

## **Education Report**

# **Chemistry, General**

California



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### Definition of Chemistry, General, CIP 40.0501

A general program that focuses on the scientific study of the composition and behavior of matter, including its microand macro-structure, the processes of chemical change, and the theoretical description and laboratory simulation of these phenomena.



### Awards

The table below is a list of postsecondary awards in CIP 40.0501 that were granted by institutions located in California in the 2021 academic year.

Schools	Certs & 2yr Awards <sup>1</sup>	4yr Awards <sup>2</sup>	Post-Grad Awards <sup>3</sup>	Avg Net Price <sup>4</sup>
University of California-San Diego		71	101	\$15,632
University of California-Berkeley		113	57	\$17,652
University of California-Irvine		125	45	\$11,633
University of California-Los Angeles		47	88	\$13,393
University of California-Santa Barbara		90	26	\$17,333
San Diego State University		92	13	\$6,867
University of California-Riverside		69	29	\$13,502
University of California-Davis		59	34	\$16,640
University of California-Santa Cruz		76	17	\$19,615
Orange Coast College	81			\$6,836
California State Polytechnic University-Pomona		70	8	\$12,942
San Jose State University		62	5	\$14,603
Irvine Valley College	64			\$4,860
Stanford University		12	46	\$14,402
California State University-Long Beach		50	4	\$9,171
Fullerton College	51			\$11,191
University of Southern California		11	35	\$26,021
California State University-San Bernardino		45		\$3,254
University of California-Merced		41		\$11,586
California State University- Northridge		34	6	\$8,708
Saddleback College	39			\$7,918
California State University- Sacramento		33	4	\$7,778
California Polytechnic State University-San Luis Obispo		36		\$20,708
California State University- Fresno		30	6	\$6,336
Diablo Valley College	36			\$8,878
Golden West College	35			\$5,433
Evergreen Valley College	33			\$15,650
Moorpark College	33			\$4,856
California Institute of Technology		9	23	\$30,162



Schools	Certs & 2yr Awards <sup>1</sup>	4yr Awards <sup>2</sup>	Post-Grad Awards <sup>3</sup>	Avg Net Price <sup>4</sup>
California State University- Fullerton		26	6	\$4,939
Santiago Canyon College	32			\$5,879
California State University- Channel Islands		31		\$14,493
University of San Francisco		26	4	\$39,825
California State University-Los Angeles		20	9	\$2,695
Santa Barbara City College	28			\$14,000
San Diego Miramar College	27			\$7,880
Antelope Valley Community College District	22			\$6,203
Solano Community College	22			\$5,950
Sacramento City College	21			\$7,788
California State Polytechnic University-Humboldt		20		\$13,904
San Francisco State University		11	9	\$13,641
Cabrillo College	19			\$18,139
Pomona College		18		\$17,000
Santa Ana College	16			\$6,351
California State University-East Bay		11	4	\$12,631
Monterey Peninsula College	15			\$12,007
Sonoma State University		15		\$7,055
El Camino Community College District	14			\$13,296
Hartnell College	14			\$7,721
University of La Verne		14		\$22,538
Westmont College		14		\$33,554
Cuyamaca College	13			\$6,460
Mt San Jacinto Community College District	13			\$7,704
Allan Hancock College	12			\$6,629
Contra Costa College	12			\$9,405
Imperial Valley College	12			\$2,300
San Bernardino Valley College	12			\$9,621
University of Redlands		12		\$21,578
California State University-San Marcos		8	3	\$14,296
Chaffey College	11			\$13,939
University of San Diego		11		\$34,155
Loyola Marymount University		10		\$40,180
Modesto Junior College	10			\$14,421



Schools	Certs & 2yr Awards <sup>1</sup>	4yr Awards <sup>2</sup>	Post-Grad Awards <sup>3</sup>	Avg Net Price <sup>4</sup>
Yuba College	10			\$5,503
California Baptist University		9		\$23,494
California State University- Stanislaus		9		\$7,230
Whittier College		9		\$22,091
California State University-Chico		8		\$13,749
Cerritos College	8			\$9,557
Grossmont College	8			\$5,999
Los Angeles City College	8			\$10,898
Occidental College		8		\$43,047
Pepperdine University		8		\$40,945
San Jose City College	8			\$17,618
College of the Desert	7			\$14,179
Crafton Hills College	7			\$20,456
Dominican University of California		7		\$45,001
California Lutheran University		6		\$24,065
Chapman University		6		\$40,451
College of San Mateo	6			\$5,427
Cypress College	6			\$7,951
Foothill College	6			\$9,820
Los Angeles Harbor College	6			\$12,787
Los Medanos College	6			\$7,231
Ohlone College	6			\$12,787
Oxnard College	6			\$3,441
Reedley College	6			\$7,089
Sierra College	6			\$5,921
Azusa Pacific University		5		\$27,112
College of the Sequoias	5			\$5,205
Columbia College	5			\$10,735
Los Angeles Trade Technical College	5			\$10,495
Los Angeles Valley College	5			\$11,833
Merced College	5			\$13,426
Pacific Union College		5		\$22,767
Point Loma Nazarene University		5		\$34,851
Scripps College		5		\$44,770
Butte College	4			\$10,736
California State University- Bakersfield		4		\$7,368



Schools	Certs & 2yr Awards <sup>1</sup>	4yr Awards <sup>2</sup>	Post-Grad Awards <sup>3</sup>	Avg Net Price <sup>4</sup>
California State University- Dominguez Hills		4		\$4,500
Claremont McKenna College		4		\$21,663
Gavilan College	4			\$8,705
Harvey Mudd College		4		\$33,838
Norco College	4			\$7,404
Palomar College	4			\$6,659
Rio Hondo College	4			\$7,873
Saint Mary's College of California		4		\$25,022
Santa Rosa Junior College	4			\$9,220
Southwestern College	4			\$6,789
University of the Pacific		4		\$21,311
Canada College	3			\$5,923
Concordia University-Irvine		3		\$25,640
Cuesta College	3			\$14,586
Las Positas College	3			\$7,675
Mount Saint Mary's University		3		\$24,508
Santa Clara University		3		\$48,469
Biola University		2		\$29,123
Chabot College	2			\$8,576
Fresno Pacific University		2		\$15,350
Pitzer College		2		\$19,153
Riverside City College	2			\$7,161
San Diego Mesa College	2			\$7,663
Clovis Community College	1			\$6,305
College of the Siskiyous	1			\$11,340
Cosumnes River College	1			\$7,223
Glendale Community College	1			\$7,823
University of Saint Katherine		1		\$26,616
Bakersfield College				\$6,989
City College of San Francisco				\$9,261
College of Marin				\$7,717
La Sierra University				\$25,230
Mills College				\$25,283
MiraCosta College				\$6,946
San Diego City College				\$8,370
Vanguard University of Southern California				\$20,427



Schools	Certs & 2yr Awards <sup>1</sup>	4yr Awards <sup>2</sup>	Post-Grad Awards <sup>3</sup>	Avg Net Price <sup>4</sup>
West Los Angeles College				\$10,259
West Valley College				\$6,890
Total	879	1,552	582	

1. Undergraduate certificates and associate's degrees

2. Bachelor's degrees and post-baccalaureates

3. Master's, post-master's, and doctorates

4. Average net price represents full-time beginning undergraduate students who paid the in-state or in-district tuition rate and were awarded grant or scholarship aid from federal, state or local governments, or the institution. Data as of the 2020-2021 academic year.

Awards data are per the National Center for Education Statistics (NCES) and JobsEQ for the 2021 academic year. Any programs shown here reflect only data reported to the NCES; reporting is required of all schools participating in any federal finance assistance program authorized by Title IV of the Higher Education Act of 1965, as amended—other training providers in the region that do not report data to the NCES are not reflected in the above.



### **Occupation Crosswalk**

The below table lists all occupations linked with the program, Chemistry, General, CIP 40.0501.

		Educat	tion and Training Requir	ements		Educat	ional Attaiı	nment	
		Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-the-Job Training Needed to Attain Competency in the Occupation	No College	Some College, No Degree	Associate's Degree	Bachelor's Degree	Postgraduat e Degree
11-9121	Natural Sciences Managers	Bachelor's degree	5 years or more	None	1%	2%	2%	31%	63%
19-2031	Chemists	Bachelor's degree	None	None	1%	1%	1%	48%	49%
19-4013	Food Science Technicians	Associate's degree	None	Moderate-term on- the-job training	29%	17%	16%	29%	8%
19-4031	Chemical Technicians	Associate's degree	None	Moderate-term on- the-job training	18%	16%	10%	44%	13%
19-4092	Forensic Science Technicians	Bachelor's degree	None	Moderate-term on- the-job training	13%	17%	13%	38%	18%
25-1052	Chemistry Teachers, Postsecondary	Doctoral or professional degree	None	None	1%	1%	1%	14%	83%
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	Bachelor's degree	None	None	0%	2%	1%	41%	56%

Education and training requirements are from the Bureau of Labor Statistics (BLS); educational attainment mix are regional data modeled by Chmura using Census educational attainment data projected to 2022Q4 along with source data from the BLS

#### Definition of Natural Sciences Managers (11-9121)

Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields.

#### Definition of Chemists (19-2031)

Conduct qualitative and quantitative chemical analyses or experiments in laboratories for quality or process control or to develop new products or knowledge.

#### Definition of Food Science Technicians (19-4013)

Work with food scientists or technologists to perform standardized qualitative and quantitative tests to determine physical or chemical properties of food or beverage products. Includes technicians who assist in research and development of production technology, quality control, packaging, processing, and use of foods.

#### Definition of Chemical Technicians (19-4031)

Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences.

#### Definition of Forensic Science Technicians (19-4092)

Collect, identify, classify, and analyze physical evidence related to criminal investigations. Perform tests on weapons or substances, such as fiber, hair, and tissue to determine significance to investigation. May testify as expert witnesses on evidence or crime laboratory techniques. May serve as specialists in area of expertise, such as ballistics, fingerprinting, handwriting, or biochemistry.

#### Definition of Chemistry Teachers, Postsecondary (25-1052)

Teach courses pertaining to the chemical and physical properties and compositional changes of substances. Work may include providing instruction in the methods of qualitative and quantitative chemical analysis. Includes both teachers primarily engaged in teaching, and those who do a combination of teaching and research.

#### Definition of Secondary School Teachers, Except Special and Career/Technical Education (25-2031)

Teach one or more subjects to students at the secondary school level.



### **Occupation Details**

As of 2022Q4, total employment for occupations linked to Chemistry, General in California was 142,759. Over the past three years, linked occupations shed 717 jobs in the region and are expected to need in aggregate approximately 80,460 newly trained workers over the next seven years.

				Cu	irrent			3-Year History		7-	Year Forecas	t	
soc	Occupation	Empl	Mean Ann Wages²	LQ	Unempl	Unempl Rate	Online Job Ads <sup>3</sup>	Ann %	Total Demand	Exits	Transfers	Empl Growth	Avg Ann Growth %
25- 2031	Secondary School Teachers, Except Special and Career/Technical Education	105,321	\$100,400	0.85	2,531	2.4%	1,989	-1.0%	52,871	21,638	29,100	2,132	0.3%
11-9121	Natural Sciences Managers	12,225	\$200,000	1.31	276	2.3%	1,059	6.5%	7,714	2,219	4,792	703	0.8%
19- 2031	Chemists	10,716	\$91,900	1.08	236	2.3%	245	1.2%	6,698	1,309	4,930	458	0.6%
19- 4031	Chemical Technicians	7,957	\$55,800	1.08	134	1.7%	172	0.2%	7,212	1,195	5,747	271	0.5%
19- 4092	Forensic Science Technicians	2,712	\$95,600	1.41	86	3.1%	29	0.2%	2,667	538	1,914	215	1.1%
19-4013	Food Science Technicians	2,109	\$52,800	1.42	30	1.4%	182	1.7%	2,208	303	1,817	88	0.6%
25- 1052	Chemistry Teachers, Postsecondary	1,720	\$143,200	0.71	32	1.9%	70	-1.3%	1,091	555	468	67	0.6%
	Total - Linked Occupations	142,759	\$105,500	0.91	3,326	2.3%	3,746	-0.2%	80,460	27,757	48,768	3,935	0.4%
	Total - All Occupations	19,219,968	\$71,900	1.00	797,161	4.1%	547,112	0.6%	17,029,863	6,722,656	9,379,252	927,955	0.7%

#### Snapshot of Occupations Linked to Chemistry, General in California<sup>1</sup>

2 ....

Source: JobsEQ®

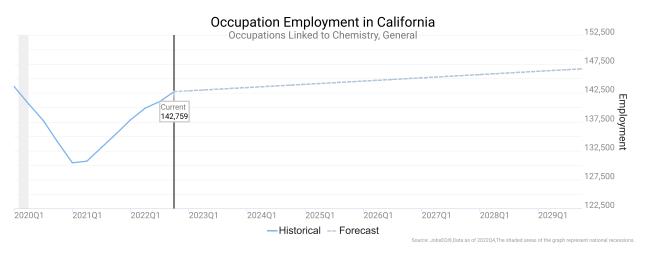
Data as of 2022Q4 unless noted otherwise

Note: Figures may not sum due to rounding.

1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data represent the average for all Covered Employment

3. Data represent found online ads active within the last thirty days in the selected region. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list). Ad counts for ZCTA-based regions are estimates.



Occupation employment data are estimated via industry employment data and the industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2022Q3, imputed where necessary with preliminary estimates updated to 2022Q4. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns. Occupation unemployment figures are imputed by Chmura.



### **Employment by Industry**

The table illustrates the industries in California which most employ occupations linked to Chemistry, General. The single industry most employing these occupations in the region is Elementary and Secondary Schools, NAICS 6111. This industry employs 103,778 workers in the linked occupations—employment which is expected to increase by 2,934 jobs over the next ten years; furthermore, 71,418 additional new workers in these linked occupations will be needed for this industry due to separation demand, that is, to replace workers in this occupation and industry that retire or move into a different occupation.

		Current				10-Year Demand			
NAICS Code	Industry Title	% of Occ Empl	Empl	Exits	Transfers	Empl Growth	Total Demand		
6111	Elementary and Secondary Schools	72.7%	103,778	30,457	40,961	2,934	74,352		
5417	Scientific Research and Development Services	8.2%	11,704	2,712	7,644	882	11,238		
3254	Pharmaceutical and Medicine Manufacturing	2.8%	4,015	833	3,070	586	4,489		
5413	Architectural, Engineering, and Related Services	2.1%	2,929	602	2,455	100	3,158		
6113	Colleges, Universities, and Professional Schools	1.5%	2,109	775	1,106	171	2,052		
9221	Justice, Public Order, and Safety Activities	0.9%	1,338	345	1,117	88	1,549		
9211	Executive, Legislative, and Other General Government Support	0.8%	1,155	303	998	98	1,398		
5511	Management of Companies and Enterprises	0.7%	958	208	647	26	881		
5613	Employment Services	0.6%	833	181	611	58	850		
9231	Administration of Human Resource Programs	0.6%	806	208	670	56	935		
8131	Religious Organizations	0.5%	727	215	292	38	546		
	All Others	8.7%	12,408	2,826	10,116	625	13,567		

#### Industry Distribution for Occupations Linked to Chemistry, General in California

Source: JobsEQ®

Data as of 2022Q4 except wages which are as of 2021. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.

Note: Figures may not sum due to rounding.

Occupation employment data are estimated via industry employment data and the industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2022Q3, imputed where necessary with preliminary estimates updated to 2022Q4. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.



### **Geographic Distribution**

The map below illustrates the county-level distribution of employed workers in California in occupations linked to Chemistry, General. Employment is shown by place of work.

California, Occupation Concentration by Place of Work for Occupations Linked to Chemistry, General







#### Top Counties with Employment Linked to Chemistry, General, 2022Q4

Region	Employment
Los Angeles County, California	32,640
San Diego County, California	13,986
Orange County, California	11,058
Santa Clara County, California	7,880
Riverside County, California	7,089
San Bernardino County, California	7,035
Alameda County, California	6,954
Sacramento County, California	5,480
San Mateo County, California	5,127
Fresno County, California	3,974

#### Source: JobsEQ®

Occupation employment data are estimated via industry employment data and the industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2022Q3, imputed where necessary with preliminary estimates updated to 2022Q4.



### **Demographic Profile**

The population in California was 39,346,023 per American Community Survey data for 2016-2020.

Of individuals 25 to 64 in California, 35.4% have a bachelor's degree or higher which compares with 34.3% in the nation. Per American Community Survey 2016-2020 estimates, the region has about 576,714 students enrolled in grade 12.

Summary <sup>1</sup>				
	Percen	t	Value	e
	California	USA	California	USA
Demographics				
Population (ACS)	_	_	39,346,023	326,569,308
Male	49.7%	49.2%	19,562,882	160,818,530
Female	50.3%	50.8%	19,783,141	165,750,778
Median Age <sup>2</sup>	_	_	36.7	38.2
Under 18 Years	22.8%	22.4%	8,956,641	73,296,738
18 to 24 Years	9.5%	9.3%	3,724,239	30,435,736
25 to 34 Years	15.3%	13.9%	6,007,913	45,485,165
35 to 44 Years	13.3%	12.7%	5,233,903	41,346,677
45 to 54 Years	12.8%	12.7%	5,039,155	41,540,736
55 to 64 Years	12.0%	12.9%	4,739,675	42,101,439
65 to 74 Years	8.3%	9.4%	3,270,380	30,547,950
Population Growth				
Population (Pop Estimates) <sup>4</sup>	_	_	39,029,342	333,287,557
Population Annual Average Growth <sup>4</sup>	0.3%	0.6%	108,479	1,940,990
People per Square Mile	_	_	250.4	94.3
Educational Attainment, Age 25-64				
No High School Diploma	15.2%	10.5%	3,199,850	17,929,220
High School Graduate	20.4%	25.4%	4,282,776	43,289,555
Some College, No Degree	21.0%	20.5%	4,412,172	34,959,338
Associate's Degree	8.0%	9.3%	1,678,082	15,776,790
Bachelor's Degree	22.6%	21.6%	4,741,354	36,888,244
Postgraduate Degree	12.9%	12.7%	2,706,412	21,630,870
Social				
Poverty Level (of all people)	12.6%	12.8%	4,853,434	40,910,326
Households Receiving Food Stamps/SNAP	9.0%	11.4%	1,183,873	13,892,407
Enrolled in Grade 12 (% of total population)	1.5%	1.3%	576,714	4,358,865
Disconnected Youth <sup>3</sup>	1.9%	2.5%	38,451	433,164
Children in Single Parent Families (% of all children)	32.8%	34.0%	2,796,858	23,628,508
Uninsured	7.2%	8.7%	2,806,173	28,058,903
Speak English Less Than Very Well (population 5 yrs and over)	17.4%	8.2%		

Source: JobsEQ®

1. American Community Survey 2016-2020, unless noted otherwise

2. Median values for certain aggregate regions (such as MSAs) may be estimated as the weighted averages of the median values from the composing counties.

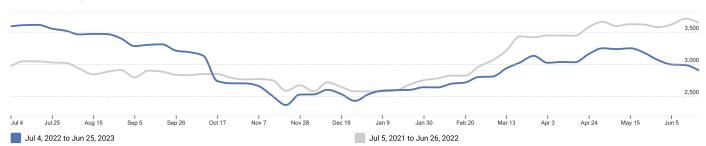
3. Disconnected Youth are 16-19 year olds who are (1) not in school, (2) not high school graduates, and (3) either unemployed or not in the labor force.

4. Census Population Estimate for 2022, annual average growth rate since 2012. Post-2019 data for Connecticut counties are imputed by Chmura.



### RTI (Job Postings)

Active Job Ads by Date



#### Occupations

		Active Job	
SOC	Occupation	Ads	
25-2031.00	Secondary School Teachers, Except Special and Career/Technical Education	7,721	
11-9121.01	Clinical Research Coordinators	4,986	
19-2031.00	Chemists	1,688	
19-4031.00	Chemical Technicians	1,221	
19-4013.00	Food Science Technicians	911	
11-9121.02	Water Resource Specialists	379	
25-1052.00	Chemistry Teachers, Postsecondary	245	
11-9121.00	Natural Sciences Managers	186	
19-4092.00	Forensic Science Technicians	154	

#### Locations

Location	Active Job Ads
Los Angeles, California	757
San Diego, California	554
University of California San Francisco	546
Los Angeles, CA, 90095, US	377
University of California Davis	291
Oakland, CA 94607	210
School of Medicine, Stanford, California, United States	206



#### Locations

	Active	
	Job	
Location	Ads	
San Francisco, California	205	
Irvine, California	191	
University of Southern California (USC)	179	



	Active Job
Employer Name	Ads
UCLA HEALTH	567
San Francisco, California	547
Oakland Unified School District	521
Cedars-Sinai	364
Kaiser Permanente	338
Actalent	271
Stanford University	251
Davis, California	178
Los Angeles, California	172
Sacramento, California	155

Employers

#### Certifications

	Active	
	Job	
Certificate Name	Ads	
Driver's License	338	
Certification in Cardiopulmonary Resuscitation (CPR)	231	
First Aid Certification	231	
Certified Research Administrator (CRA)	190	
Certified Clinical Research Coordinator (CCRC)	100	
Basic Life Support (BLS)	98	
National Phlebotomy Association Certified Phlebotomist	89	
Certified Clinical Research Associate (CCRA)	66	
Registered Nurse (RN)	30	
Clinical Research Assistant	25	



#### Hard Skills

	Active	
	Job	
Skill Name	Ads	
Teaching/Training, School	5,241	
Clinical Research	3,214	
Microsoft Excel	2,226	
Microsoft Office	1,962	
Microsoft Word	1,206	
Spanish	1,163	
Medical Terminology	977	
Mathematics	889	
Microsoft PowerPoint	862	
Microsoft Outlook	692	

#### Soft Skills

Skill Name	Active Job Ads
Communication (Verbal and written skills)	8,107
Cooperative/Team Player	4,771
Organization	3,224
Analytical	2,590
Detail Oriented/Meticulous	2,553
Self-Motivated/Ability to Work Independently/Self Leadership	2,305
Problem Solving	2,158
Interpersonal Relationships/Maintain Relationships	2,085
Adaptability/Flexibility/Tolerance of Change and Uncertainty	1,740
Supervision/Management	1,592



#### Job Titles

	Active	
	Job	
Job Title	Ads	
Clinical Research Coordinator	372	
Lab Technician	227	
Intern I - High School	171	
Assistant Clinical Research Coordinator	141	
English Teacher	114	
Research Coordinator I	100	
Clinical Research Associate	97	
Chemist	96	
Research Coordinator	78	
High School Teacher	69	

#### Job Types

	Active
	Job
Туре	Ads
Full-Time	9,609
Part-Time	2,244
Temporary (unspecified)	1,290
Permanent	1,100
Remote	499
Temporary (long-term)	371
Temp-to-Hire	109
Temporary (short-term)	81
Remote Not Indicated	16,992



	Active	
	dol	
Program Name	Ads	
Chemistry	1,699	
Science	1,079	
Biology	915	
Biochemistry	410	
Life Science	296	
Chemical Engineering	289	
Psychology	254	
Engineering	239	
Education	229	
Public Health	198	

#### **Education Levels**

	Active
	Job
Minimum Education Level	Ads
Bachelor's degree	6,587
High school diploma or equivalent	1,191
Associate's degree	1,008
Master's degree	569
Doctoral or professional degree	302
Unspecified/other	7,834



### California Regional Map





### FAQ

#### What is CIP?

The 2010 Classification of Instructional Programs (CIP) is taxonomy of instructional program classifications and descriptions. It was developed and has been updated by the U.S. Department of Education's National Center for Education Statistics (NCES).

#### What is SOC?

The Standard Occupational Classification system (SOC) is used to classify workers into occupational categories. All workers are classified into one of over 804 occupations according to their occupational definition. To facilitate classification, occupations are combined to form 22 major groups, 95 minor groups, and 452 occupation groups. Each occupation group includes detailed occupations requiring similar job duties, skills, education, or experience.

#### What is the source of the job ads?

Job ads data are online job posts from the Real-Time Intelligence (RTI) data set, produced wholly by Chmura and gleaned from over 40,000 websites. Data reflect ads active during the last twelve month period ending 07/05/2023 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Historical ad volume is revised as additional data are made available and processed. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures.

#### What is the program-to-occupation crosswalk?

Training programs are classified according to the Classification of Instructional Programs (CIP codes). For relating training programs, this report uses a modified version of the CIP to SOC crosswalk from the National Center for Education Statistics (NCES). While this is a very helpful crosswalk for estimating occupation production from training program awards data, the crosswalk is neither perfect nor comprehensive. Indeed, it is hard to imagine such a crosswalk being perfect since many training program graduates for one reason or another do not end up employed in occupations that are most related to the training program from which they graduated. Therefore, the education program analyses should be considered in this light.

As an example of the many scenarios that may unfold, consider a journalism degree that crosswalks into three occupations: editors, writers, and postsecondary communications teachers. Graduates with a journalism degree may get a job in one of these occupations—and that may be the most-likely scenario—but a good number of these graduates may get a job in a different occupation altogether (the job may be somewhat related, such as a reporter, or the job may be totally unrelated, such as a real estate agent). Furthermore, a graduate may stay in school or go back to school for a degree that will lead to other occupation possibilities. Still another possibility includes the graduate not entering the labor market (maybe being unemployed, being a non-participant, or moving to another region).

#### What is separation demand?

Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. The total projected demand for an occupation is the sum of the separation demand and the growth



demand (which is the increase or decrease of jobs in an occupation expected due to expansion or contraction of the overall number of jobs in that occupation).

#### What is a location quotient?

A location quotient (LQ) is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an occupation (or industry) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

#### What is NAICS?

The North American Industry Classification System (NAICS) is used to classify business establishments according to the type of economic activity. The NAICS Code comprises six levels, from the "all industry" level to the 6-digit level. The first two digits define the top level category, known as the "sector," which is the level examined in this report.

#### About This Report

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