February 2022

Labor Market Analysis

Forensic Science Technicians

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California Community Colleges

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Prepared by the Central Valley/Mother Lode Center of Excellence

Table of Contents

COVID-19 Statement: This report includes employment projection data by Emsi. Emsi's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

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Summary

Please note the COVID-19 statement on page 2 when considering this report's findings.

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills, and postsecondary supply for forensic science technicians. Three occupations related to forensic science technicians were identified for Madera College:

- 15-1212, Information Security Analysts
- 19-4092, Forensic Science Technicians
- 33-9031, Gambling Surveillance Officers and Gambling Investigators

Key findings:

- **Occupational demand —** Nearly 465 workers were employed in jobs related to forensic science technicians in 2020 in the South Central Valley/Southern Mother Lode (SCV/SML) subregion. The largest occupation is information security analysts with 205 workers in 2020, a projected growth rate of 20% over the next five years, and 24 annual openings.

- **Wages —** Information security analysts earn the highest entry-level wage, $35.36/hour in the subregion.

- **Employers —** Employers with the most job postings in the subregion are Lockheed Martin Corporation, Ndti, and Anthem Blue Cross.

- **Occupational titles —** The most common occupational title and job title in job postings in the subregion is information security analysts.

- **Skills and certifications —** The top baseline skill is communication, the top specialized skill is information security, and the top software skill is Microsoft Office. The most in-demand certification is Certified Information Systems Security Professional (CISSP).

- **Education —** A high school diploma or equivalent is typically required for gambling surveillance officers and gambling investigators. A bachelor's degree is typically required for the remaining two occupations related to forensic science technicians

- **Supply —** Analysis of postsecondary completions shows that on average 5 awards were conferred in the Central Valley/Mother Lode region each year.

Based on a comparison of occupational demand and supply, there is an undersupply of 58 trained workers in the subregion and 86 workers in the region. The Center of Excellence recommends that Madera College work with the regional directors, the college's advisory board, and local industry in the development of programs to address the shortage of forensic science technicians workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Madera College to provide labor market information for forensic science technicians. The geographical focus for this report is the South Central Valley/Southern Mother Lode (SCV/SML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the SCV/SML subregion is $13.67/hour.[1] Analysis of the program and occupational data related to forensic science technicians resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 15-1212, Information Security Analysts
- 19-4092, Forensic Science Technicians
- 33-9031, Gambling Surveillance Officers and Gambling Investigators

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown below.

Information Security Analysts
Job Description: Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. Assess system vulnerabilities for security risks and propose and implement risk mitigation strategies. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses
Knowledge: Computers and Electronics, English Language, Administration and Management, Engineering and Technology, Telecommunications
Skills: Reading Comprehension, Critical Thinking, Active Listening, Complex Problem Solving, Speaking

Forensic Science Technicians
Job Description: 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.
Knowledge: Law and Government, Public Safety and Security, English Language, Chemistry, Computers and Electronics
Skills: Active Listening, Critical Thinking, Reading Comprehension, Speaking, Writing

Gambling Surveillance Officers and Gambling Investigators
Job Description: Observe gambling operation for irregular activities such as cheating or theft by either employees or patrons. Investigate potential threats to gambling assets such as money, chips, and gambling equipment. Act as oversight and security agent for management and customers.
Knowledge: English Language, Public Safety and Security, Computers and Electronics, Mathematics, Administrative
Skills: Monitoring, Critical Thinking, Speaking, Judgement and Decision Making, Active Listening

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[1] The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: https://insightcced.org/tools-metrics/self-sufficiency-standard-tool-for-california/.

Occupational Demand

The SCV/SML subregion employed 459 workers in forensic science technicians occupations in 2020 (Exhibit 1). The largest occupation is information security analysts with 205 workers in 2020. This occupation is projected to grow by 20% over the next five years and has the greatest number of projected annual openings, 24.

Exhibit 1. Forensic science technicians employment and occupational projections in the SCV/SML subregion

Occupation	2020 Jobs	2025 Jobs	5-Year Change	5-Year % Change	Annual Openings
Information Security Analysts	205	246	41	20%	24
Forensic Science Technicians	139	157	19	13%	22
Gambling Surveillance Officers and Gambling Investigators	116	121	5	4%	16
TOTAL	**459**	**524**	**65**	**14%**	**62**

Wages

Exhibit 2 shows the entry-level hourly wages of the forensic science technicians occupations. Information security analysts earn the highest entry-level wage, $35.36/hour in the subregion. Entry-level wages are derived from the 25th percentile.

Exhibit 2. Forensic science technicians entry-level wages in the SCV/SML subregion

Information Security Analysts	$35.36
Forensic Science Technicians	$25.41
Gambling Surveillance Officers and Gambling Investigators	$23.15

Dotted line denotes $13.67/hour living wage in the SCV/SML subregion
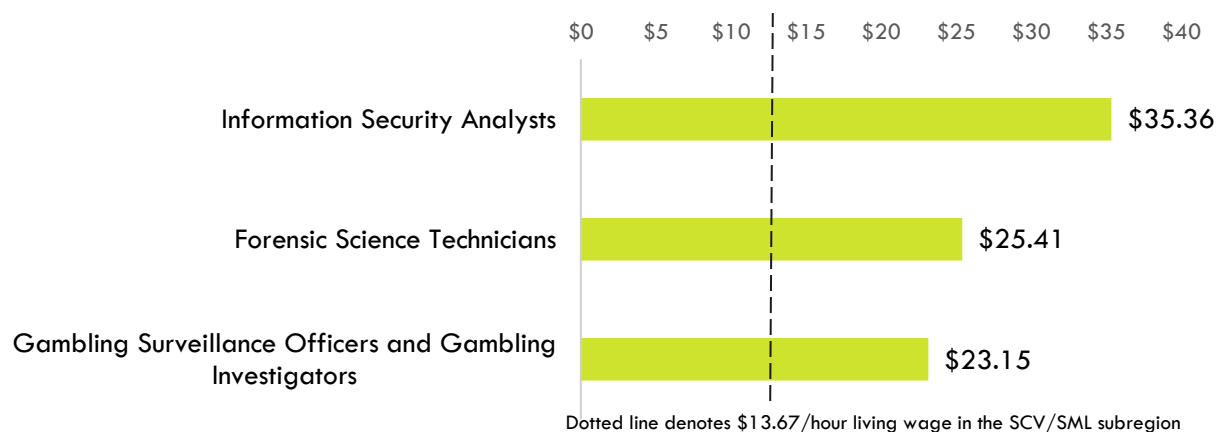
Job Postings

There were 221 job postings for the three occupations in the SCV/SML subregion from August 2021 to January 2021.[2] The employers with the most job postings are listed in Exhibit 3.

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[2] Other than occupation titles and job titles, the categories below can be counted one or multiple times per job posting, and across several areas in a single posting. For example, a skill can be counted in two different skill types, and an employer can indicate more than one education level.

Exhibit 3. Top employers of forensic science technicians by number of job postings

Employer	Job Postings	% Job Postings
Lockheed Martin Corporation	12	7%
Ndti	9	5%
Anthem Blue Cross	7	4%
SAIC	7	4%
Mattress Firm	5	3%
Northrop Grumman	5	3%
Applied Materials	4	2%
Dell	4	2%
Adt Commercial	3	2%
Arctic Slope Regional Corporation	3	2%

Exhibit 4 shows how job postings for the targeted occupations in the SCV/SML subregion are distributed across three O*NET OnLine occupations. The occupational title information security analysts is listed in 213 job postings. Note how this occupational title dominates the job posting results. Common job titles in postings include Information Security Analyst in 10 job postings, It Security Analyst in nine job postings, and Information Systems Security Manager Issm in seven job postings.

Exhibit 4. Top occupational titles in job postings for forensic science technicians

Occupational Title	Job Postings	% of Job Postings
Information Security Analysts	213	96%
Gaming Surveillance Officers and Gaming Investigators	6	3%
Forensic Science Technicians	2	1%

Salaries

Exhibit 5 shows the "Market Salaries" for forensic science technicians occupations that are calculated by Burning Glass which uses a machine learning model built off of millions of job postings every year, and accounts for adjustments based on locations, industry, skills, experience, education requirements, among other variables.

Exhibit 5. Salaries for forensic science technicians occupations

Market Salary Percentile	Salary Amount
10th Percentile	$46,185
25th Percentile	$69,377
50th Percentile	$86,301
75th Percentile	$102,895
90th Percentile	$118,500

Education

Of the 221 job postings, 147 listed an education level preferred for the positions being filled. Among those, 97% requested a bachelor's degree, 22% requested a high school or vocational training, and 16%

requested a master's degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below may total more than 100%.

Exhibit 6. Education levels requested in job postings for forensic science technicians

Education Level	Job Postings	% of Job Postings
Bachelor's degree	142	97%
High school or vocational training	33	22%
Master's degree	24	16%
Associate's degree	16	11%
Doctoral degree	5	3%

Baseline and Specialized Skills

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are communication, 44% of job postings, teamwork/collaboration, 29%, and planning, 24%. The top three specialized skills are information security, 50% of job postings, information systems, 35%, and Linux, 19%.
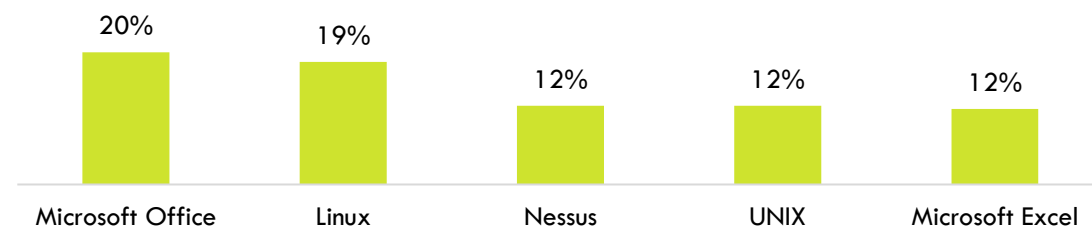
Exhibit 7. In-demand forensic science technicians baseline and specialized skills
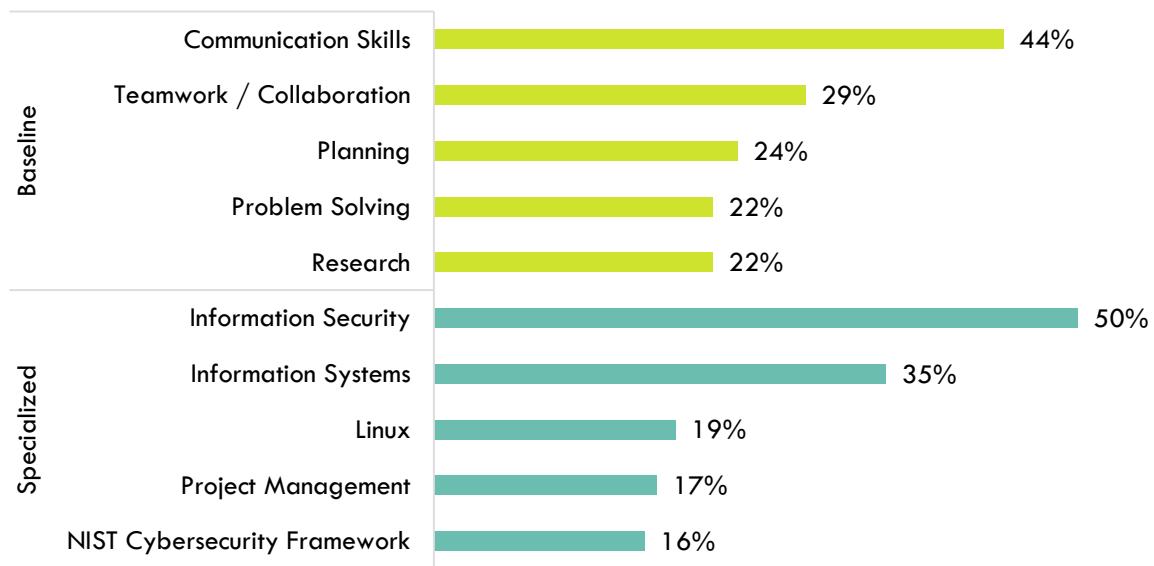
Software Skills

Analysis also included the software skills most in demand by employers. Microsoft Office and Linux were the top two software skills identified in job postings (Exhibit 8).

Exhibit 8. In-demand forensic science technicians software skills

Certifications

Of the 221 job postings, 133 contained certification data. Among those, 50% indicated a need for a Certified Information Systems Security Professional (CISSP). The next top certifications are security clearance and CompTIA Security+ (Exhibit 9).

Exhibit 9. Top forensic science technicians certifications requested in job postings
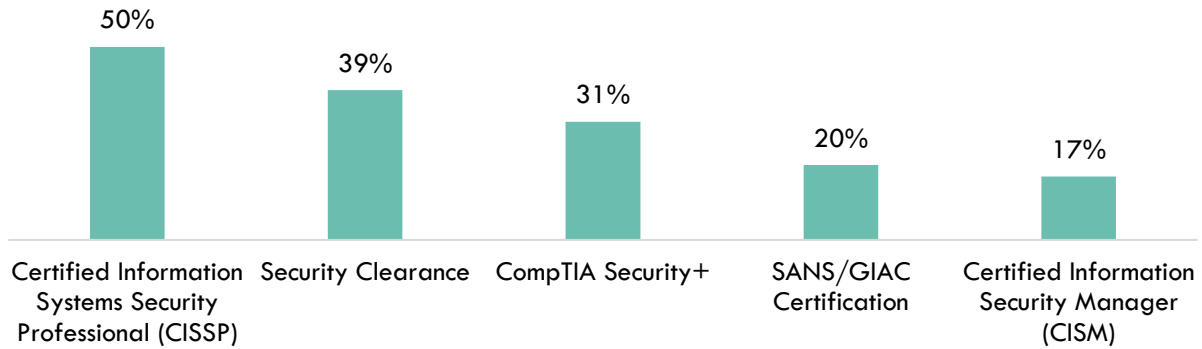
Education, Work Experience & Training

A high school diploma or equivalent is typically required for gambling surveillance officers and gambling investigators. A bachelor's degree is typically required for the remaining two occupations related to forensic science technicians (Exhibit 10).

Exhibit 10. Education, work experience, training, and Current Population Survey results for forensic science technicians occupations[3]

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
Information Security Analysts	Bachelor's degree	Less than 5 years	None	25.7%
Forensic Science Technicians	Bachelor's degree	None	Moderate-term	37.1%
Gambling Surveillance Officers and Gambling Investigators	High school diploma or equivalent	Less than 5 years	Moderate-term	41.9%

Supply

Analysis of program data from the California Community Colleges Chancellor's Office Data Mart included the TOP and CIP codes and titles: 210540 - Forensics, Evidence, and Investigation and 43.0111 - Criminalistics and Criminal Science. Analysis of the last three years of data shows that, on average, 5 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

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[3] "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, https://www.bls.gov/cps/.

Exhibit 11. Postsecondary supply for forensic science technicians occupations in the region

TOP/CIP Code- Title	College	Associate Degree	Certificate 18 < 30 Semester Units	Subtotal
210540 - Forensics, Evidence, and Investigation	Fresno City	2	3	5
43.0111 - Criminalistics and Criminal Science	Fresno Pacific University			0
TOTAL		**2**	**3**	**5**

There is an undersupply of 58 forensic science technicians workers in the SCV/SML subregion and 86 workers in the region (Exhibit 12).

Exhibit 12. Forensic science technicians workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill gap in the SCV/SML subregion and region
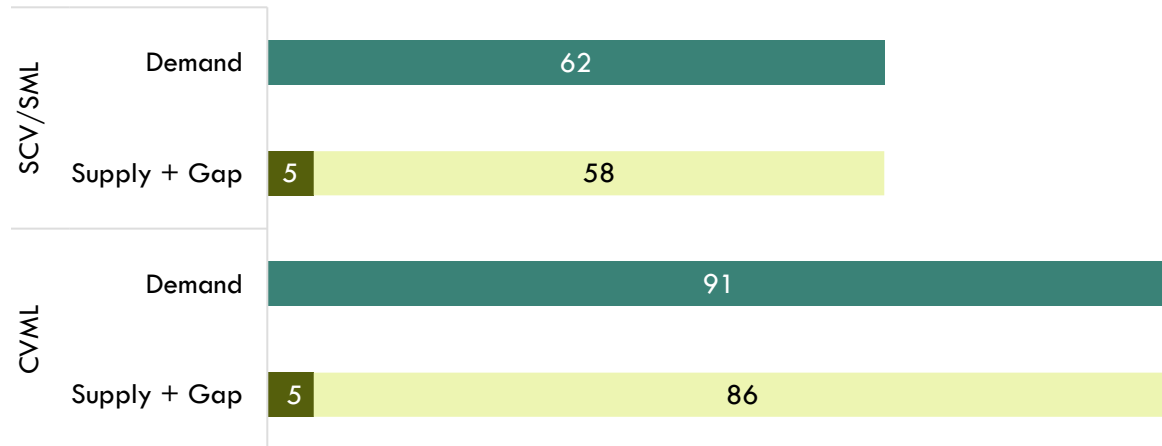
Student Outcomes

Data was not available from the California Community College Chancellor's Cal Pass Plus LaunchBoard for the TOP code related to forensic science technicians.

Conclusion

The entry-level wages the three occupations exceed the SCV/SML subregion's average living wage. There were 221 job postings in the past six months for occupations related to forensic science technicians in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is communication, and the top specialized skill is information security.
- The top software skill is Microsoft Office.
- The top certification is a Certified Information Systems Security Professional (CISSP).

The TOP code related to forensic science technicians is a program development There is also an undersupply of trained workers, a shortage of 58 in the SCV/SML subregion and 86 in the region.

Recommendation

Based on these findings, it is recommended that Madera College work with the regional directors, the college's advisory board, and local industry in the development of programs to address the shortage of forensic science technicians workers in the region.

Appendix A: Methodology & Data Sources

Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor's Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

Data Type	Source
Labor Market Information/Population Estimates and Projections/Educational Attainment	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry: economicmodeling.com.
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: https://www.bls.gov/emp/tables/educational-attainment.htm.
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: labormarketinfo.edd.ca.gov.
Job Posting and Skills Data	Burning Glass: burning-glass.com/.
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: onetonline.org.

Key Terms and Concepts

Annual Job Openings: Annual openings are calculated by dividing the number of years in the projection period by total job openings.

Education Attainment Level: The highest education attainment level of workers age 25 years or older.

Employment Estimate: The total number of workers currently employed.

Employment Projections: Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (EMSI) formula that includes historical employment and economic indicators along with national, state and local trends.

Living Wage: The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

Occupation: An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

Percent Change: Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

Replacements: Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

Total Job Openings (New + Replacements): Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

Typical Education Requirement: represents the typical education level most workers need to enter an occupation.

Typical On-The-Job Training: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.