

Environmental Science: Assessment Overview

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Purpose of Brief

Locate and identify the needs within the field of study for Environmental Science and associated studies.

Summary of Findings

- Majority of occupational opportunities within the division of Environmental Science require a Bachelor's degree or higher.
- A.A. degree level occupational opportunities are within the Environmental Technician discipline.
- Environmental Technician median hourly earnings are \$24.66 in the San Bernardino, Riverside, Los Angeles, and San Diego counties.

Overview

Within the Environmental Sciences division, the optimal opportunity for a Crafton Hills College (CHC) student is an occupation as an Environmental Technician. The Environmental Technician occupation does not require degrees beyond an Associate's degree. The contents of the report expand upon the opportunities for the CHC student in the Environmental Technician field.

A preliminary search for occupations and regional trends within the field of Environmental Science and associated sub-fields indicated a Bachelor's degree is required.

Methodology

Using the Economic Modeling System of Information (EMSI)ⁱ, a search was performed using the Taxonomy of Programs (TOP), Classification of Instructional Programs (CIP), and the Standard Occupational Classification (SOC) numerical identification for occupations and various programs of study within the Environmental Science and associated subfields.

The Taxonomy of Programs (TOP) is a standardized system used by the California Community College systems to classify programs and courses that are intended to achieve the same outcome. The report for Environmental Sciences and associated studies will be classified under the designated TOP code for each discipline of the occupation and subfields.

The Classification of Instructional Programs (CIP) is a standardized coding system used at the federal level to facilitate accurate tracking, evaluation, reporting of the fields of study and program completion at educational institutions throughout the country.

The Standard Occupational Classification (SOC) system is used by federal agencies to classify workers into occupational categories. was used in this report to map TOP codes to CIP and SOC codes. This crosswalk allows the user to estimate labor market demand for program completers using SOC-based projections from the California Labor Market Information Division.

Findings

The results of the search performed for the Environmental Science and associated studies indicate the occupation opportunities requires a Bachelor's degree or higher. The results of the evidence indicate the optimal discipline for Crafton Hills College students interested in this field is the Environmental Science Technician (SOC Code: 19-4091.00). Additionally, new disciplines are developing under the umbrella of Environmental Sciences and associated studies.¹

Table 1: Main Divisions and Disciplines of Environmental Science and Associated Studies

Program/Field of Study	TOP	CIP	SOC	Degree Requirement
Environmental Science: Protection Technicians	0301.00	03.0104	19-4091.00	Associate Degree
Environmental Technology: Hazardous Waste Clean-up	0303.00	15.0508	47-4041.00	On-The-Job Training, No College Required
Environmental Scientist: Specialists, Geoscientists	0302.00	03.0103	19-2041.00	Bachelor's Degree or Higher
Environmental Studies	0302.00	03.0103	25-1053.00	Bachelor's Degree or Higher

Table 2 identifies the financial forecast for an Environment Technician within the selected region of study. The median hourly earnings are above the \$15.00 regional minimum wage.ⁱⁱ The 'Median and Hourly Wage' columns provide an overview of the average financial earnings for an Environmental Technician within the selected region. The 'Pct. 10 Hourly Earnings' column shows the wage made by the lowest 10 percent of earners in the occupation.

Table 2: Financial Forecast for the Environmental Science Technician (SOC Code: 19-4091.00).

Description	Average Hourly Earnings 2018-2028	Median Hourly Earnings 2018-2028	Hourly Earnings Among the Lowest 10% 2018-2028
Environmental Science and Protection Technicians, Including Health	\$31.54	\$30.91	\$30.16

¹ One new full discipline has been created at the two-digit level. It is 03, "Environmental Sciences and Technologies." It would subsume three codes from the 5th TOP edition: 0420.00, "Ecology"; 1901.10, "Environmental Studies"; and 2135.00, "Environmental Hazardous Material Control Technology."ⁱ

The new discipline would contain only three TOP codes: 0301.00 "Environmental Science" (transfer programs that emphasize the natural sciences), 0302.00 "Environmental Studies" (transfer programs that emphasize social sciences and public policy issues), and 0303.00 "Environmental Technology" (vocational programs that prepare for a range of environmental management and pollution control jobs).ⁱ

In table 3, the annual replacement rate is the percent of the occupation estimated to be retiring or otherwise permanently leaving the occupation. The annual replacement rate is calculated by the Bureau of Labor Statistics and is expressed by the national average of the selected occupation.

SOC Code: 19-4091.00: Environmental Science and Protection Technicians, Including Health

Perform laboratory and field tests to monitor the environment and investigate sources of pollution, including those that affect health, under the direction of an environmental scientist, engineer, or other specialist. May collect samples of gases, soil, water, and other materials for testing.

Sample of reported job titles: Environmental Health Specialist, Environmental Specialist, Environmental Technician, Laboratory Specialist, Laboratory Technician, Process Laboratory Specialist, Public Health Sanitarian, Sanitarian, Water Quality Analyst, Water Quality Specialist.ⁱⁱⁱ

Table 3: Occupational Forecast for the Environmental Science Technician (SOC Code: 19-4091.00).

2018 Jobs	2028 Jobs	2018 - 2028 Change	2018 - 2028 % Change	2018- 2028 Average Annual New Job Openings	2018- 2028 Average Annual Replacement Jobs	Total Sum of New and Replacement Jobs
114	134	24	21%	17	144	161

Table 4: Occupational Overview in San Bernardino, Riverside, and Ontario regions

Region/ Location	2018 Jobs	2028 Jobs	Change	% Change
Region	227	246	19	8.4%
Riverside County, CA	111	124	13	11.7%
Los Angeles County, CA	750	797	47	6.3%
San Diego County, CA	704	707	3	0.4%
California	5,007	5,361	354	7.1%
San Bernardino County, CA	116	123	7	6.0%

Table 5 provides a brief overview of the most recent annual employment posting from businesses located within the selected region of study. The chart shows the frequency of employment opportunities. Which indicates the Environmental Technician is a viable occupation. More details for Table 5 is in the Supplemental Information section.

Table 5: Frequency of Employment opportunities within the San Bernardino, Riverside, and Ontario regions.

Company	Distance in Miles from CHC	Total Postings (May 2017 - Jul 2018)	Unique Postings (May 2017 - Jul 2018)	Median Posting Duration
Brookdale Senior Living	10.5	99	27	35 days
Temecula Valley Unified School District	50	29	10	37 days
N C Behavioral Services	55	10	6	24 days
State of California	**	6	5	37 days
Hemet Unified School District	62	3	3	13 days
Textron Inc.	48	4	3	37 days
The Housekeeper	*	21	2	4 days
ABM Industries Incorporated	16	1	1	5 days
Behavior Support Services LLC	54	3	1	N/A
California State University	**	1	1	37 days
Careguide, Inc.	5	1	1	9 days
Centre for Addiction and Mental Health	7	1	1	20 days
Department of Veterans Affairs	10	1	1	39 days
Firstcarbon Solutions, Inc.	20	1	1	18 days
Foothill College	421	1	1	19 days
Holiday Inn Airport	40	3	1	N/A
Kelly Services, Inc.	21	1	1	6 days
Kindly Care, Inc.	*	1	1	34 days
Sheriff	16	1	1	13 days
The Wendy's Company	9	2	1	56 days
Vale Canada Limited	*	1	1	13 days
Volunteer Association From The St Michaels Hospital	80	1	1	8 days
Willdan Engineering	13	3	1	31 days

Regional Completions

Table 6 identifies the main institutions producing the majority of the completions within the Environmental Science field. The institutions yielding the majority of the completions are at a distance ranging from 40 miles to over 100 miles.

Table 6: Regional completions by institution and distance from CHC

Institution	Certificates 2017	A.A. Degrees 2017	Total Completions	Distance from CHC
Pima Medical Institute-Chula Vista	192	62	254	117 Miles
Carrington College-Pomona	0	95	95	43 Miles
Platt College-Los Angeles	54	42	96	64 Miles
Mt San Antonio College	0	39	39	49.5 Miles
Los Angeles Pierce College	0	31	31	93 Miles
California State Polytechnic University- Pomona	0	30	30	45 Miles
California Healing Arts College	30	0	30	80 Miles
Platt College-Riverside	0	30	30	20 Miles
Platt College-Ontario	0	26	26	29 Miles
San Diego Mesa College	0	24	24	107 Miles

Supplemental Information

Table 5: The table identifies the industries and employers within the selected region for the report. The organizations that do not have a mileage are indicated with a single asterisk or a double asterisk. The single asterisk (*) indicates the company employs independent contractors that may select to work at several locations. The double asterisk (**) indicates the organization is available in multiple locations throughout the State of California and operates within multifaceted extensions via departments or administrative.

Table 7: Details regarding Table 5

Industry/Organization	Asterisk	Details
Vale Canada Limited	*	On-call general cleaning services
Kindly Care, Inc.	*	On-call maid cleaning services
California State University	**	Academic Institution, 23 throughout State of California
State of California	**	Bicameral structure with various entity extensions throughout the State of California

The Environmental Technician's work environment will include working alongside the Environmental Planners, Scientists, and Specialists'. The following occupations will serve in a supervisory role because the actors have a Bachelor's degree or higher. The following occupations are of the professionals the Environmental Technician will work alongside within their area of specialty.

19-2041.02 - Environmental Restoration Planners, Bachelor's degree required*

Collaborate with field and biology staff to oversee the implementation of restoration projects and to develop new products. Process and synthesize complex scientific data into practical strategies for restoration, monitoring or management.^{iv}

Sample of reported job titles: Coastal and Estuary Specialist; Director, Forest Restoration Institute; Director, River Restoration; Fish and Wildlife Biologist, Endangered Species Conservation and Recovery; Fisheries Habitat Restoration Specialist; Marine Habitat Resource Specialist; Program Manager, Environmental Planning; Project Manager; Watershed Coordinator.^v

19-2042.00 - Geoscientists, Except Hydrologists and Geographers, Bachelor's degree required*

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, oceans, and its magnetic, electrical, and gravitational forces. Includes mineralogists, crystallographers, paleontologists, stratigraphers, geodesists, and seismologists.^{vi}

Sample of reported job titles: Engineering Geologist, Environmental Protection Geologist, Exploration Geologist, Geological Specialist, Geologist, Geophysicist, Geoscientist, Mine Geologist, Petroleum Geologist, Project Geologist.^{vii}

19-2041.00 - Environmental Scientists and Specialists, Including Health, Bachelor's degree required*

Conduct research or perform investigation for the purpose of identifying, abating, or eliminating sources of pollutants or hazards that affect either the environment or the health of the population. Using knowledge of various scientific disciplines, may collect, synthesize, study, report, and recommend action based on data derived from measurements or observations of air, food, soil, water, and other sources.^{viii}

Sample of reported job titles: Environmental Analyst, Environmental Health and Safety Specialist, Environmental Programs Specialist, Environmental Scientist, Hazardous Substances Scientist, Registered Environmental Health Specialist (REHS), Research Environmental Scientist, Senior Environmental Scientist^{ix}

ⁱ <https://w.economicmodeling.com/analyst/?t=2TTPV#h=D8P4g&page=occupations>

ⁱⁱ <https://www.dds.ca.gov/MinWage/>

ⁱⁱⁱ National Center for O*NET Development. Environmental Science and Protection Technicians, Including Health. 19-4091.00. Retrieved August 23, 2018, from <https://www.onetonline.org/link/summary/19-4091.00>

^{iv} <https://www.onetonline.org/link/summary/19-2042.00>.

https://w.economicmodeling.com/analyst/?t=2TTPV#h=D974Q&page=occupation_table

^v 19-2041.00/ https://w.economicmodeling.com/analyst/?t=2TTPV#h=D974Q&page=occupation_table

^{vi} 19-2041.02/ https://w.economicmodeling.com/analyst/?t=2TTPV#h=D974Q&page=occupation_table

^{vii} <https://www.onetonline.org/link/summary/19-2042.00>

^{viii} https://w.economicmodeling.com/analyst/?t=2TTPV#h=D974Q&page=occupation_table

^{ix} http://extranet.cccco.edu/Portals/1/AA/Credit/2013Files/TOPmanual6_2009_09corrected_12.5.13.pdf