

Animal Science

Inland Empire/Desert Region (Riverside and San Bernardino counties combined) & Los Angeles and Kern counties

Summary

- Inland Empire/Desert region (IEDR) employment for jobs in the animal science occupational group is expected to **decrease by 34% between 2018 and 2023**. Within the animal production industries, this occupational group is expected to shed 256 jobs over the five-year timeframe.
- The **median wage** for the animal science occupational group is **above the MIT Living Wage estimate of \$12.39 per hour** for a single adult living in the IEDR.
- The IEDR has no identified completions for community college programs related to the animal science occupational group.

Introduction

This report provides data on the occupations related to the California Community College animal science (TOP 0102.00), artificial inseminator (licensed) (TOP 0102.20), dairy science (TOP 0102.30), and equine science (TOP 0102.40) programs. Program descriptions are available beginning on pages 7 of this report. Victor Valley College is the only Inland Empire/Desert region (IEDR) community college that has reported enrollments in animal science and equine science programs; no awards were identified between the academic years that include 2014 through 2017.

This report provides occupational and education program data for Kern and Los Angeles counties, and both counties in the IEDR. The combined four-county region will be referred to as the Greater Los Angeles region throughout this report. The occupations listed below are related to these training programs and are collectively referred to as the animal science occupational group.

- Animal Breeders
- Animal Trainers
- Farmers, Ranchers, and Other Agricultural Managers
- First-Line Supervisors of Farming, Fishing, and Forestry Workers

The occupations listed above engage in work that spans various agricultural industries. This report focuses on agricultural industries that engage in animal production (NAICS 112000) and support activities for animal production (NAICS 115210). This industry-oriented approach was implemented in order to capture demand for occupations that utilize the skills gained from the animal science training programs. These industries will be referred to as animal production industries throughout the report.

Job Opportunities

In 2018, there were 757 animal science jobs within animal production industries in the IEDR. This occupational group is projected to decrease employment by 34% by 2023. Exhibit 1 displays five-year job projections for the specific occupations in the animal science occupational group, in all industries and animal production industries only.

Exhibit 1: Five-year projections for the animal science occupational group in the animal production industries

Region	Total 2018 Jobs (all industries)	% of Occupations in Animal Production Industries	2018 Jobs (Animal Production industries only)	5-Yr Change	5-Yr % Change	% of workers age 55+
Inland Empire/Desert	3,431	22%	757	(256)	(34%)	42%
Greater Los Angeles (includes Inland Empire/Desert region)	13,368	14%	1,824	(304)	(17%)	41%

Source: EMSI 2019.2

Earnings

The median wage for the animal science occupational group is above the MIT Living Wage estimate of \$12.39 per hour for a single adult living in the IERD (Glasmeier, 2019). Experienced-level wages are sufficient for two working adults and one child (\$14.75 per hour, per adult, or \$30,680 annually for each adult). Exhibit 2 displays wage information for the animal science occupational group in the IEDR and the Greater Los Angeles region.

Exhibit 2: Earnings for animal science occupational group (all industries)

Region		Entry to Experienced Hourly Wage Range*	Median Wage*	Average Annual Earnings
Inland Empire/Desert	Animal Breeders	\$24.87 to \$41.50	\$31.95	\$72,700
	First-Line Supervisors of Farming, Fishing, and Forestry Workers	\$16.78 to \$32.16	\$25.74	\$56,300
	Farmers, Ranchers, and Other Agricultural Managers	\$10.87 to \$34.00	\$16.79	\$56,700
	Animal Trainers	\$11.76 to \$15.06	\$13.05	\$28,800
Greater Los Angeles	Animal Breeders	\$15.81 to \$32.81	\$23.38	\$54,600
	First-Line Supervisors of Farming, Fishing, and Forestry Workers	\$15.84 to \$30.59	\$20.19	\$52,200
	Farmers, Ranchers, and Other Agricultural Managers	\$11.00 to \$34.14	\$18.82	\$54,800
	Animal Trainers	\$11.91 to \$15.36	\$13.21	\$33,400

Source: EMSI 2019.2

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, and experienced is 75th percentile wage.

Job Postings, Employers, Skills and Education

Exhibit 3 displays the number of job ads posted during the last 12 months along with the regional and statewide average time to fill for animal science occupational group in the IEDR and the Greater Los Angeles region. On average, employers in the Greater Los Angeles region fill online job postings for animal science occupational group within 44 days. This regional average is the six days longer than the statewide average, indicating that it is harder for local employers to fill open positions. There were too few postings to obtain certain time to fill information for animal breeders and first-line supervisors of farming, fishing, and forestry workers.

Exhibit 3: Job ads and time to fill for animal science occupational group, May 2018 – Apr2019

Region		Job Ads	Regional Average Time to Fill (Days)	California Average Time to Fill (Days)
Inland Empire/Desert	Animal Trainers	29	41	46
	Farmers, Ranchers, and Other Agricultural Managers	6	35	36
	Animal Breeders	0	N/A	N/A
	First-Line Supervisors of Farming, Fishing, and Forestry Workers	0	N/A	47
Greater Los Angeles	Animal Trainers	185	46	46
	Farmers, Ranchers, and Other Agricultural Managers	56	40	36
	Animal Breeders	1	N/A	N/A
	First-Line Supervisors of Farming, Fishing, and Forestry Workers	0	N/A	47

Source: Burning Glass – Labor Insights

Due to the low number of job postings in the IEDR, exhibits four, five, and six include job posting information from employer job ads in the expanded Greater Los Angeles region.

Exhibit 4 displays the employers posting the most job ads for animal science occupational group during the last 12 months in the Greater Los Angeles region. There were too few postings to obtain employer information for animal breeders and first-line supervisors of farming, fishing, and forestry workers.

Exhibit 4: Employers posting the most job ads, May 2018 – Apr2019

Occupation	Employers
Animal Trainers (n=157)	<ul style="list-style-type: none"> • PetSmart • Karma Dog Training
Farmers, Ranchers, and Other Agricultural Managers (n=41)	<ul style="list-style-type: none"> • CSS Farms • A-G Sod Farms, Inc.
Animal Breeders (n=1)	<ul style="list-style-type: none"> • N/A
First-Line Supervisors of Farming, Fishing, and Forestry Workers (n=0)	<ul style="list-style-type: none"> • N/A

Source: Burning Glass – Labor Insights

Exhibit 5 displays a sample of specialized and employability skills that employers are seeking when looking for workers to fill animal science positions. Specialized skills are occupation-specific skills that employers are requesting for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is commonly referred to as “soft skills.” The skills requested in job postings may be utilized as a helpful guide for curriculum development. There were too few postings to obtain skills information for animal breeders and first-line supervisors of farming, fishing, and forestry workers.

Exhibit 5: Sample of in-demand skills from employer job ads, May 2018 – Apr2019

Occupation	Specialized Skills	Employability Skills
Animal Trainers (n=88)	<ul style="list-style-type: none"> • Cleaning • Teaching • Customer Service 	<ul style="list-style-type: none"> • Communication Skills • Leadership • Physical Abilities
Farmers, Ranchers, and Other Agricultural Managers (n=46)	<ul style="list-style-type: none"> • Budgeting • Repair • Scheduling 	<ul style="list-style-type: none"> • Communication Skills • Bilingual (English/Spanish) • Detail-Oriented
Animal Breeders (n=1)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
First-Line Supervisors of Farming, Fishing, and Forestry Workers (n=0)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A

Source: Burning Glass – Labor Insights

Exhibit 6 displays the work experience and entry-level education typically required to enter this occupation according to the Bureau of Labor Statistics (BLS), educational attainment for incumbent workers with “some college, no degree” and an “associate degree” according to the U.S. Census (2016-17), and the minimum

advertised education requirement from employer job ads. There were too few postings to obtain educational information for animal breeders and first-line supervisors of farming, fishing, and forestry workers.

Exhibit 6: Work experience, typical entry-level education, educational attainment, and minimum advertised education requirements for animal science occupational group, May 2018 – Apr2019

Occupation	Work Experience Required	Typical Entry-Level Education Requirement	Educational Attainment*	Minimum Advertised Education Requirement from Job Ads			
				Number of Job Ads (n=)	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Animal Trainers	None	High school diploma or equivalent	39%	31	100%	-	-
Farmers, Ranchers, and Other Agricultural Managers	Five years or more	High school diploma or equivalent	30%	21	38%	5%	57%
Animal Breeders	None	High school diploma or equivalent	13%	0	N/A	N/A	N/A
First-Line Supervisors of Farming, Fishing, and Forestry Workers	Less than five years	High school diploma or equivalent	26%	0	N/A	N/A	N/A

Source: EMSI 2019.2, Burning Glass – Labor Insights

*Percentage of incumbent workers with a Community College Credential or Some Postsecondary Coursework.

Student Completions in the Inland Empire/Desert Region

There are currently no community college completions for the animal science (TOP 0102.00), artificial inseminator (licensed) (TOP 0102.20), dairy science (TOP 0102.30), and equine science (TOP 102.40) programs in the IEDR.

Student Completions and Program Outcomes in the Greater Los Angeles Region

This section contains completion and outcome data for the California Community College animal science (TOP 0102.00) and equine science (TOP 0102.40) programs in the Greater Los Angeles Region. There were no completions for the artificial inseminator (licensed) and dairy science (TOP 0102.30) programs in the Greater Los Angeles region. Exhibits 7 & 9 display the average annual regional California Community College (CCC) credentials conferred during the three academic years between 2014 and 2017, from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, along with enrollments from the most recent year available on LaunchBoard. Credentials are the combined total of associate degrees and certificates issued during the timeframe, divided by three in this case in order to calculate an annual average. This is done to minimize the effect of atypical variation that might be present in a single year. Enrollments are the count of enrollments in courses assigned to the TOP code in the selected year. The relevant TOP code is from the Taxonomy of Programs manual, and the corresponding program titles used at each college (in *italics*) is sourced from the Chancellor's Office Curriculum Inventory (COCI). Please note, a credential is not always equal to a single person in search of a job opening since a student may earn more than one credential, such as an associate degree in addition to a certificate.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which comes from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from records provided by California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported in order to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2019a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS), administered by Santa Rosa Junior College (LaunchBoard, 2017). Data from the latest academic year for each metric is provided in Exhibits 8 & 10.

Program descriptions are sourced from the California Community Colleges Taxonomy of Programs. Descriptions for the programs included in this report are the following:

Animal Science (TOP 0102.00): Operation of animal production enterprises by developing competencies in the selection, breeding, physiology, nutrition, health, housing, feeding, and marketing of animals.

Exhibit 7: Annual average community college credentials and enrollments for the animal science program in the Greater Los Angeles region

0102.00 – Animal Science	CCC Enrollments, Academic Year 2016-17	CCC Annual Average Credentials, Academic Years 2014-17
Bakersfield – Agriculture Animal Science	470	
Associate Degree		8
Certificate 30 to < 60 semester units		3
Los Angeles Pierce – Agriculture Animal Science	2,726	
Mt San Antonio – Livestock Management	455	
Associate Degree		10
Certificate 30 to < 60 semester units		2
Certificate 6 to < 18 semester units		9
Victor Valley	124	
Total CCC Enrollments, Academic Year 2016-17	3,774	
Total Annual Average CCC Credentials, Academic Years 2014-17		31

Source: LaunchBoard, MIS Data Mart, COCI

Exhibit 8: Animal science strong workforce program outcomes

Strong Workforce Program Metrics: 0102.00 – Animal Science Academic Year 2015-16, unless noted otherwise	Greater Los Angeles Region	California Median
Course enrollments (2016-17)	3,181	154
Completed 12+ units in one year (2016-17)	252	28
Economically disadvantaged students* (2016-17)	69%	58%
Employed in the fourth fiscal quarter after exit (all exiters)	74%	73%
Transferred to a 4-year institution (transfers)	53	16
Median annual earnings* (all exiters)	\$22,141	\$18,384
Job closely related to the field of study (2014-15)	N/A	100%
Median change in earnings (all exiters)	56%	80%
Attained a living wage (completers and skills-builders)	33%	30%

Source: LaunchBoard

*Data for these metrics is available in Community College Pipeline. All others are available in Strong Program Workforce Metrics.

Artificial Inseminator (Licensed) (TOP 0102.20): Laws and regulations, principles and practices, and licensure requirements of artificial inseminators.

There are currently no community college completions for the artificial inseminator (licensed) program in the Greater Los Angeles region.

Dairy Science (TOP 0102.30): Care of dairy animals and associated dairy farm and processing facilities and operations.

There are currently no community college completions for the dairy science program in the Greater Los Angeles region.

Equine Science (TOP 0102.40): Programs related to horse breeding, management, training, and riding.

Exhibit 9: Annual average community college credentials and enrollments for the equine science program in the Greater Los Angeles region

0102.40 – Equine Science	CCC Enrollments, Academic Year 2016-17	CCC Annual Average Credentials, Academic Years 2014-17
Bakersfield	44	
LA Pierce – Equine Science		
Associate Degree		2
Certificate 18 to < 30 semester units		4
Mt San Antonio – Horse Ranch Management	41	
Associate Degree		3
Certificate 18 to < 30 semester units		1
Certificate 6 to < 18 semester units		2
Victor Valley	35	
Total CCC Enrollments, Academic Year 2016-17	120	
Total Annual Average CCC Credentials, Academic Years 2014-17		13

Source: LaunchBoard, MIS Data Mart, COCI

Exhibit 10: Equine science strong workforce program outcomes

Strong Workforce Program Metrics: 0102.40 – Equine Science Academic Year 2015-16, unless noted otherwise	Greater Los Angeles Region	California Median
Course enrollments (2016-17)	41	50
Completed 12+ units in one year (2016-17)	14	16
Economically disadvantaged students* (2016-17)	69%	58%
Employed in the fourth fiscal quarter after exit (all exiters)	N/A	56%
Transferred to a 4-year institution (transfers)	N/A	15
Median annual earnings* (all exiters)	N/A	\$13,233
Job closely related to the field of study (2014-15)	N/A	75%
Median change in earnings (all exiters)	N/A	17%
Attained a living wage (completers and skills-builders)	N/A	25%

Source: LaunchBoard

*Data for these metrics is available in Community College Pipeline. All others are available in Strong Program Workforce Metrics.

Recommendation

Due to the lack of programs currently supplying trained workers for this occupational group, there appears to be an opportunity for program growth in the IERD and the Greater Los Angeles region (includes the IEDR). However, animal science program creation or expansion should be considered cautiously, as this occupational group is expected to shed employment by 17% over the next five years in the animal production industries. It is recommended that the community college engage with employers to discuss their future employment needs before starting or expanding programs discussed in this report.



References

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Appendix: Occupation definitions, sample job titles, five-year projections for the animal science occupations

Occupation Definitions (SOC) code), Education and Training Requirement, Community College Educational Attainment

Farmers, Ranchers, and Other Agricultural Managers (11-9013)

Plan, direct, or coordinate the management or operation of farms, ranches, greenhouses, aquacultural operations, nurseries, timber tracts, or other agricultural establishments. May hire, train, and supervise farm workers or contract for services to carry out the day-to-day activities of the managed operation. May engage in or supervise planting, cultivating, harvesting, and financial and marketing activities.

Sample job titles: Accredited Farm Manager (AFM), Cash Crop Farmer, Dairy Farmer, Farm Manager, Farm Operator, Farmer, Grain Farmer, Ranch Manager, Rancher, Sow Farm Manager

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: None

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 30%

Animal Trainers (39-2011)

Train animals for riding, harness, security, performance, or obedience, or assisting persons with disabilities. Accustom animals to human voice and contact; and condition animals to respond to commands. Train animals according to prescribed standards for show or competition. May train animals to carry pack loads or work as part of pack team.

Sample job titles: Agility Instructor, Dog Obedience Instructor, Dog Trainer, Guide Dog Instructor, Guide Dog Mobility Instructor (GDMI), Guide Dog Trainer, Horse Trainer, Racehorse Trainer, Service Dog Trainer, Trainer

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: Between one and twelve months on-the-job training

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 39%

First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)

Directly supervise and coordinate the activities of agricultural, forestry, aquacultural, and related workers.

Sample job titles: Animal Care Supervisor, Animal Caretaker Supervisor, Broiler Supervisor, Cattle Manager, Facility Manager, Facility Supervisor, Feed Manager, Horse Farm Manager, Research Animal Facility Supervisor, Sow Farm Manager

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: None

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 26%

Animal Breeders (45-2021)

Select and breed animals according to their genealogy, characteristics, and offspring. May require knowledge of artificial insemination techniques and equipment use. May involve keeping records on heats, birth intervals, or pedigree.

Sample job titles: Animal Technician, Artificial Insemination Technician (AI Technician), Artificial Inseminator, Breeder, Breeding Manager, Broodmare Foreman, Dog Breeder, Donor Manager, Large Herd Specialist, Stallion Manager

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: Less than one month on-the-job training

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 13%

Table 1: 2018 to 2023 job growth, wages, education, training, and work experience required for the animal science occupational group, Inland Empire/Desert Region

Occupation (SOC)	Total 2018 Jobs	2018 Jobs*	5-Yr Change*	5-Yr % Change*	Entry-Experienced Hourly Wage**	Median Hourly Wage**	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Farmers, Ranchers, and Other Agricultural Managers (11-9013)	2,423	600	(229)	(38%)	\$10.87 to \$34.00	\$16.79	\$56,700	High school diploma or equivalent & None	5 years or more
Animal Trainers (39-2011)	502	89	(13)	(15%)	\$11.76 to \$15.06	\$13.05	\$28,800	High school diploma or equivalent & 1 to 12 months	None
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	471	47	(11)	(23%)	\$16.78 to \$32.16	\$25.74	\$56,300	High school diploma or equivalent & None	Less than 5 years
Animal Breeders (45-2021)	35	21	(3)	(14%)	\$24.87 to \$41.50	\$31.95	\$72,700	High school diploma or equivalent & less than one month	None
Total	3,431	757	(256)	(34%)	-	-	-	-	-

Source: EMSI 2019.2

*Employed in the animal production industries (Animal Production (NAICS 112000) and Support Activities for Animal Production (NAICS 115210)).

**Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.

Table 2: 2018 to 2023 job growth, wages, education, training, and work experience required for the animal science occupational group, Greater Los Angeles Region

Occupation (SOC)	Total 2018 Jobs	2018 Jobs*	5-Yr Change*	5-Yr % Change*	Entry-Experienced Hourly Wage**	Median Hourly Wage**	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Farmers, Ranchers, and Other Agricultural Managers (11-9013)	9,130	1,476	(269)	(18%)	\$11.00 to \$34.14	\$18.82	\$54,800	High school diploma or equivalent & None	5 years or more
Animal Trainers (39-2011)	2,020	200	(21)	(11%)	\$11.91 to \$15.36	\$13.21	\$33,400	High school diploma or equivalent & 1 to 12 months	None
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	2,120	111	(11)	(10%)	\$15.84 to \$30.59	\$20.19	\$52,200	High school diploma or equivalent & None	Less than 5 years
Animal Breeders (45-2021)	98	37	(3)	(8%)	\$15.81 to \$32.81	\$23.38	\$54,600	High school diploma or equivalent & less than one month	None
Total	13,368	1,824	(304)	(17%)	-	-	-	-	-

Source: EMSI 2019.2

*Employed in the animal production industries (Animal Production (NAICS 112000) and Support Activities for Animal Production (NAICS 115210)).

**Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.