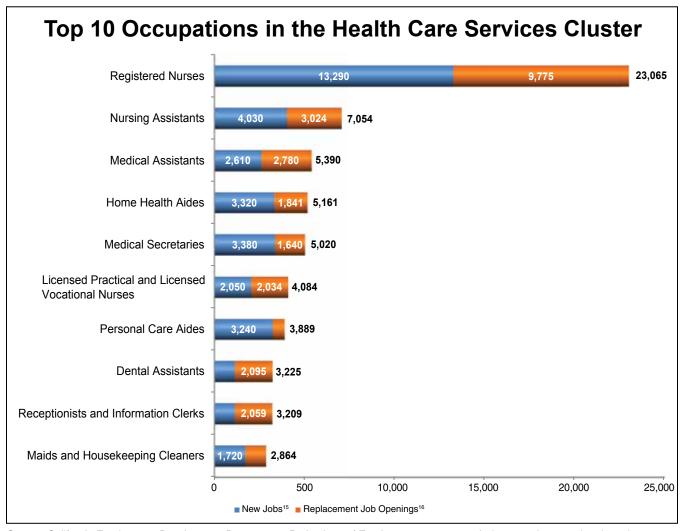


What is the Health Care Services Cluster?

The Health Care Services cluster is comprised of 14 industries that include hospitals and doctors' offices, diagnostic laboratories, continuing care retirement communities, home health care services, and other activities related to health care. 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 Health Care Services Cluster

The graph below identifies the top 10 occupations in the Health Care Services cluster, based on the San Francisco Bay Area Economic Market's new job growth plus replacement openings. In sum, these 10 occupations represent nearly half of the 129,977 total job openings projected in this cluster between 2012 and 2022. Moreover, many share the same required skills such as active listening, critical thinking, reading comprehension, service orientation, social perceptiveness, and speaking.¹⁴



Source: California Employment Development Department, Projections of Employment 2012-2022. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 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.

¹⁵ 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.

¹⁶ Replacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

Top 10 Occupations and Recent Job Demand in the Health Care Services Cluster

The table below further profiles the San Francisco Bay Area Economic Market's top 10 occupations in the Health Care Services cluster by listing the total job openings for 2012-2022, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLine™ (HWOL) data series over a 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBS™ (www. caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ¹⁷ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ¹⁸	HWOL Job Ads ¹⁹ (120 days)
Registered Nurses	23,065	\$62.85	\$130,725	Associate's degree	14,747
Nursing Assistants	7,054	\$16.93	\$35,227	Postsecondary non-degree award	515
Medical Assistants	5,390	\$19.96	\$41,504	Postsecondary non-degree award	1,231
Home Health Aides	5,161	\$12.06	\$25,096	Less than high school	714
Medical Secretaries	5,020	\$21.21	\$44,121	High school diploma or equivalent	2,163
Licensed Practical and Licensed Vocational Nurses	4,084	\$29.03	\$60,402	Postsecondary non-degree award	1,161
Personal Care Aides	3,889	\$11.26	\$23,432	Less than high school	2,447
Dental Assistants	3,225	\$21.45	\$44,603	Postsecondary non-degree award	1,351
Receptionists and Information Clerks	3,209	\$16.99	\$35,334	High school diploma or equivalent	1,909
Maids and Housekeeping Cleaners	2,864	\$14.21	\$29,551	Less than high school	2,356

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 3rd Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending January 16, 2015.

¹⁷ Total job openings are the sum of new jobs and replacement job openings.

¹⁸ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

¹⁹ 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 Health Care Services Cluster by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics (BLS) 2012 entry-level education requirements, within the Health Care Services cluster. The table includes the San Francisco Bay Area Economic Market'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 ²⁰ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Ads (120 days)
Requires a Bachelor's Degree or Higher				
Medical and Health Services Managers	2,660	\$63.05	\$131,135	3,045
Physical Therapists	1,640	\$47.44	\$98,658	1,342
Pharmacists	1,329	\$67.27	\$139,919	378
Healthcare Social Workers	948	\$34.98	\$72,750	375
Nurse Practitioners	882	\$57.90	\$120,414	120
Requires Some College, Postsecondary N	lon-Degree Awa	ırd, or Associat	e's Degree	
Registered Nurses	23,065	\$62.85	\$130,725	14,747
Nursing Assistants	7,054	\$16.93	\$35,227	515
Medical Assistants	5,390	\$19.96	\$41,504	1,231
Licensed Practical and Licensed Vocational Nurses	4,084	\$29.03	\$60,402	1,161
Dental Assistants	3,225	\$21.45	\$44,603	1,351
Requires a High School Diploma or Equiv	alent or Less			
Home Health Aides	5,161	\$12.06	\$25,096	714
Medical Secretaries	5,020	\$21.21	\$44,121	2,163
Personal Care Aides	3,889	\$11.26	\$23,432	2,447
Receptionists and Information Clerks	3,209	\$16.99	\$35,334	1,909
Maids and Housekeeping Cleaners	2,864	\$14.21	\$29,551	2,356

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 3rd Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending January 16, 2015.

 $^{^{\}rm 20}$ Total job openings are the sum of new jobs and replacement job openings.

Skill Requirements in the Health Care Services Cluster

The table below lists the 10 top skills required for top occupations in the Health Care Services cluster, categorized by entry-level education requirements. Active listening, critical thinking, reading comprehension, and social perceptiveness are the most commonly shared skills, followed by 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							
Occupations	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Instructing	Judgment and Decision Making	Learning Strategies	Monitoring	Operations Analysis	Reading Comprehension	Science	Service Orientation	Social Perceptiveness	Speaking	Time Management	Writing
Requires a Bachelor's Degree or Higher			ı		ı								ı				
Medical and Health Services Managers		•		•	•		•		•	•	•			•	•	•	
Physical Therapists		•		•	•		•		•		•		•	•	•		•
Pharmacists	•	•			•	•			•		•	•		•	•		•
Healthcare Social Workers	•	•		•	•		•				•		•	•	•		•
Nurse Practitioners	•	•			•	•	•		•		•	•		•			•
Requires Some College, Postsecondary Non-Degree	Awa	ırd,	or	As	soc	iat	e's	De	gre	е							
Registered Nurses	•	•		•	•			•	•		•		•	•	•		
Nursing Assistants	•	•		•	•				•		•		•	•	•		•
Medical Assistants	•	•		•	•				•		•		•	•	•		•
Licensed Practical and Licensed Vocational Nurses		•		•	•				•		•		•	•	•	•	•
Dental Assistants	•	•			•	•			•		•		•	•	•		•
Requires a High School Diploma or Equivalent or Les	s																
Home Health Aides	•	•		•	•			•	•		•		•	•	•		
Medical Secretaries		•		•	•				•		•		•	•	•	•	•
Personal Care Aides	•	•		•	•				•		•		•	•	•		•
Receptionists and Information Clerks		•	•	•	•						•		•	•	•	•	•
Maids and Housekeeping Cleaners		•		•	•	•			•		•		•	•	•	•	

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

Work Activities in the Health Care Services Cluster

The table below lists the 10 top work activities required for top occupations in the Health Care Services cluster, categorized by entry-level education requirements. The most common include establishing and maintaining interpersonal relationships; assisting and caring for others; identifying objects, actions, and events; and organizing, planning, and prioritizing work.

												W	ork	(A	cti	vit	ies										
Occupations	Analyzing Data or Information	Assisting and Caring for Others	Coaching and Developing Others	Communicating with Persons Outside Organization	Communicating with Supervisors, Peers, or Subordinates	Coordinating the Work and Activities of Others	Documenting/Recording Information	Establishing and Maintaining Interpersonal Relationships	Evaluating Information to Determine Compliance with Standards	Getting Information	Guiding, Directing, and Motivating Subordinates	Handling and Moving Objects	Identifying Objects, Actions, and Events	Inspecting Equipment, Structures, or Material	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	Provide Consultation and Advice to Others	Resolving Conflicts and Negotiating with Others	Thinking Creatively	Training and Teaching Others	Updating and Using Relevant Knowledge
Requires a Bachelor's Degree or High	er																										
Medical and Health Services Managers			•		•	•		•			•				•		•	•					•	•			
Physical Therapists		•					•	•				•	•		•	•					•				•		•
Pharmacists	•	•						•	•				•			•		•		•		•					•
Healthcare Social Workers		•			•		•	•							•			•		•			•	•			•
Nurse Practitioners		•					•	•		•			•		•	•		•		•							•
Requires Some College, Postseconda	ry	No	n-	De	gre	ee .	A۷	var	d,	or	As	SSO	cia	ate	's l	De	gre	ее									
Registered Nurses		•			•			•		•			•		•	•		•				•					•
Nursing Assistants		•			•			•		•		•	•		•	•		•				•					
Medical Assistants		•			•		•	•		•			•			•		•		•							•
Licensed Practical and Licensed Vocational Nurses		•			•		•	•				•	•		•	•		•									•
Dental Assistants		•						•	•	•		•	•		•	•		•									•
Requires a High School Diploma or Ed	qui	va	len	nt c	r L	_es	SS																				
Home Health Aides		•			•		•	•				•	•			•		•				•					•
Medical Secretaries		•		•	•			•		•			•		•			•				•					•
Personal Care Aides		•			•		•	•				•	•		•	•		•			•						
Receptionists and Information Clerks		•					•	•		•			•			•			•	•		•					•
Maids and Housekeeping Cleaners					•			•		•		•	•	•				•		•	•					•	

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

Related Occupations for the Health Care Services Cluster

The table below lists top occupations in the Health Care Services cluster by entry-level education requirements and provides a sample of related occupations. These related occupations match many of the skills, education, and work experience needed for the top Health Care Services cluster occupations.

Health Care Services Occupations	Related Occupations
Requires a Bachelor's Degree or High	her
Medical and Health Services Managers	 Dietitians and Nutritionists Management Analysts Social and Community Service Managers
Physical Therapists	 Health Specialties Teachers, Postsecondary Nursing Instructors and Teachers, Postsecondary Occupational Therapists
Pharmacists	 Health Specialties Teachers, Postsecondary Medical Scientists, Except Epidemiologists Nursing Instructors and Teachers, Postsecondary
Healthcare Social Workers	 Child, Family, and School Social Workers Mental Health and Substance Abuse Social Workers Patient Representatives
Nurse Practitioners	Clinical Nurse SpecialistsNurse MidwivesPhysician Assistants
Requires Some College, Postsecond	ary Non-Degree Award, or Associate's Degree
Registered Nurses	Critical Care NursesLicensed Practical and Licensed Vocational NursesMedical Assistants
Nursing Assistants	• N/A
Medical Assistants	 Dental Assistants Licensed Practical and Licensed Vocational Nurses Pharmacy Technicians
Licensed Practical and Licensed Vocational Nurses	Physical Therapist AssistantsOccupational Therapy AssistantsRadiologic Technicians
Dental Assistants	Dental HygienistsEndoscopy TechniciansVeterinary Technologists and Technicians
Requires a High School Diploma or E	Equivalent or Less
Home Health Aides	Occupational Therapy AidesPersonal Care AidesPhysical Therapist Aides
Medical Secretaries	 Medical Records and Health Information Technicians Office Clerks, General Receptionists and Information Clerks
Personal Care Aides	 Ambulance Drivers and Attendants, Except Emergency Medical Technicians Childcare Workers Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers
Receptionists and Information Clerks	 Bill and Account Collectors Customer Service Representatives Hotel, Motel, and Resort Desk Clerks
Maids and Housekeeping Cleaners	 Food Preparation Workers Food Servers, Nonrestaurant Janitors and Cleaners, Except Maids and Housekeeping Cleaners

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

Employer Demand for the Health Care Services Cluster

The following table lists the region's employers in the Health Care Services cluster who posted the most job advertisements during the 120-day period ending January 16, 2015. 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.

Health Care Services Cluster Employers	Recent Job Advertisements ²¹ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change (HWOL Job Advertisements)
Kaiser Permanente	3,753	1,430	2,323	162.4%
Sutter Health	1,057	2,108	-1,051	-49.9%
Dignity Health	330	316	14	4.4%
American Mobile Healthcare	285	310	-25	-8.1%
NorthBay Healthcare	281	236	45	19.1%
Brookdale Senior Living	263	139	124	89.2%
Onward Healthcare	236	142	94	66.2%
HCA - The Healthcare Company	183	103	80	77.7%
O'Connor Hospital	179	239	-60	-25.1%
St. Helena Hospital	175	112	63	56.3%
Vitas Healthcare	140	38	102	268.4%
VA Medical Center	125	0	125	_
DaVita, Inc.	125	136	-11	-8.1%
Sunrise Senior Living, Inc.	117	47	70	148.9%
Children's Hospital & Research Center Oakland	116	82	34	41.5%
Satellite Healthcare	109	108	1	0.9%
Fresenius Medical Care	106	131	-25	-19.1%
Ascent Technology	102	0	102	_
Kindred Healthcare	101	157	-56	-35.7%
Stanford Hospital & Clinics	95	159	-64	-40.3%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending January 16, 2015.

²¹ Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Health Care Services Cluster Occupations

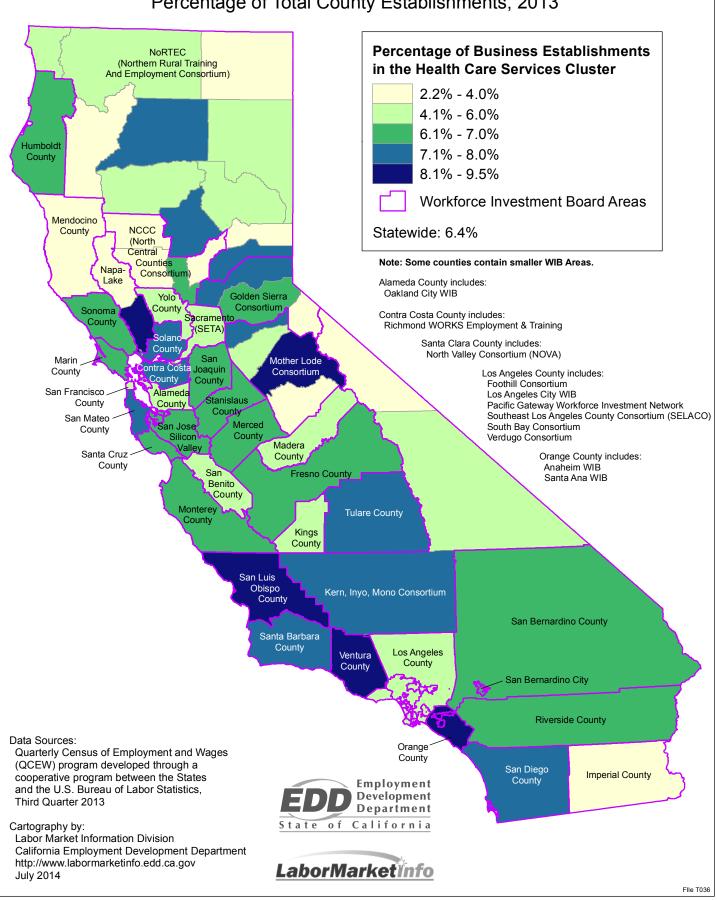
The table below provides examples of instructional programs related to some of the top occupations in the Health Care Services cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Health Care Services 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.

Occupations	Classif	ication of Instructional Program (CIP)	Tax	onomy of Programs (TOP)
	CIP Code	CIP Title	TOP Code	TOP Title
Decistored Nurses	51.3801	Registered Nursing/Registered Nurse	123000	Nursing
Registered Nurses	51.3802	Nursing Administration	123010	Registered Nursing
	51.3803	Adult Health Nurse/Nursing		
	51.2601	Health Aide	123030	Certified Nurse Assistant
Nursing Assistants	51.3902	Nursing Assistant/Aide and Patient Care Assistant/Aide		
J	51.3999	Practical Nursing, Vocational Nursing and Nursing Assistants, Other		
	51.0710	Medical Office Assistant/Specialist	051420	Medical Office Technology
Medical Assistants	51.0712	Medical Reception/Receptionist	120800	Medical Assisting
	51.0713	Medical Insurance Coding Specialist/Coder	120810	Clinical Medical Assisting
Licensed Practical and	51.3901	Licensed Practical/Vocational Nurse Training	123020	Licensed Vocational Nursing
Licensed Vocational Nurses	51.3999	Practical Nursing, Vocational Nursing and Nursing Assistants, Other		
Dental Assistants	51.0601	Dental Assisting/Assistant	124010	Dental Assistant
Home Health Aides	51.2602	Home Health Aide/Home Attendant	123080	Home Health Aide
	51.0710	Medical Office Assistant/ Specialist	051420	Medical Office Technology
Medical Secretaries	51.0714	Medical Insurance Specialist/ Medical Biller		
	51.0716	Medical Administrative/ Executive Assistant and Medical Secretary		
Personal Care Aides	51.2602	Home Health Aide/Home Attendant	123080	Home Health Aide
Receptionists and Information Clerks	52.0406	Receptionist	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 TOP-to-CIP Crosswalk</u> 7th Edition (2010), www.ccco.edu.

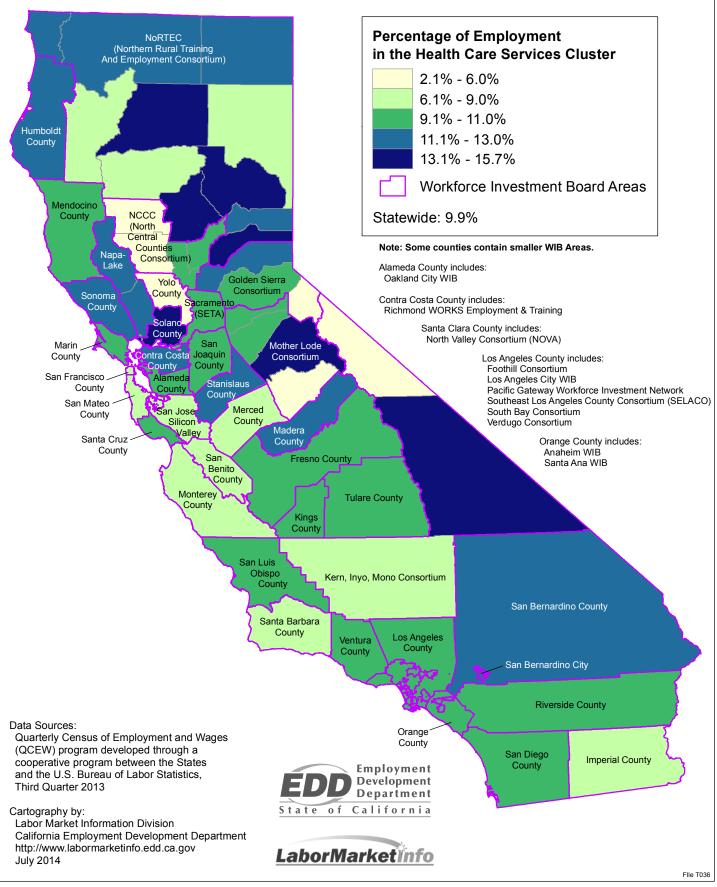
California Health Care Services Cluster

Percentage of Total County Establishments, 2013



California Health Care Services Cluster

Percentage of Total County Employment, 2013





Occupational Analysis: Education and Training Cluster

San Francisco Bay Area Economic Market

February 2015

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



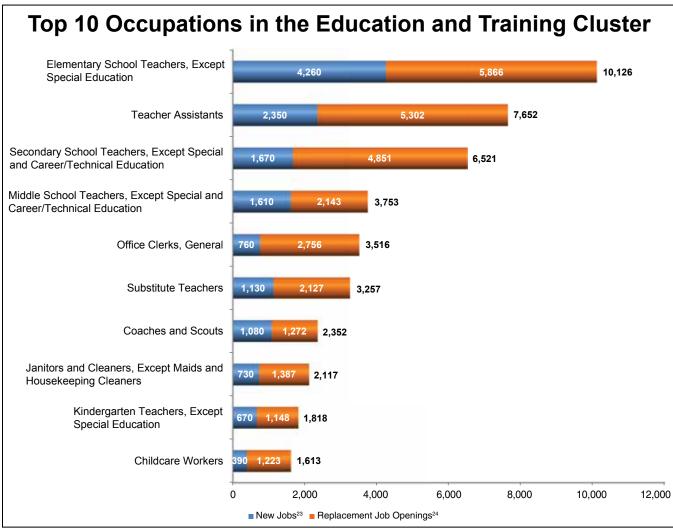


What is the Education and Training Cluster?

The Education and Training 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 trade schools and tutoring businesses. 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 Education and Training Cluster

The graph below identifies the top 10 occupations in the Education and Training cluster, based on the San Francisco Bay Area Economic Market's new job growth plus replacement openings. In sum, these 10 occupations represent nearly half of the 101,085 total job openings projected in this cluster between 2012 and 2022. Moreover, many share the same required skills such as active listening, critical thinking, speaking, and social perceptiveness.²²



Source: California Employment Development Department, Projections of Employment 2012-2022. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 employment projections available online at www.labormarketinfo.edd.ca.gov.

²² U.S. Department of Labor's Occupational Information Network (O*NET) at www.onetonline.org.

²³ 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.

²⁴ Replacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

Top 10 Occupations and Recent Job Demand in the Education and Training Cluster

The table below further profiles the San Francisco Bay Area Economic Market's top 10 occupations in the Education and Training cluster by listing the total job openings for 2012-2022, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLine™ (HWOL) data series over a 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBS™ (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ²⁵ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ²⁶	HWOL Job Ads ²⁷ (120 days)
Elementary School Teachers, Except Special Education	10,126	N/A	\$69,338	Bachelor's degree	1,114
Teacher Assistants	7,652	N/A	\$31,126	Some college, no degree	2,126
Secondary School Teachers, Except Special and Career/ Technical Education	6,521	N/A	\$71,326	Bachelor's degree	1,236
Middle School Teachers, Except Special and Career/ Technical Education	3,753	N/A	\$68,812	Bachelor's degree	694
Office Clerks, General	3,516	\$18.14	\$37,740	High school diploma or equivalent	2,152
Substitute Teachers	3,257	\$18.36	\$38,185	-	N/A
Coaches and Scouts	2,352	N/A	\$40,026	Bachelor's degree	857
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,117	\$12.54	\$26,086	Less than high school	2,246
Kindergarten Teachers, Except Special Education	1,818	N/A	\$64,476	Bachelor's degree	85
Childcare Workers	1,613	\$12.07	\$25,107	High school diploma or equivalent	680

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 3rd Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending January 16, 2015.

²⁵ Total job openings are the sum of new jobs and replacement job openings.

²⁶ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

²⁷ 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 Education and Training Cluster by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics (BLS) 2012 entry-level education requirements, within the Education and Training cluster. The table includes the San Francisco Bay Area Economic Market'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 ²⁸ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Ads (120 days)
Requires a Bachelor's Degree or Highe	er			
Elementary School Teachers, Except Special Education	10,126	N/A	\$69,338	1,114
Secondary School Teachers, Except Special and Career/Technical Education	6,521	N/A	\$71,326	1,236
Middle School Teachers, Except Special and Career/Technical Education	3,753	N/A	\$68,812	694
Coaches and Scouts	2,352	N/A	\$40,026	857
Kindergarten Teachers, Except Special Education	1,818	N/A	\$64,476	85
Requires Some College, Postsecondar	y Non-Degree	Award, or Asso	ciate's Degree	
Teacher Assistants	7,652	N/A	\$31,126	2,126
Preschool Teachers, Except Special Education	1,413	\$17.09	\$35,559	1,882
Library Technicians	788	\$22.89	\$47,615	38
Computer User Support Specialists	369	\$31.20	\$64,905	5,555
Social Science Research Assistants	357	\$24.66	\$51,310	106
Requires a High School Diploma or Ec	uivalent or Les	s		
Office Clerks, General	3,516	\$18.14	\$37,740	2,152
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,117	\$12.54	\$26,086	2,246
Childcare Workers	1,613	\$12.07	\$25,107	680
Combined Food Preparation and Serving Workers, Including Fast Food	1,574	\$9.84	\$20,474	3,201
Self-Enrichment Education Teachers	1,501	\$20.03	\$41,657	488

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 3rd Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending January 16, 2015.

²⁸ Total job openings are the sum of new jobs and replacement job openings.

Skill Requirements in the Education and Training Cluster

The table below lists the 10 top skills required for top occupations in the Education and Training cluster, categorized by entry-level education requirements. Active listening, critical thinking and speaking are the most commonly shared skills, followed by monitoring, reading comprehension and social perceptiveness. 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								
Occupations	Active Learning	Active Listening	Coordination	Critical Thinking	Instructing	Judgment and Decision Making	Learning Strategies	Management of Personnel Resources	Mathematics	Monitoring	Persuasion	Programming	Reading Comprehension	Service Orientation	Social Perceptiveness	Speaking	Systems Evaluation	Time Management	Writing
Requires a Bachelor's Degree or Higher																			
Elementary School Teachers, Except Special Education		•	•	•		•	•			•			•		•	•			•
Secondary School Teachers, Except Special and Career/Technical Education		•		•	•	•	•			•			•		•	•			•
Middle School Teachers, Except Special and Career/Technical Education	•	•		•	•		•			•			•		•	•			•
Coaches and Scouts		•		•	•	•	•	•		•					•	•	•		
Kindergarten Teachers, Except Special Education	•	•		•		•	•			•			•		•	•			•
Requires Some College, Postsecondary Non-De	gre	e A	\wa	ırd,	or	As	soc	iat	e's	De	gre	е							
Teacher Assistants		•	•	•	•		•			•			•		•	•			•
Preschool Teachers, Except Special Education		•	•	•			•			•			•	•	•	•		•	
Library Technicians	•	•	•	•	•					•			•	•		•			•
Computer User Support Specialists	•	•	•	•	•					•			•	•		•			•
Social Science Research Assistants	•	•		•					•	•		•	•		•	•			•
Requires a High School Diploma or Equivalent of	or L	.es	S																
Office Clerks, General		•	•	•						•			•	•	•	•		•	•
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	•	•	•	•		•							•	•	•	•		•	
Childcare Workers	•	•	•	•		•	•			•				•	•	•			
Combined Food Preparation and Serving Workers, Including Fast Food		•	•	•	•		•				•		•	•	•	•			
Self-Enrichment Education Teachers	•	•		•	•		•			•			•		•	•			•

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

Work Activities in the Education and Training Cluster

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

												٧	Vo	rk	Α	cti	ivi	tie	s										
Occupations	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	Developing and Building Teams	Developing Objectives and Strategies	Documenting/Recording Information	Establishing and Maintaining Interpersonal Relationships	Getting Information	Handling and Moving Objects	Identifying Objects, Actions, and Events	Inspecting Equipment, Structures, or Material	Interacting With Computers	Interpreting the Meaning of Information for Others	Judging 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	Processing Information	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Thinking Creatively	Training and Teaching Others	Updating and Using Relevant Knowledge
Requires a Bachelor's Degree or Higher					<u> </u>			-			I	<u>ا</u> ر	<u>- 1</u>	<u>-</u> 1	_	_	_	ر		ے ۔۔		-	<u> </u>	-	-	97	-	-	
Elementary School Teachers, Except Special Education			•		•				•		•								•		•					•	•	•	•
Secondary School Teachers, Except Special and Career/Technical Education			•		•						•			•					•		•					•	•	•	•
Middle School Teachers, Except Special and Career/Technical Education			•		•		•		•		•						•				•						•	•	•
Coaches and Scouts			•				•				•			•				•			•		•		•	•		•	
Kindergarten Teachers, Except Special Education			•		•		•	•			•								•		•						•	•	•
Requires Some College, Postsecondary N	or)-C	eç	gre	е.	A۷	vai	rd,	OI	r A	ss	00	cia	te	's	De	eg	re	е										
Teacher Assistants		•	•		•						•	•								•	•				•		•		•
Preschool Teachers, Except Special Education		•			•						•								•	•	•	•			•	•	•		
Library Technicians					•				J	•	•	•	•	•							•	•		•					•
Computer User Support Specialists					•						•	•		•		•			•		•			•			•		•
Social Science Research Assistants	•				•						•	•		•			•				•			•			•		•
Requires a High School Diploma or Equiv	ale	ent	0	r L	.es	s																							
Office Clerks, General		•			•				_	•	•	•				•					•			•		•			•
Janitors and Cleaners, Except Maids and Housekeeping Cleaners					•	•					•		•		•				•	•	•	•	•						
Childcare Workers		•			•				_	\perp	•		•						•	•	•		•		•		•		
Combined Food Preparation and Serving Workers, Including Fast Food			•		•		•				•	•	•	•								•			•			•	
Self-Enrichment Education Teachers			•	•							•								•		•	•	•				•	•	•

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

Related Occupations for the Education and Training Cluster

The table below lists top occupations in the Education and Training cluster by entry-level education requirements and provides a sample of related occupations. These related occupations match many of the skills, education, and work experience needed for the top Education and Training cluster occupations.

Education and Training	Related Occupations
Occupations Requires a Bachelor's Degree or	·
Elementary School Teachers, Except Special Education	 Adult Basic and Secondary Education and Literacy Teachers and Instructors Educational, Guidance, School, and Vocational Counselors Kindergarten Teachers, Except Special Education
Secondary School Teachers, Except Special and Career/ Technical Education	 Adult Basic and Secondary Education and Literacy Teachers and Instructors Middle School Teachers, Except Special and Career/Technical Education Training and Development Specialists
Middle School Teachers, Except Special and Career/Technical Education	 Career/Technical Education Teachers, Middle School Educational, Guidance, School, and Vocational Counselors Elementary School Teachers, Except Special Education
Coaches and Scouts	 Recreational Therapists Secondary School Teachers, Except Special and Career/Technical Education Vocational Education Teachers, Postsecondary
Kindergarten Teachers, Except Special Education	 Education Administrators, Preschool and Childcare Center/Program Elementary School Teachers, Except Special Education Preschool Teachers, Except Special Education
Requires Some College, Postseco	ondary Non-Degree Award, or Associate's Degree
Teacher Assistants	 Nannies Preschool Teachers, Except Special Education Social and Human Service Assistants
Preschool Teachers, Except Special Education	 Childcare Workers Elementary School Teachers, Except Special Education Teacher Assistants
Library Technicians	 Billing, Cost, and Rate Clerks Bookkeeping, Accounting, and Auditing Clerks Teacher Assistants
Computer User Support Specialists	 Audio and Video Equipment Technicians Electronic Home Entertainment Equipment Installers and Repairers Web Administrators
Social Science Research Assistants	Logistics AnalystsMarket Research Analysts and Marketing SpecialistsStatisticians
Requires a High School Diploma	or Equivalent or Less
Office Clerks, General	 Medical Records and Health Information Technicians Receptionists and Information Clerks Secretaries and Administrative Assistants, Except Legal, Medical, and Executive
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	DishwashersHelpersProduction WorkersLandscaping and Groundskeeping Workers
Childcare Workers	Home Health AidesPersonal Care AidesTeacher Assistants
Combined Food Preparation and Serving Workers, Including Fast Food	 Counter Attendants, Cafeteria, Food Concession, and Coffee Shop Food Preparation Workers Food Servers, Nonrestaurant
Self-Enrichment Education Teachers	 Correctional Officers and Jailers First-Line Supervisors of Office and Administrative Support Workers Recreation Workers

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

Employer Demand for the Education and Training Cluster

The following table lists the San Francisco Bay Area Economic Market employers in the Education and Training cluster who posted the most job advertisements during the 120-day period ending January 16, 2015. 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.

Education and Training Cluster Employers	Recent Job Advertisements ²⁹ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change (HWOL Job Advertisements)
Stanford University	1,973	297	1,676	564.3%
University Of California, Berkeley	1,273	1,197	76	6.3%
University of California - San Francisco	1,204	587	617	105.1%
San Jose State University	338	90	248	275.6%
West Contra Costa Unified	285	58	227	391.4%
San Ramon Valley Unified	284	202	82	40.6%
Santa Rosa City Schools	245	162	83	51.2%
Lawrence Berkeley National Laboratory	227	3	224	7,466.7%
Oakland Unified School District	224	195	29	14.9%
San Francisco State University	207	31	176	567.7%
Vallejo City Unified	193	170	23	13.5%
San Francisco Unified School District - COE	167	20	147	735.0%
San Jose Unified School District	167	59	108	183.1%
University Of California	164	221	-57	-25.8%
College of Marin	162	2	160	8,000.0%
University Of San Francisco	141	40	101	252.5%
Santa Clara Unified School District	138	86	52	60.5%
San Mateo Union High School District	137	100	37	37.0%
Hayward Unified School District	126	61	65	106.6%
Santa Clara University	122	73	49	67.1%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending January 16, 2015.

²⁹ Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Education and Training Cluster Occupations

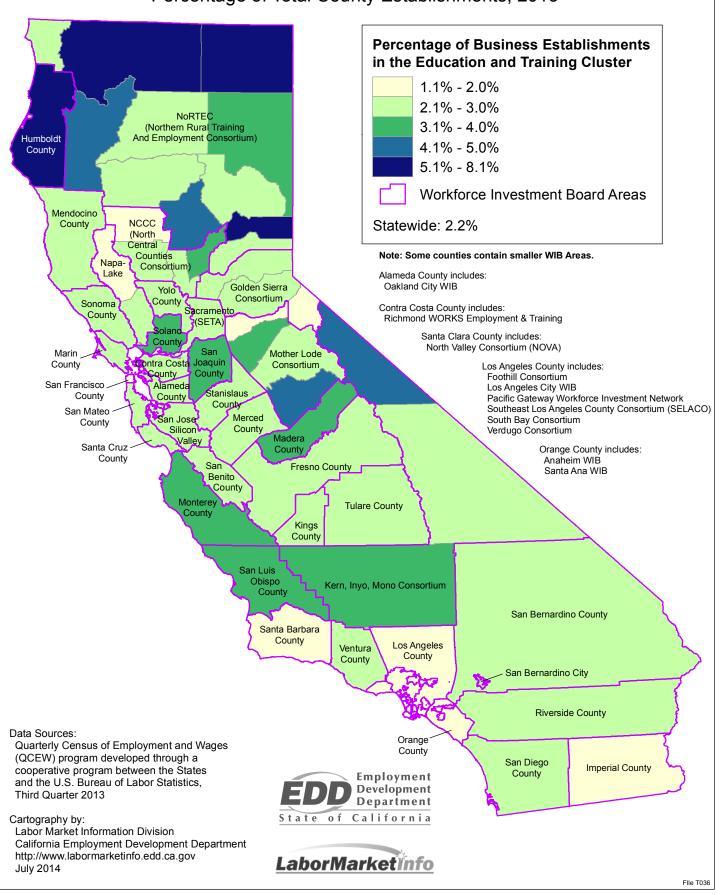
The table below provides examples of instructional programs related to some of the top occupations in the Education and Training cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Education and Training 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.

Occupations	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)		
	CIP Code	CIP Title	TOP Code	TOP Title	
Teacher Assistants	13.1501	Teacher Assistant/Aide	080200	Educational Aide (Teacher Assistant)	
			080210	Educational Aide (Teacher Assistant), Bilingual	
Preschool Teachers, Except Special Education	13.1209	Kindergarten/Preschool Education and Teaching	130580	Child Development Administration and	
	13.1210	Early Childhood Education and Teaching	Management		
	19.0708	Child Care and Support Services Management			
Library Technicians	25.0301	Library and Archives Assisting	160200	Library Technician (Aide)	
Computer User Support Specialists	01.0106	Agricultural Business Technology	070820	Computer Support	
	11.1006	Computer Support Specialist			
	51.0709	Medical Office Computer Specialist/Assistant			
Social Science Research Assistants	45.0101	Social Sciences, General	220100	Social Sciences, General	
Office Clerks, General	52.0408	General Office Occupations and Clerical Services	N/A	N/A	
Childcare Workers	19.0709	Child Care Provider/Assistant	130500	Child Development/Early Care and Education	
			130540	Preschool Age Child	
			130550	The School Age Child	
Self-Enrichment Education Teachers	13.1201	Adult and Continuing Education and Teaching	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 TOP-to-CIP Crosswalk</u> 7th Edition (2010), www.ccco.edu.

California Education and Training Cluster

Percentage of Total County Establishments, 2013



California Education and Training Cluster

Percentage of Total County Employment, 2013

