

Crime Analysis

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

This workforce demand report uses state and federal job projection data 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

- Community college forensics, evidence, and investigation programs provide the knowledge, skills, and abilities that lead to two crime analysis occupations; one community college-level and one bachelor's degree-level occupation.
- The community college-level occupation in this group is projected to have 78 annual job openings through 2024, increasing employment by 6%.
- The 10th percentile hourly wage for the community college-level occupation is \$43.63 per hour, above the regional \$21.78 per hour self-sustainable wage standard for a single adult with one child.
- Regional community colleges offering forensics, evidence, and investigation programs have issued 19 awards annually over the last three academic years.

Introduction

California Community College forensics, evidence, and investigation (TOP 2105.40) programs provide the training most closely associated with crime analysis. These programs prepare students for employment through training related to the theories, principles, and techniques of forensic science and investigation in the justice system (Taxonomy of Programs, 2012).

The occupations described in this report are relevant to forensics, evidence, and investigation programs and are collectively referred to as the crime analysis occupational group in this report. The crime analysis occupational group is further separated into community college-level and bachelor's degree-level occupations to illuminate job opportunities for individuals with varying education levels and previous work experience.

The **community college-level crime analysis occupation** included in this report typically requires on-the-job training in addition to a high school diploma. Approximately 32% of workers in this occupation have completed some college or an associate degree. The community college-level occupation included in the crime analysis occupational group is:

- Detectives and Criminal Investigators (SOC 33-3021)

The **bachelor's degree-level crime analysis occupation** included in this report typically requires workers to obtain a bachelor's degree in addition to five years or less of work experience. Students enrolled in a crime analysis program may gain transferable skills. The bachelor's degree-level crime analysis occupation included in this report is:

- Forensic Science Technicians (SOC 19-4092)

This report also examines online job advertisements for crime analysts, criminal intelligence analysts, investigations, and related research and data analysts to gauge employer demand in this field. This report's educational supply and employment demand portions focus solely on the community college-level jobs students are likely to obtain after completing a community college crime analysis program.

Job Counts and Projections

In 2019, there were 1,309 combined crime analysis jobs in the Inland Empire/Desert Region. Employment in this group is expected to increase by 7% over the next five years. The community college-level occupation will have 78 annual job openings, rising by 6%. The bachelor's degree-level occupation is expected to increase employment by 13% and have 39 annual job openings. Exhibit 1 displays the job counts, five-year projected job growth, job openings, and the share of incumbent workers age 55 years and greater working in the crime analysis occupational group.

Exhibit 1: Five-year projections for the crime analysis occupational group, 2019-2024

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+
Community College-level Occupation						
Detectives and Criminal Investigators	1,039	1,099	6%	471	78	15%
Community College-level Total	1,039	1,099	6%	471	78	15%
Bachelor's Degree-level Occupation						
Forensic Science Technicians	270	306	13%	232	39	20%
Bachelor's degree-level Total	270	306	13%	232	39	20%
Crime Analysis Total	1,309	1,405	7%	703	117	16%

Source: Emsi 2021.2

Exhibit 2 shows the number of job ads posted during the last 12 months and the statewide average time filling each occupation. To ensure that advertisements were related to the field of crime analysis, a keyword filter "crime analysis" was applied to this occupational search. Job advertisements were expanded to the state level to provide generalizable results since there were ten total job advertisements posted for the crime analysis occupational group in the Inland Empire/Desert Region. Regional advertisements accounted for approximately 5% of the 193 statewide job advertisements.

Over the last 12 months, there were 193 crime analysis job advertisements posted in California. Crime analysis-specific job ads (193 ads) accounted for approximately 11% of the 1,779 total ads posted for the occupations in this group. On average, employers in the state fill online job advertisements for the crime analysis occupational group within 45 days.

Exhibit 2: Job ads and time to fill

Occupation	Job Ads	Statewide Average Time to Fill (Days)
Detectives and Criminal Investigators	176	44
Forensic Science Technicians	17	60
TOTAL	193	45

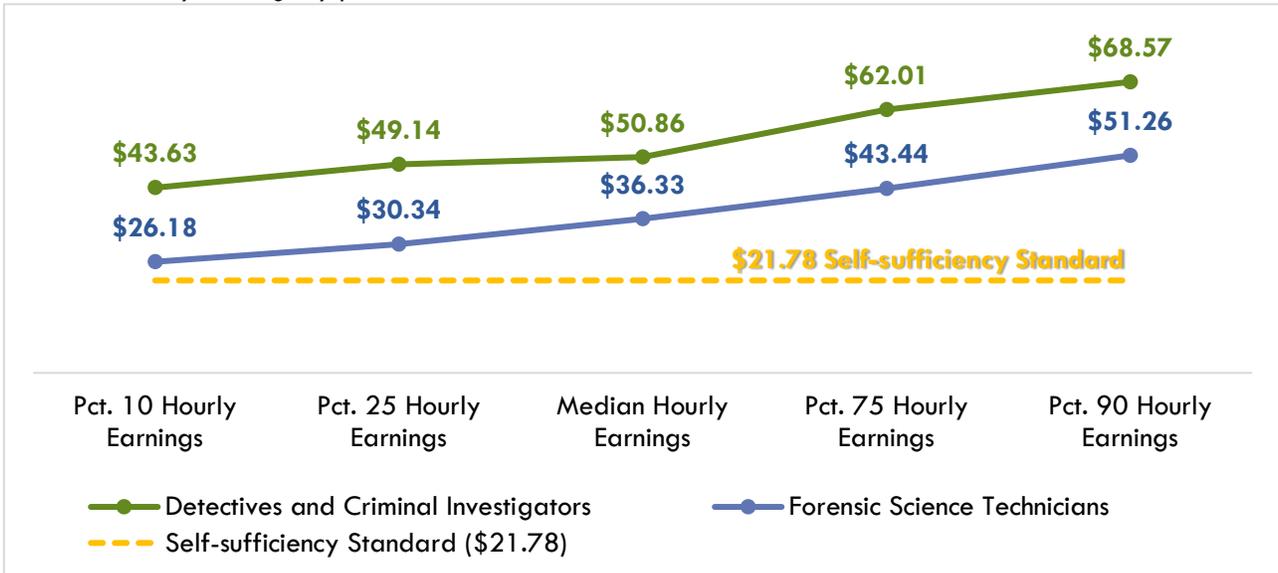
Source: Burning Glass – Labor Insights

Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide self-sustainable income. The University of Washington estimates that a self-sufficient hourly rate for a single adult with one school-age child is \$21.78 per hour or \$45,992 annually in Riverside County; \$21.24 per hour or \$44,867 annually in San Bernardino County (Pearce, 2020). For this study, the higher hourly earnings requirement in Riverside County is adopted as the self-sufficiency standard for the two-county region.

The 10th percentile hourly wages for the crime analysis occupational group are between \$26.18 and \$43.63 per hour, above the regional \$21.78 per hour self-sustainable wage standard for a single adult with one child. Exhibit 3 displays the hourly earnings for the crime analysis occupational group.

Exhibit 3: Hourly earnings by percentile



Source: Emsi 2021.2

According to the California Labor Market Information Division's occupational guides, the occupations in the crime analysis occupational group typically receive good benefits. Benefits packages for this occupational group typically include health, dental, and life insurance, as well as vacation, sick leave, holiday pay, and retirement plans (Detailed Occupational Guides, 2021).

Advertised Salary from Online Job Ads

Exhibit 4 displays online job ad salary data for the crime analysis occupational group over the last 12 months in California. Online job ad salary information reveals that employers are willing to pay detectives and criminal investigators \$89,000 annually, above the \$45,992 annual (\$21.78 hourly) self-sufficiency standard for the region. Online job ad salary information for forensic science technicians has been suppressed since 15 advertisements are not large enough to provide generalizable results. Consider online job ad salary information with caution since statewide job ads do not provide insight into the wages earned by crime analysis workers in the region. The salary figures are prorated to reflect full-time, annual salary status.

Exhibit 4: Advertised salary information

Occupations	Real-Time Salary Information					Average Annual Salary
	Number of job postings	Less than \$35,000	\$35,000 to \$49,999	\$50,000 to \$74,999	More than \$75,000	
Detectives and Criminal Investigators	116	-	6%	35%	59%	\$89,000
Forensic Science Technicians	15	-	N/A	N/A	N/A	N/A

Source: Burning Glass – Labor Insights

Job Titles, Employers, Skills, Education, and Work Experience

Exhibit 5 displays the job titles frequently included in advertisements for the crime analysis occupational group during the last 12 months. The job titles, crime analyst and crime intelligence analyst, each appeared in 6% of statewide advertisements while research and data analyst appeared in 4% of job ads and investigations was found in three (3) advertisements. There appears to be some demand for crime analysts, crime intelligence analysts, and related research and data analysts within this occupational group, although employers are not commonly using this language in their recruiting efforts.

Exhibit 5: Job ads frequently included in job ads for the crime analysis occupational group

Occupation	Job Titles
Detectives and Criminal Investigators (n=176)	<ul style="list-style-type: none"> • Criminal Investigator • Crime and Intelligence Analyst • Intelligence Analyst • Intelligence Operations Specialist • Intelligence Research Specialist
Forensic Science Technicians (n=17)	<ul style="list-style-type: none"> • Senior Forensic Specialist • Polygraph Examiner • Forensic Specialist 1 • Fingerprint Examiner

Source: Burning Glass – Labor Insights

Exhibit 6 displays the employers posting the most job ads during the last 12 months. Displaying employer names provides some insight into where students may find employment after completing a program. Job advertisements suggest that detectives and criminal investigators with crime analysis skills may have employment opportunities in the federal government.

Exhibit 6: Employers posting the most job ads for the crime analysis occupational group

Occupation	Top Employers
Detectives and Criminal Investigators (n=176)	<ul style="list-style-type: none"> • Federal Bureau of Investigation • US Department of Homeland Security • Office of Inspector General • Orange County Sheriff's Department
Forensic Science Technicians (n=17)	<ul style="list-style-type: none"> • San Bernardino County • San Diego County

Source: Burning Glass – Labor Insights

Exhibit 7 lists a sample of specialized and employability skills employers seek when looking for workers to fill crime analysis positions. Specialized skills are occupation-specific skills that employers request 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 to guide curriculum development. The skill data analysis appeared in 15% of job advertisements for the crime analysis occupational group.

Exhibit 7: Sample of in-demand skills from employer job ads

Occupation	Specialized skills	Employability skills
Detectives and Criminal Investigators (n=173)	<ul style="list-style-type: none"> Counter Intelligence Warrants Public Health and Safety Intelligence Analysis Data Analysis 	<ul style="list-style-type: none"> Research Writing Communication Skills Planning Organizational Skills
Forensic Science Technicians (n=17)	<ul style="list-style-type: none"> Law Enforcement or Criminal Justice Experience Technical Inspections Digital Photography DNA 	<ul style="list-style-type: none"> Communication Skills Writing Teamwork/Collaboration Detail-Oriented Research

Source: Burning Glass – Labor Insights

According to the Bureau of Labor Statistics, approximately (32%-37%) of incumbent workers in this field hold a community college-level of educational attainment; "some college, no degree" and an "associate degree." Online job advertisements indicate that most employers seeking detectives and criminal investigators with crime analysis skills sought candidates with a bachelor's degree. There were too few advertisements for forensic science technicians to obtain reliable education information.

Exhibit 8: Typical entry-level education, educational attainment, and minimum advertised education requirements

Occupation	Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Number of Job Ads	Real-Time Minimum Advertised Education Requirement		
				High school or vocational training	Associate degree	Bachelor's degree or higher
Detectives and Criminal Investigators	High school diploma or equivalent	32%	120	13%	3%	84%
Forensic Science Technicians	Bachelor's degree	37%	10	N/A	N/A	N/A

Source: Emsi 2021.2, Burning Glass – Labor Insights

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

Exhibit 9 displays the work experience typically required to enter each occupation and the real-time work experience requirements from employer job ads. Job advertisements indicate that approximately two-thirds of employers seeking crime analysis workers sought candidates with zero to two years of work experience.

Exhibit 9: Work experience required and real-time work experience requirements

Occupation	Work Experience Typically Required	Real-Time Work Experience			
		Number of job postings	0 – 2 years	3 – 5 years	6+ years
Detectives and Criminal Investigators	Less than five years	137	64%	20%	16%
Forensic Science Technicians	None	16	69%	31%	-

Source: Emsi 2021.2, Burning Glass – Labor Insights

Student Completions for Programs

Exhibit 10 displays completion data for California Community College forensics, evidence, and investigation (TOP 2105.40) programs between 2017 and 2020. Over the last three academic years, regional community colleges issued 19 awards annually in forensics, evidence, and investigation programs. The student completion and outcome methodology are available on page 11.

Exhibit 10: 2017-20, Annual average community college awards for the forensics, evidence, and investigation programs in the Inland Empire/Desert Region

TOP 2105.40 – Forensics, Evidence, and Investigation (Local Program Title)	Certificate requiring 6 to <18 semester units	Total CC Annual Average Awards, Academic Years 2017-20
Norco	7	7
Riverside (Investigative Technician)	12	12
Total	19	19

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 code and region is provided in Exhibit 11. The outcome methodology is available in the appendix section of this report.

Exhibit 11: 2105.40 – Forensics, evidence, and investigation strong workforce program outcomes

Strong Workforce Program Metrics: 2105.40 – Forensics, Evidence, and Investigation Academic Year 2017-18, unless noted otherwise	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2018-19)	153	1,360
Completed 9+ career education units in one year (2018-19)	53%	47%
Perkins Economically disadvantaged students (2018-19)	88%	83%
Students who attained a noncredit workforce milestone in a year (2018-19)	-	-

Strong Workforce Program Metrics: 2105.40 – Forensics, Evidence, and Investigation Academic Year 2017-18, unless noted otherwise	Inland Empire/Desert Region	California
Students who earned a degree, certificate, or attained apprenticeship (2018-19)	-	90
Transferred to a four-year institution (transfers)	-	166
Job closely related to the field of study (2016-17)	-	44%
Median annual earnings (all exiters)	\$22,644	\$26,828
Median change in earnings (all exiters)	30%	49%
Attained a living wage (completers and skills-builders)	45%	47%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Recommendation for Community College-level Crime Analysis Programs

The detectives and criminal investigators, community college-level crime analysis occupation is expected to have 78 annual job openings and increase employment by 6% over the next five years. The 10th percentile hourly wage for detectives and criminal investigators, \$43.63 per hour, is above the regional \$21.78 per hour self-sustainable wage standard for a single adult with one child. A search of online job advertisements revealed some demand for crime analysts, crime intelligence analysts, and related research and data analysts within this occupational group, although employers are not commonly using this language in their recruiting efforts.

Community college forensics, evidence, and investigation (2105.40) programs have issued 19 awards annually over the last three academic years.

The Centers of Excellence recommends developing a crime analysis program due to the high hourly earnings and relatively low supply of forensics, evidence, and investigations program completers. Students willing to continue their education at a four-year degree institution should have the qualifications to secure a job as the forensic science technicians, bachelor's degree occupation described in this report. Colleges considering this program should partner with applicable employers to document their demand for more workers in this field.

Contact

Michael Goss & Paul Vaccher
Centers of Excellence, Inland Empire/Desert Region
michael.goss@chaffey.edu
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Appendix: Occupation definitions, sample job titles, five-year projections, and earnings for crime analysis occupations

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

Detectives and Criminal Investigators (33-3021)

Conduct investigations related to suspected violations of federal, state, or local laws to prevent or solve crimes.

Sample job titles: Criminal Investigator, Detective, Detective Sergeant, Fugitive Detective, Fugitive Investigator, Investigator, Narcotics Detective, Narcotics Investigator, Police Detective, Special Agent

Entry-Level Educational Requirement: High school diploma or equivalent

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

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 32%

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.

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

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 37%

Appendix: Methodology

Exhibit 10 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2017 and 2020, from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards 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.

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, 2021 a). 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, 2021 a).

Job advertisement 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). Online job advertisements often do not reveal employers' hiring intentions; it is unknown if employers plan to hire one or multiple workers from a single online job ad or collect resumes for future hiring needs. A closed job ad may not be the result of a hired worker.

Table 1. 2019 to 2024 job growth, wages, entry-level education, training, and work experience required for the crime analysis occupational group

Occupation (SOC)	2019 Jobs	5-Year Change (New Jobs)	5-Year % Change (New Jobs)	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage (10 th to 90 th percentile)	Median Hourly Wage (50 th percentile)	Average Annual Earnings	Entry-Level Education & On-The-Job-Training	Work Experience Required
Detectives and Criminal Investigators (33-3021)	1,039	60	6%	78	\$43.63 to \$68.57	\$50.86	\$112,800	High school diploma or equivalent & 1-12 months	5 years or more
Forensic Science Technicians (19-4092)	270	36	13%	39	\$26.18 to \$51.26	\$36.33	\$77,700	Bachelor's degree & 1-12 months	None
Total	1,309	96	7%	117	-	-	-	-	-

Source: Emsi 2021.2