

# Forensic Criminal Investigation Occupations

# Labor Market Information Report

# De Anza College

## Prepared by the San Francisco Bay Center of Excellence for Labor Market Research

**July 2021**

## Recommendation

Based on all available data, there appears to be an “undersupply” of Forensic Criminal Investigation workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara county). There is a projected annual gap of about 3,089 students in the Bay region and 1,192 students in the Silicon Valley Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 2105.40 - Forensics, Evidence, and Investigation programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at De Anza College and in the region.

This report profiles Forensic Criminal Investigation Occupations in the 12 county Bay region and in the Silicon Valley sub-region for exploratory purposes at De Anza College. Labor market information (LMI) is not available at the eight-digit SOC Code level for Digital Forensics Analysts (15-1299.06) therefore, the data shown in Tables 1 and 2 is for Computer Occupations, All Other (at the six digit SOC level) and likely overstates demand for Digital Forensics Analysts. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Digital Forensics Analysts (15-1299.06).

* **Computer Occupations, All Other (15-1299):** All computer occupations not listed separately. Excludes “Computer and Information Systems Managers” (11-3021), “Computer Hardware Engineers” (17-2061), “Electrical and Electronics Engineers” (17-2070), “Computer Science Teachers, Postsecondary” (25-1021), “Multimedia Artists and Animators” (27-1014), “Graphic Designers” (27-1024), “Computer Operators” (43-9011), and “Computer, Automated Teller, and Office Machine Repairs” (49-2011).
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: Moderate-term on-the-job training
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%
* **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.
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: Moderate-term on-the-job training
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 37%

## Occupational Demand

**Table 1. Employment Outlook for Forensic Criminal Investigation** **Occupations in Bay Region**

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Computer Occupations, All Other | 38,984 | 41,907 | 2,923 | 7% | 18,757 | 3,751 | $41.02 | $56.52 |
| Forensic Science Technicians | 443 | 488 | 45 | 10% | 320 | 64 | $34.93 | $44.75 |
| **Total** | **39,427** | **42,395** | **2,968** | **8%** | **19,077** | **3,815** | **$40.95** | **$56.39** |
| Source: EMSI 2020.4 |

**Bay Region includes:** Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Forensic Criminal Investigation** **Occupations in Silicon Valley Sub-region**

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Computer Occupations, All Other | 14,091 | 15,207 | 1,116 | 8% | 6,826 | 1,365 | $47.30 | $64.70 |
| Forensic Science Technicians | 67 | 74 | 7 | 10% | 48 | 10 | $29.55 | $37.04 |
| **Total** | **14,158** | **15,281** | **1,123** | **8%** | **6,874** | **1,375** | **$47.22** | **$64.57** |
| Source: EMSI 2020.4 |

**Silicon Valley Sub-Region includes:** Santa Clara County

### Job Postings in Bay Region and Silicon Valley Sub-Region

**Table 3. Number of Job Postings by Occupation for 12 months (Jan 2020 - Dec 2020)**

| **Occupation** | **Bay Region** | **Silicon Valley** |
| --- | --- | --- |
| Computer Occupations, All Other | 1,890 | 868 |
| Forensic Science Technicians | 42 | 5 |
| Source: Burning Glass |

**Table 4a. Top Job Titles for Forensic Criminal Investigation** **Occupations for 12 months (Jan 2020 - Dec 2020) Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Senior Consultant | 140 | Copa Senior Consultant | 11 |
| Technical Marketing Engineer | 47 | Senior Technical Marketing Engineer | 10 |
| Business Systems Consultant | 30 | Sap Fico Senior Consultant | 9 |
| Sales Consultant, Technology | 18 | It Audit Senior Consultant | 9 |
| Biometric Fingerprinting Technician | 18 | Technology Consultant | 8 |
| Sap Fi/Co Senior Consultant | 17 | Life Sciences Senior Consultant | 8 |
| Professional Services Consultant | 15 | Senior Professional Services Consultant | 7 |
| Sap Bpc Senior Consultant | 13 | Senior Consultant 5G | 7 |
| Peoplesoft Consultant | 11 | Salesforce Senior Consultant | 7 |
| Source: Burning Glass |

**Table 4b. Top Job Titles for Forensic Criminal Investigation** **Occupations for 12 months (Jan 2020 - Dec 2020) Silicon Valley Sub-Region**

| **Title** | **Silicon Valley** | **Title** | **Silicon Valley** |
| --- | --- | --- | --- |
| Senior Consultant | 42 | Technical Marketing Engineer Quadro/Rtx | 5 |
| Technical Marketing Engineer | 36 | Technical Marketing Engineer Proviz Manufacturing | 5 |
| Sap Fi/Co Senior Consultant | 14 | Technical Marketing Engineer - Proviz Data Science | 5 |
| Sap Bpc Senior Consultant | 13 | Senior Professional Services Consultant | 5 |
| Senior Technical Marketing Engineer | 9 | Sap Fico Senior Consultant | 5 |
| Professional Services Consultant | 9 | Healthcare Technical Marketing Engineer | 5 |
| Copa Senior Consultant | 8 | Technology Consultant | 4 |
| Sales Consultant, Technology | 6 | Senior Technical Marketing Engineer - Ai And Acceleration | 4 |
| Peoplesoft Consultant | 6 | Senior Consultant - Ctj | 4 |
| Source: Burning Glass |

## Industry Concentration

**Table 5. Industries hiring Forensic Criminal Investigation Workers in Bay Region**

| **Industry – 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2019)** | **Jobs in Industry (2024)** | **% Change (2019-24)** | **% Occupation Group in Industry (2019)** |
| --- | --- | --- | --- | --- |
| Custom Computer Programming Services | 8,108 | 9,105 | 12% | 21% |
| Computer Systems Design Services | 4,635 | 4,986 | 8% | 12% |
| Software Publishers | 2,636 | 3,137 | 19% | 7% |
| Federal Government, Civilian, Excluding Postal Service | 2,442 | 2,429 | -1% | 6% |
| Internet Publishing and Broadcasting and Web Search Portals | 2,358 | 2,811 | 19% | 6% |
| Data Processing, Hosting, and Related Services | 1,867 | 2,187 | 17% | 5% |
| Corporate, Subsidiary, and Regional Managing Offices | 1,389 | 1,312 | -6% | 3% |
| Other Computer Related Services | 1,166 | 1,369 | 17% | 3% |
| Local Government, Excluding Education and Hospitals | 739 | 768 | 4% | 2% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) | 661 | 702 | 6% | 2% |
| Source: EMSI 2020.4 |

**Table 6. Top Employers Posting Forensic Criminal Investigation** **Occupations in Bay Region and Silicon Valley Sub-Region (Jan 2020 - Dec 2020)**

| **Employer** | **Bay** | **Employer** | **Silicon Valley** |
| --- | --- | --- | --- |
| Deloitte | 477 | Deloitte | 227 |
| Microsoft Corporation | 64 | IBM | 51 |
| Wells Fargo | 57 | Microsoft Corporation | 40 |
| IBM | 53 | Nvidia Corporation | 36 |
| Cisco Systems Incorporated | 44 | Cisco Systems Incorporated | 32 |
| Nvidia Corporation | 36 | Palo Alto Networks | 28 |
| Accenture | 35 | SAP | 17 |
| Ernst & Young | 32 | Ernst & Young | 11 |
| Palo Alto Networks | 29 | Wipro | 8 |
| PAE Incorporated | 27 | Amazon | 8 |
| Amazon | 27 | Xilinx Incorporated | 7 |
| PricewaterhouseCoopers | 23 | Vmware Incorporated | 7 |
| SAP | 22 | Takashi Usa | 7 |
| Kaiser Permanente | 20 | Accenture | 7 |
| Source: Burning Glass |

## Educational Supply

There are three (3) community colleges in the Bay Region issuing 8 awards on average annually (last 3 years ending 2018-19) on TOP 2105.40 - Forensics, Evidence, and Investigation. In the Silicon Valley Sub-Region, there is a one (1) community college that issued one (1) award on average annually (last 3 years) on this TOP code.

There are 11 other CTE educational institutions in the Bay Region issuing 718 awards on average annually (last 3 years ending 2016-17) on TOP 2105.40 - Forensics, Evidence, and Investigation. There are two (2) other CTE educational institution in the Silicon Valley Sub-Region issuing 182 awards on average annually (last 3 years) on this TOP code.

**Table 7a. Community College Awards on TOP 2105.40 - Forensics, Evidence, and Investigation in Bay Region**

| **College** | **Subregion** | **Certificate Low** | **Total** |
| --- | --- | --- | --- |
| De Anza | Silicon Valley | 1 | 1 |
| Diablo Valley | East Bay | 5 | 5 |
| San Francisco | Mid-Peninsula | 2 | 2 |
| **Total** |  | **8** | **8** |
| Source: Data Mart |

*Note: The annual average for awards is 2016-17 to 2018-19.*

**Table 7b. Other CTE Instituton Awards on TOP 2105.40 - Forensics, Evidence, and Investigation in Bay Region**

| **College** | **Subregion** | **Associate Degree** | **Bachelor's Degree** | **Total** |
| --- | --- | --- | --- | --- |
| Argosy University-San Francisco Bay Area | East Bay | 0 | 4 | 4 |
| Carrington College-Pleasant Hill | East Bay | 5 | 0 | 5 |
| Carrington College-San Jose | Silicon Valley | 6 | 0 | 6 |
| Carrington College-San Leandro | East Bay | 3 | 0 | 3 |
| Holy Names University | East Bay | 0 | 12 | 12 |
| ITT Technical Institute-Concord | East Bay | 0 | 0 | 0 |
| John F. Kennedy University | East Bay | 0 | 2 | 2 |
| San Francisco State University | Mid-Peninsula | 0 | 212 | 212 |
| San Jose State University | Silicon Valley | 0 | 176 | 176 |
| Sonoma State University | North Bay | 0 | 99 | 99 |
| California State University-East Bay | East Bay | 0 | 199 | 199 |
| **Total** |  | **14** | **704** | **718** |
| Source: Data Mart |

*Note: The annual average for awards is 2016-17 to 2018-19.*

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 3,815 annual openings for the Forensic Criminal Investigation occupational cluster and 726 annual (3-year average) awards for an annual undersupply of 3,089 students. In the Silicon Valley Sub-Region, there is also a gap with 1,375 annual openings and 183 annual (3-year average) awards for an annual undersupply of 1,192 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 2105.40 - Forensics, Evidence, and Investigation**

| **2017-18** | **Bay****All CTE Program** | **De Anza****All CTE Program** | **State 2105.40** | **Bay 2105.40** | **Silicon Valley 2105.40** | **De Anza 2105.40** |
| --- | --- | --- | --- | --- | --- | --- |
| % Employed Four Quarters After Exit | 67% | 61% | 73% | 71% | N/A | N/A |
| Median Quarterly Earning Two Quarters After Exit | $11,466 | $10,931 | $6,707 | $6,127 | N/A | N/A |
| Median % Change in Earning | 31% | 34% | 49% | N/A | N/A | N/A |
| % of Students Earning a Living Wage | 53% | 46% | 47% | N/A | N/A | N/A |
| Source: Launchboard Pipeline (version available on August 2020) |

## Skills, Certifications and Education

**Table 9. Top Skills for Forensic Criminal Investigation** **Occupations in Bay Region (Jan 2020 - Dec 2020)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| SAP | 642 | Information Systems | 176 |
| Project Management | 449 | Microsoft Visio | 175 |
| Business Process | 378 | Accounting | 173 |
| Business Development | 253 | SAP SuccessFactors | 170 |
| Customer Service | 224 | SAP Implementation | 152 |
| Data Management | 223 | Performance & Scalability Design | 149 |
| Marketing | 207 | Budgeting | 148 |
| Virtualization | 206 | Software Development | 144 |
| Oracle | 204 | Scalability Design | 140 |
| Python | 202 | Business Solutions | 134 |
| Thought Leadership | 202 | Java | 131 |
| SQL | 201 | Prototyping | 130 |
| Enterprise Resource Planning (ERP) | 198 | Sales | 127 |
| Customer Contact | 183 | Product Management | 125 |
| Source: Burning Glass |

**Table 10. Certifications for Forensic Criminal Investigation** **Occupations in Bay Region (Jan 2020 - Dec 2020)**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Certified Information Systems Security Professional (CISSP) | 89 | Certified Information Security Manager (CISM) | 24 |
| Certified Information Systems Auditor (CISA) | 72 | Cisco Certified Network Associate (CCNA) | 22 |
| SAP Certification | 48 | Security Clearance | 20 |
| Certified Public Accountant (CPA) | 48 | Global Professional in Human Resources | 19 |
| Project Management Certification | 42 | Cisco Certified Network Professional (CCNP) | 18 |
| Cisco Certified Internetwork Expert (CCIE) | 34 | Certified Protection Professional (CPP) | 17 |
| Project Management Professional (PMP) | 31 | Certified Payroll Professional (CPP) | 17 |
| IT Infrastructure Library (ITIL) Certification | 29 | Certified Equity Professional | 17 |
| Licensed Attorney | 27 | Certified Employee Benefit Specialist (CEBS) | 17 |
| Driver's License | 25 | SANS/GIAC Certification | 16 |
| Source: Burning Glass |

*Note: 80% of records have been excluded because they do not include a certification. As a result, the chart above may not be representative of the full sample.*

**Table 11. Education Requirements for Forensic Criminal Investigation** **Occupations in Bay Region**

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| High school or vocational training | 67 | 5% |
| Associate's degree | 9 | 1% |
| Bachelor's degree | 1,100 | 82% |
| Master's degree | 170 | 12% |
| Source: Burning Glass |

## Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

## Sources

O\*Net Online
Labor Insight/Jobs (Burning Glass)
Economic Modeling Specialists International (EMSI)
CTE LaunchBoard www.calpassplus.org/Launchboard/
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
Living Insight Center for Community Economic Development
Chancellor’s Office MIS system

## Contacts

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