



Education Report

Geology/Earth Science, General

Sacramento-Roseville-Folsom, CA MSA



Definition of Geology/Earth Science, General, CIP 40.0601 3

Awards..... 4

Occupation Crosswalk 5

Occupation Details 6

Employment by Industry 7

Geographic Distribution 8

Demographic Profile..... 9

RTI (Job Postings) 10

Sacramento-Roseville-Folsom, CA MSA Regional Map..... 16

Region Definition..... 17

FAQ..... 18

Definition of Geology/Earth Science, General, CIP 40.0601

A program that focuses on the scientific study of the earth; the forces acting upon it; and the behavior of the solids, liquids and gases comprising it. Includes instruction in historical geology, geomorphology, and sedimentology, the chemistry of rocks and soils, stratigraphy, mineralogy, petrology, geostatistics, volcanology, glaciology, geophysical principles, and applications to research and industrial problems.

Awards

The table below is a list of postsecondary awards in CIP 40.0601 that were granted by institutions located in the Sacramento-Roseville-Folsom, CA MSA in the 2021 academic year.

Schools	Certs & 2yr Awards ¹	4yr Awards ²	Post-Grad Awards ³	Avg Net Price ⁴
University of California-Davis		21	10	\$16,640
California State University-Sacramento		14	6	\$7,778
American River College	3			\$8,101
Folsom Lake College	3			\$8,276
Cosumnes River College	1			\$7,223
Lake Tahoe Community College				\$7,867
Sacramento City College				\$7,788
Sierra College				\$5,921
Woodland Community College				\$7,480
Total	7	35	16	

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, Geology/Earth Science, General, CIP 40.0601.

		Education and Training Requirements			Educational Attainment				
		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	Postgraduate Degree
11-9121	Natural Sciences Managers	Bachelor's degree	5 years or more	None	2%	3%	4%	36%	55%
19-2042	Geoscientists, Except Hydrologists and Geographers	Bachelor's degree	None	None	0%	0%	0%	47%	53%
19-2043	Hydrologists	Bachelor's degree	None	None	0%	0%	0%	47%	53%
19-4043	Geological Technicians, Except Hydrologic Technicians	Associate's degree	None	Moderate-term on-the-job training	15%	16%	14%	44%	11%
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	Doctoral or professional degree	None	None	1%	1%	2%	15%	81%

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 Geoscientists, Except Hydrologists and Geographers (19-2042)

Study the composition, structure, and other physical aspects of the Earth. May use geological, physics, and mathematics knowledge in exploration for oil, gas, minerals, or underground water; or in waste disposal, land reclamation, or other environmental problems. May study the Earth's internal composition, atmospheres, and oceans, and its magnetic, electrical, and gravitational forces. Includes mineralogists, paleontologists, stratigraphers, geodesists, and seismologists.

Definition of Hydrologists (19-2043)

Research the distribution, circulation, and physical properties of underground and surface waters; and study the form and intensity of precipitation and its rate of infiltration into the soil, movement through the earth, and return to the ocean and atmosphere.

Definition of Geological Technicians, Except Hydrologic Technicians (19-4043)

Assist scientists or engineers in the use of electronic, sonic, or nuclear measuring instruments in laboratory, exploration, and production activities to obtain data indicating resources such as metallic ore, minerals, gas, coal, or petroleum. Analyze mud and drill cuttings. Chart pressure, temperature, and other characteristics of wells or bore holes.

Definition of Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary (25-1051)

Teach courses in the physical sciences, except chemistry and physics. Includes both teachers primarily engaged in teaching, and those who do a combination of teaching and research.

Occupation Details

As of 2022Q4, total employment for occupations linked to Geology/Earth Science, General in the Sacramento-Roseville-Folsom, CA MSA was 1,150. Over the past three years, linked occupations added 97 jobs in the region and are expected to need in aggregate approximately 758 newly trained workers over the next seven years.

Snapshot of Occupations Linked to Geology/Earth Science, General in the Sacramento-Roseville-Folsom, CA MSA¹

SOC	Occupation	Current						3-Year History	7-Year Forecast				
		Empl	Mean Ann Wages ²	LQ	Unempl	Unempl Rate	Online Job Ads ³	Ann %	Total Demand	Exits	Transfers	Empl Growth	Avg Ann Growth %
11- 9121	Natural Sciences Managers	679	\$162,000	1.25	17	2.5%	101	5.3%	434	124	267	43	0.9%
19- 2042	Geoscientists, Except Hydrologists and Geographers	260	\$112,600	1.48	11	4.4%	24	-0.9%	176	28	138	10	0.6%
19- 2043	Hydrologists	105	\$114,300	2.34	5	4.6%	7	-0.8%	68	11	55	2	0.2%
25- 1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	56	\$161,300	0.78	1	2.0%	3	-2.6%	38	19	16	4	1.0%
19- 4043	Geological Technicians, Except Hydrologic Technicians	50	\$75,900	0.67	2	3.9%	12	11.1%	41	8	29	3	0.9%
Total - Linked Occupations		1,150	\$142,700	1.26	37	3.2%	147	3.0%	758	190	505	62	0.8%
Total - All Occupations		1,117,739	\$69,500	1.00	41,281	3.6%	36,658	1.1%	1,030,750	399,195	547,399	84,156	1.0%

Source: [JobsEQ®](https://www.chmuraecon.com/jobseq)

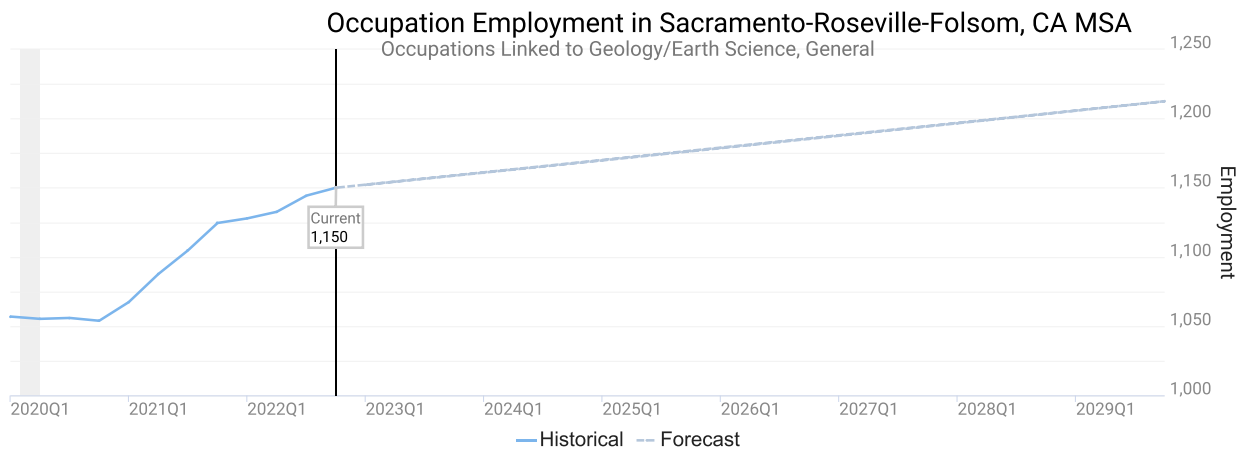
Data as of 2022Q4 unless noted otherwise

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 the Sacramento-Roseville-Folsom, CA MSA which most employ occupations linked to Geology/Earth Science, General. The single industry most employing these occupations in the region is Scientific Research and Development Services, NAICS 5417. This industry employs 288 workers in the linked occupations—employment which is expected to increase by 42 jobs over the next ten years; furthermore, 244 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.

Industry Distribution for Occupations Linked to Geology/Earth Science, General in Sacramento-Roseville-Folsom, CA MSA

NAICS Code	Industry Title	Current			10-Year Demand		
		% of Occ Empl	Empl	Exits	Transfers	Empl Growth	Total Demand
5417	Scientific Research and Development Services	25.1%	288	76	168	42	287
9211	Executive, Legislative, and Other General Government Support	11.4%	131	27	83	0	109
5413	Architectural, Engineering, and Related Services	9.8%	113	21	84	7	112
9231	Administration of Human Resource Programs	6.8%	78	16	49	0	65
9241	Administration of Environmental Quality Programs	6.5%	75	15	47	0	62
9261	Administration of Economic Programs	6.1%	70	14	44	-1	58
6113	Colleges, Universities, and Professional Schools	5.8%	67	24	35	8	68
9221	Justice, Public Order, and Safety Activities	5.6%	65	13	41	0	55
5416	Management, Scientific, and Technical Consulting Services	5.6%	64	13	48	12	73
5511	Management of Companies and Enterprises	3.8%	44	10	29	4	42
6112	Junior Colleges	1.6%	19	9	7	1	17
6221	General Medical and Surgical Hospitals	1.4%	16	4	9	2	15
3254	Pharmaceutical and Medicine Manufacturing	1.1%	13	3	7	2	12
6211	Offices of Physicians	0.9%	10	3	6	1	9
9281	National Security and International Affairs	0.7%	8	2	5	0	7
5613	Employment Services	0.6%	7	1	5	1	7
	All Others	7.3%	83	21	54	12	86

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.

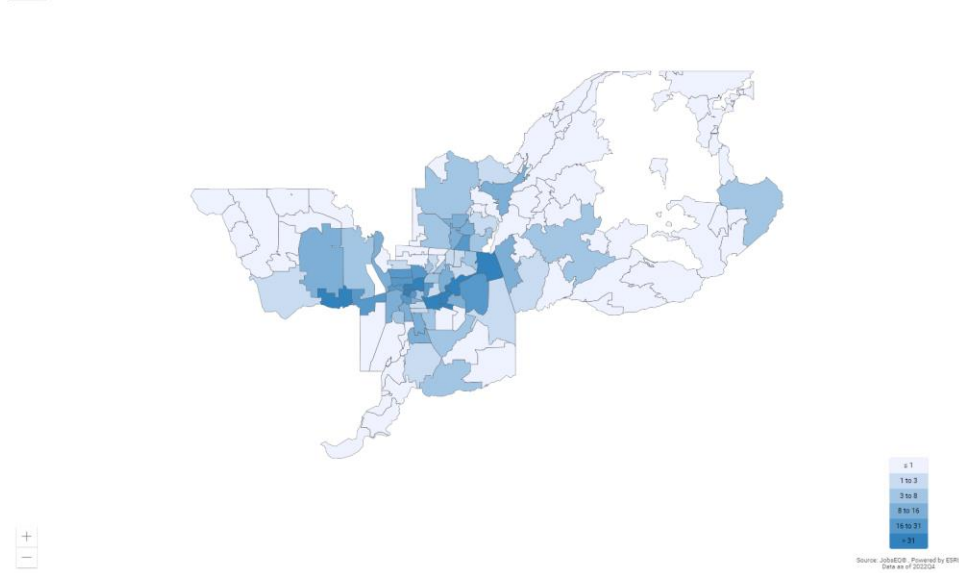
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Geographic Distribution

The map below illustrates the ZCTA-level distribution of employed workers in the Sacramento-Roseville-Folsom, CA MSA in occupations linked to Geology/Earth Science, General. Employment is shown by place of work.

Sacramento-Roseville-Folsom, CA MSA, Occupation Concentration by Place of Work for Occupations Linked to Geology/Earth Science, General



Top ZCTAs with Employment Linked to Geology/Earth Science, General, 2022Q4

Region	Employment
ZCTA 95814	256
ZCTA 95827	110
ZCTA 95630	75
ZCTA 95616	49
ZCTA 95670	48
ZCTA 95811	45
ZCTA 95815	38
ZCTA 95826	32
ZCTA 95825	29
ZCTA 95833	26

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 the Sacramento-Roseville-Folsom, CA MSA was 2,338,866 per American Community Survey data for 2016-2020.

Of individuals 25 to 64 in the Sacramento-Roseville-Folsom, CA MSA, 34.9% 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 32,977 students enrolled in grade 12.

Summary¹

	Percent		Value	
	Sacramento-Roseville-Folsom, CA MSA	USA	Sacramento-Roseville-Folsom, CA MSA	USA
Demographics				
Population (ACS)	—	—	2,338,866	326,569,308
Male	48.9%	49.2%	1,144,264	160,818,530
Female	51.1%	50.8%	1,194,602	165,750,778
Median Age ²	—	—	37.7	38.2
Under 18 Years	22.9%	22.4%	534,856	73,296,738
18 to 24 Years	9.3%	9.3%	217,186	30,435,736
25 to 34 Years	14.3%	13.9%	334,204	45,485,165
35 to 44 Years	13.0%	12.7%	304,174	41,346,677
45 to 54 Years	12.5%	12.7%	293,032	41,540,736
55 to 64 Years	12.6%	12.9%	294,545	42,101,439
65 to 74 Years	9.1%	9.4%	212,741	30,547,950
Population Growth				
Population (Pop Estimates) ⁴	—	—	2,416,702	333,287,557
Population Annual Average Growth ⁴	1.0%	0.6%	22,644	1,940,990
People per Square Mile	—	—	474.3	94.3
Educational Attainment, Age 25-64				
No High School Diploma	9.8%	10.5%	120,110	17,929,220
High School Graduate	20.7%	25.4%	253,915	43,289,555
Some College, No Degree	24.7%	20.5%	302,315	34,959,338
Associate's Degree	9.9%	9.3%	121,667	15,776,790
Bachelor's Degree	23.1%	21.6%	283,204	36,888,244
Postgraduate Degree	11.8%	12.7%	144,744	21,630,870
Social				
Poverty Level (of all people)	12.7%	12.8%	293,134	40,910,326
Households Receiving Food Stamps/SNAP	9.4%	11.4%	79,427	13,892,407
Enrolled in Grade 12 (% of total population)	1.4%	1.3%	32,977	4,358,865
Disconnected Youth ³	2.0%	2.5%	2,374	433,164
Children in Single Parent Families (% of all children)	30.8%	34.0%	157,382	23,628,508
Uninsured	5.0%	8.7%	115,185	28,058,903
Speak English Less Than Very Well (population 5 yrs and over)	10.7%	8.2%	235,584	25,312,024

Source: [JobsEQ®](#)

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

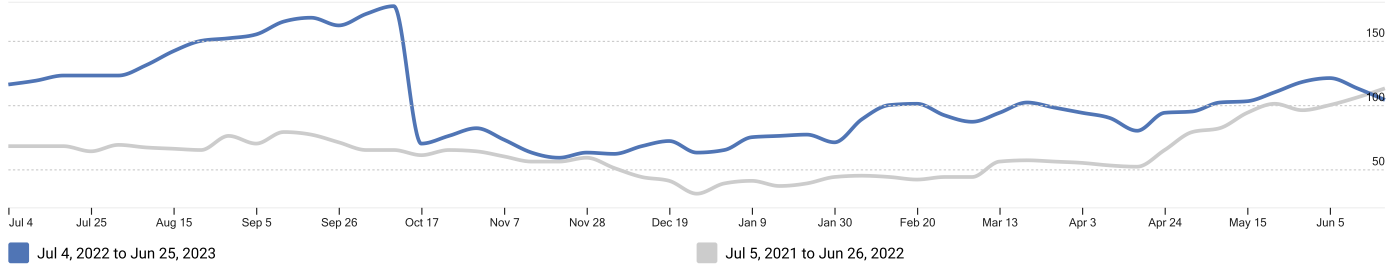
2. Median values for certain aggregate regions (such as MSAs) may be estimated as the weighted averages of the median values from the composing counties.

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

SOC	Occupation	Active Job Ads
11- 9121.01	Clinical Research Coordinators	446
19- 2042.00	Geoscientists, Except Hydrologists and Geographers	97
11- 9121.02	Water Resource Specialists	69
19- 4043.00	Geological Technicians, Except Hydrologic Technicians	46
19- 2043.00	Hydrologists	29
11- 9121.00	Natural Sciences Managers	11
25- 1051.00	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	8

Locations

Location	Active Job Ads
University of California Davis	286
Sacramento, California	158
University of California Davis Health System	52
Sacramento County, California	35
Yolo County, California	17
Roseville, California	13
Rancho Cordova, California	11
Folsom, California	6
Roseville, California 95661	6

Locations

**Active
Job
Ads**

Location

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Employers

Employer Name	Active Job Ads	
Davis, California	172	
Sacramento, California	155	
State of California Department of Water Resources	37	
University of California, Davis	16	
Nationwide	11	
AECOM	10	
HDR	9	
ICON Strategic Solutions	9	
Kaiser Permanente	9	
Stantec	7	

Certifications

Certificate Name	Active Job Ads	
Certified Clinical Research Coordinator (CCRC)	24	
Driver's License	19	
Certified Research Administrator (CRA)	13	
Certified Clinical Research Associate (CCRA)	9	
Licensed Professional Engineer	9	
Registered Nurse (RN)	8	
Certification in Cardiopulmonary Resuscitation (CPR)	7	
Embryology Laboratory Director (ELD)	7	
Engineer in Training (EIT)	7	
Regulatory Affairs Certification - US (RAC)	7	

Hard Skills

Skill Name	Active Job Ads	
Clinical Research	365	
Medical Terminology	216	
Microsoft Excel	189	
Microsoft Word	149	
Microsoft Office	116	
Spanish	64	
Oncology	62	
Mathematics	57	
Report Writing/Report Preparation	55	
Physiology	54	

Soft Skills

Skill Name	Active Job Ads	
Communication (Verbal and written skills)	501	
Persistence/Perseverance/Resilience	378	
Organization	291	
Cooperative/Team Player	283	
Detail Oriented/Meticulous	233	
Self-Motivated/Ability to Work Independently/Self Leadership	211	
Interpersonal Relationships/Maintain Relationships	197	
Analytical	192	
Initiative	180	
Good Judgment	173	

Job Titles

Job Title	Active Job Ads	
Senior Clinical Research Coordinator SOM: Orthopaedic Surgery Sacramento Campus	14	
Clinical Research Coordinator	11	
Clinical Research Coordinator- SOM: Psychiatry & Behavioral Sciences- Sacramento Campus	10	
ENGINEERING GEOLOGIST	10	
Clinical Research Coordinator / Senior Clinical Research Coordinator -SOM: Cancer Center Department- Sacramento Campus	9	
ENGINEER, WATER RESOURCES	9	
Staff Geologist	9	
SENIOR ENGINEERING GEOLOGIST	8	
Data Clinical Research Coordinator Supervisor 2 SOM: MED: Cancer Center Sacramento Campus	7	
SUPERVISING ENGINEER WATER RESOURCES	7	

Job Types

Type	Active Job Ads	
Full-Time	275	
Permanent	110	
Remote	50	
Part-Time	19	
Temporary (unspecified)	7	
Temporary (long-term)	1	
Remote Not Indicated	656	

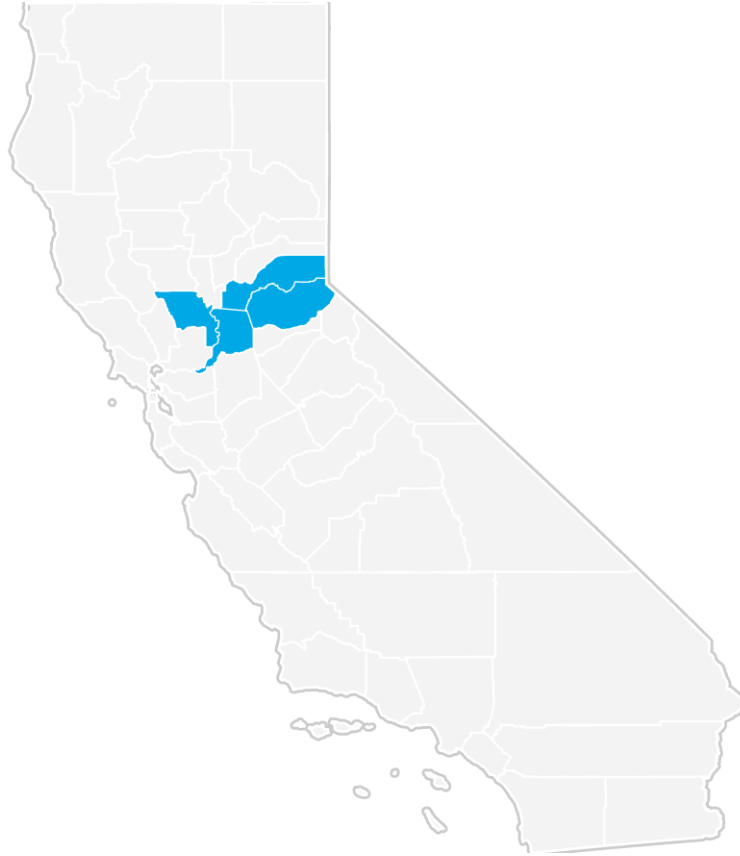
Programs

Program Name	Active Job Ads	
Geology	80	
Science	58	
Biology	35	
Public Health	35	
Environmental Science	31	
Engineering	29	
Civil Engineering	28	
Psychology	26	
Health	16	
Environmental Engineering	15	

Education Levels

Minimum Education Level	Active Job Ads	
Bachelor's degree	302	
High school diploma or equivalent	33	
Master's degree	14	
Associate's degree	4	
Doctoral or professional degree	4	
Unspecified/other	349	

Sacramento-Roseville-Folsom, CA MSA Regional Map



Region Definition

Sacramento-Roseville-Folsom, CA MSA is defined as the following counties:

El Dorado County, California

Sacramento County, California

Placer County, California

Yolo County, California

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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