

Forensics, Evidence, and Investigation

Inland Empire/Desert Region (Riverside and San Bernardino counties combined)

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.

Summary

- The knowledge, skills, and abilities provided by the community college forensics, evidence, and investigation program leads to one distinct middle-skill occupation, *forensic science technicians*.
- Employment for *forensic science technicians* is expected to **increase by 10% between 2019 and 2024**. A total of **45 annual job openings** will be available each year over the five-year timeframe.
- The **entry-level, 25th percentile, hourly wage** for this occupation is **\$30.18 per hour, well above the \$21.78 per hour self-sustainable hourly wage** estimate for a single adult with one child.
- There were **20 credentials issued** from regional community college *forensics, evidence, and investigation* programs over the last three academic years.

Introduction

This report provides data on programs and occupations related to the criminalistics. The California Community College program most closely associated with criminalistics is the forensics, evidence, and investigation (TOP 2105.40) program. This program prepares students for employment through the instruction of theories, principles, and techniques of forensic science and investigation in the justice system (Taxonomy of Programs, 2012). This report contains a section detailing real-time demand for [criminalists](#).

The knowledge, skills, and abilities trained by the forensics, evidence, and investigation program provides a solid foundation for students to looking to pursue careers in criminal justice and forensic science. The occupational description and a sample of job titles for *forensic science technicians* are displayed on the next page.

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 the area of expertise, such as ballistics, fingerprinting, handwriting, or biochemistry.

Sample job titles: Crime Laboratory Analyst, Crime Scene Analyst, Crime Scene Technician (Crime Scene Tech), CSI (Crime Scene Investigator), Evidence Technician, Forensic Science Examiner, Forensic Scientist, Forensic Specialist, Latent Fingerprint Examiner, Latent Print Examiner

Entry-Level Educational Requirement: Bachelor's degree

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

Work Experience Required: None

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 33%

Job Opportunities

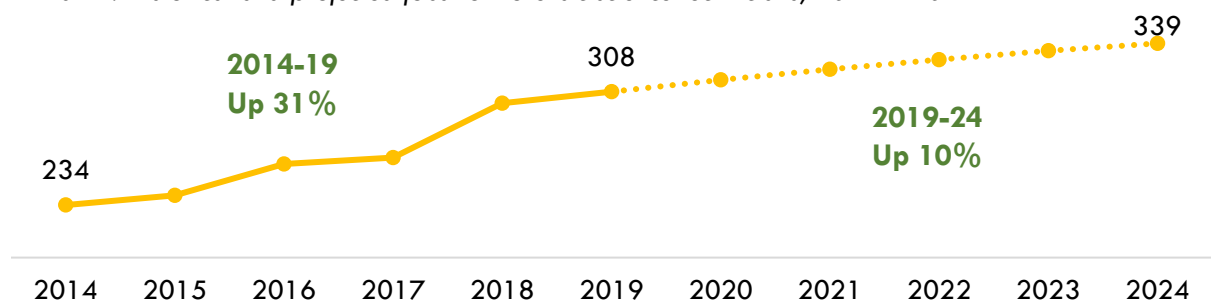
In 2019, there were 308 forensic science technician jobs in the Inland Empire/Desert region (IEDR). This occupational group is projected to increase employment by 10% through 2024. Employers are expected to have 223 job openings over the next five years to fill new jobs and backfill jobs that workers are permanently vacating (includes occupational transfers and retirements). Exhibit 1 displays five-year projected job growth, and Exhibit 2 displays historical (2014 to 2019) and projected (2019-2024) jobs for forensic science technicians.

Exhibit 1: Five-year projections for each occupation in forensic science technicians

Occupation	2019 Jobs	2024 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Forensic Science Technicians	308	339	10%	223	45	20%

Source: EMSI 2020.2

Exhibit 2: Historical and projected jobs for forensic science technicians, 2014 – 2024



Source: EMSI 2020.2

Forensic Science Technician Job Postings

In the IEDR, there were 20 job postings for *forensic science technicians* listed in the last 12 months. The job ad search was expanded to include the entire state of California to increase the number of job postings from which to pull real-time labor market information. Over the last 12 months, there were 102 online job advertisements posted for *forensic science technicians* listed in California. Exhibit 3, on the next page, displays the number of job ads posted during the last 12 months in California, along with the statewide average time to fill for *forensic science technicians*. Using a combination of job title, employer, and industry filters, this job posting search aims to determine the real-time regional demand for *forensic science technicians*.

Exhibit 3: Job ads and time to fill, June 2019 – May 2020

Occupation	Job Ads	California Average Time to Fill (Days)
Forensic Science Technicians	102	37

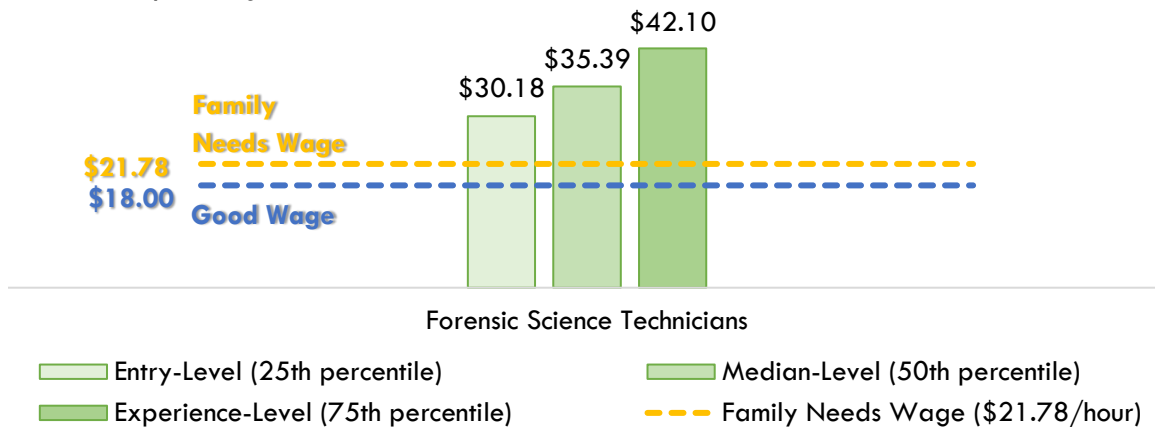
Source: Burning Glass – Labor Insights

Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide a self-sustainable level of income. The Brookings Institute in their Advancing Opportunity in California's Inland Empire report found that a "good job" wage in the region is above \$18.00 per hour, or \$37,440 per year (Shearer, Shah & Gootman, p. 25). The Family Needs Calculator estimates that a self-sustainable wage for a single adult with one school-age child is \$21.78 per hour (Pearce & Manzer, 2020).

The entry-level wage for *forensic science technicians* surpasses the Brookings Institute's "good job" wage. This entry-level wage is also above the Family Needs Calculator self-sustainability rate. Exhibit 4 displays the IEDR hourly earnings for each occupation.

Exhibit 4: Hourly earnings for forensic science technicians



Source: EMSI 2020.2

According to the occupational guides developed by the California Labor Market Information Division, *forensic science technicians* typically receive benefit packages which include medical, vision, and dental insurance as well as many others (Detailed Occupational Guides, 2020).

Employers, Skills, Education, and Work Experience

Exhibit 5 displays the employers posting the most job ads for *forensic science technicians* during the last 12 months in California. Nearly two-thirds (65%) of employers posting job ads for *forensic science technicians* posted two or fewer advertisements in the previous 12 months. Exhibit 5 displays the employers posting three or more job ads for *forensic science technicians* in California.

Exhibit 5: Employers posting the most job ads for Forensic science technicians, June 2019 – May 2020

Occupation	Employers
Forensic Science Technicians (n=76)	<ul style="list-style-type: none"> • San Bernardino County Sheriff's Department • San Diego County • Orange County • City of Fresno • City and County of San Francisco

Source: Burning Glass – Labor Insights

Exhibit 6 displays a sample of specialized and employability skills that employers are seeking when looking for workers to fill *forensic science technician 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 often referred to as "soft skills." The skills requested in job postings may be utilized as a helpful guide for curriculum development.

Exhibit 6: Sample of in-demand skills from employer job ads, June 2019 – May 2020

Occupation	Specialized Skills	Employability Skills
Forensic Science Technicians (n=87)	<ul style="list-style-type: none"> • Criminal Justice • Photography • DNA • Chemistry • Autopsy 	<ul style="list-style-type: none"> • Building Effective Relationships • Writing • Communication Skills • Physical Abilities • Detail-Oriented

Source: Burning Glass – Labor Insights

Exhibit 7 displays the entry-level education typically required to enter each 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 real-time minimum advertised education requirement from employer job ads. The *forensic science technicians* occupation typically requires a bachelor's degree to enter employment. Despite the high education requirement, about

61% of online job ads over the last 12 months were seeking a candidate holding a level of education that may be obtained at the community college, vocational training or an associate degree.

Exhibit 7: Typical entry-level education, educational attainment, and minimum advertised education requirements for forensic science technicians, June 2019 – May 2020

Occupation	Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Real-Time Minimum Advertised Education Requirement			
			Number of Job Ads	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Forensic Science Technicians	Bachelor's degree	33%	67	43%	18%	39%

Source: EMSI 2020.2, Burning Glass – Labor Insights *Percentage of incumbent workers with a Community College Credential or Some Postsecondary Coursework

Exhibit 8 displays the work experience typically required and the real-time work experience requirements from employer job ads for *forensic science technicians*.

Exhibit 8: Work experience required and real-time work experience requirements, June 2019 – May 2020

Occupation	Work Experience Typically Required	Real-Time Work Experience			
		Number of Job Ads	0 – 2 years	3 – 5 years	6+ years
Forensic Science Technicians	None	84	66%	32%	2%

Source: EMSI 2020.2, Burning Glass – Labor Insights

Criminalists

Criminalistics is just one discipline within the field of forensic science; with others including forensic pathology, accounting, engineering, and other disciplines. According to the California Association for Criminalists (CAC), an organization of professionals working in the field of criminalistics, a criminalist applies scientific methods and techniques to examine and analyze evidence and testifies in court as to his or her findings (CAC, 2020). Criminalists typically hold at least a bachelor's degree in science, while many have advanced degrees. A high level of education is typically required for these positions as criminalists rely on their knowledge of chemistry, physics, material sciences, molecular biology, geology, and as well as other disciplines to investigate crime scenes and evidence (CAC, 2020).

An online job posting search was conducted to determine the demand for criminalists in IEDR. The job posting search, using the keywords criminalistics and criminalists, reveals that criminalists are typically classified as *detectives and criminal investigators* and *forensic science technicians*. There were 15 criminalist job postings listed in the IEDR over the last 12 months, June 2019 through May 2020. Of these 15 job postings, 93%

(14) were posted by the San Bernardino County Sheriff's Department. The San Bernardino County Sheriff's Department posted the most criminalist job postings in the state of California, accounting for 25% of the 56 total statewide postings.

The job titles most frequently associated with criminalistics across the state were criminalist, crime scene examiner, and crime scene investigator. The top skills from employer job advertisements across the state were chemistry, DNA, toxicology, forensic science, and biology. Of the 31 statewide job postings with minimum education requirements, 28% were seeking candidates with a high school or vocational training, 20% were seeking an associate degree, and 52% sought bachelor's degree.

Student Completions and Program Outcomes

Exhibit 9 displays annual average completion data for the California Community College *forensics, evidence, and investigation (2105.40)* program, based on the most recent three academic years. Student completion and program outcome methodology can be found on page 9.

Exhibit 9: 2016-19, Annual average community college credentials for the forensics, evidence, and investigation program in the IEDR

2105.40 – Forensics, Evidence, and Investigation	Certificate requiring 12 to <18 semester units	Certificate requiring 6 to <18 semester units	CCC Annual Average Credentials, Academic Years 2016-19
Norco	0	4	4
Riverside	-	16	16
Total	0	20	20

Source: MIS Data Mart

California program outcome data may provide a useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP codes and region is provided in Exhibit 10. The outcome methodology is available in the appendix section of this report. Dashes indicate that there were too few program completers to obtain accurate outcome information.

Exhibit 10: 2105.40 – Forensics, evidence, and investigation strong workforce program outcomes

Strong Workforce Program Metrics: 2105.40 – Forensics, Evidence, and Investigation Academic Year 2016-17, unless noted otherwise	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2017-18)	409	1,861
Completed 9+ career education units in one year (2017-18)	33%	41%

Strong Workforce Program Metrics: 2105.40 – Forensics, Evidence, and Investigation Academic Year 2016-17, unless noted otherwise	Inland Empire/Desert Region	California
Economically disadvantaged students	80%	81%
Students who attained a noncredit workforce milestone in a year (2017-18)	-	-
Students who earned a degree, certificate, or attained apprenticeship (2017-18)	-	83
Transferred to a four-year institution (transfers)	17	90
Job closely related to the field of study (2015-16)	-	-
Median annual earnings (all exiters)	\$25,920	\$26,216
Median change in earnings (all exiters)	48%	55%
Attained a living wage (completers and skills-builders)	53%	43%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Recommendation

The community college forensics, evidence, and investigation program prepares students for employment through the instruction of forensic science and investigation in the justice system. A student exiting this program should be qualified to enter employment as a *forensic science technician*. In the Inland Empire/Desert region (IEDR), this occupation is expected to have 45 annual job openings over the next five years, increasing overall employment by 10%. This occupation earns a 25th percentile hourly rate of \$30.18 per hour. Above the Family Needs Calculator self-sustainable wage estimate of \$21.78 per hour for a single adult with one school-age child. The typical entry-level education for this occupation is a bachelor's degree, however, 61% of online job ads over the last 12 months were seeking a candidate holding a level of education that may be obtained at the community college, vocational training or an associate degree. Further, 33% of workers currently in this field hold a community college level of education.

Two IEDR community colleges awarded 20 annual average credentials to students in forensics, evidence, and investigation programs over the last three academic years. Assuming that one credential is awarded to one student, the number of awards conferred is below the expected number of annual regional job openings (45 annual job openings). A review of annual job openings and the number of potentially qualified program completers suggests there is an opportunity to create new or expand existing forensics, evidence, and investigation programs.



Colleges considering forensics, evidence, and investigation programs should meet with relevant employers to understand their demand for more workers and the specific educational attainment and skills requirements needed to enter this field.

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Methodology and Data Notes

Exhibit 9 displays the average annual regional California Community College (CCC) credentials conferred during the three academic years between 2016 and 2019, from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, along with the 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 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.

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 come 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 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, 2020a). 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, 2020a).

Job postings data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014).