

# **CAREER GUIDE FOR FORENSIC SCIENCE TECHNICIANS**

SOC Code: 19-4092

Pay Band(s): 3 and 4 ([Salary Structure](#))

**Standard Occupational 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.

**Forensic Science Technician positions in the Commonwealth are assigned to the following Roles in the [Forensic Science Career Group](#):**

[Forensic Science Specialist I](#)  
[Forensic Science Specialist II](#)

While Forensic Science Technicians within the Commonwealth are all located within the Forensic Science Career Group, individuals may want to pursue other opportunities within the Commonwealth depending upon individual training, education, knowledge, skills, abilities, and interests.

Other Career Group(s) that may be of interest are:

[Life and Physical Sciences](#)  
[Lab and Research Services](#)  
[Environmental Services](#)  
[Public Safety Compliance](#)

## **SKILLS, KNOWLEDGE, ABILITIES AND TASKS**

(Technical and Functional Expertise)

### **Skills**

**Note:** *The technical and functional skills listed below are based on general occupational qualifications for **Forensic Science Technicians** commonly recognized by most employers. Typically, you will not be required to have all of the skills listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.*

1. Understanding written sentences and paragraphs in work related documents.
2. Using scientific rules and methods to solve problems.
3. Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
4. Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
5. Adjusting actions in relation to others' actions.
6. Determining the kind of tools and equipment needed to do a job.
7. Considering the relative costs and benefits of potential actions to choose the most appropriate one.
8. Communicating effectively in writing as appropriate for the needs of the audience.

9. Using mathematics to solve problems.
10. Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

## **Knowledge**

**Note:** The technical and functional knowledge statements listed below are based on general occupational qualifications for **Forensic Science Technicians** commonly recognized by most employers. Typically, you will not be required to have all of the knowledge listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.

The **Knowledge** of:

1. The chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
2. Relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
3. The structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
4. The laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.
5. Circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
6. Arithmetic, algebra, geometry, calculus, statistics, and their applications.

## **Abilities**

**Note:** The technical and functional abilities listed below are based on general occupational qualifications for **Forensic Science Technicians** commonly recognized by most employers. Typically, you will not be required to have all of the abilities listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.

The **Ability** to:

1. Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
2. Communicate information and ideas in speaking so others will understand.
3. Arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
4. Listen to and understand information and ideas presented through spoken words and sentences.
5. Identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.
6. See details at close range (within a few feet of the observer).
7. Communicate information and ideas in writing so others will understand.
8. Read and understand information and ideas presented in writing.
9. Generate or use different sets of rules for combining or grouping things in different ways.
10. Come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

## Tasks

**Note:** The following is a list of sample tasks typically performed by **Forensic Science Technicians**. Employees in this occupation will not necessarily perform all of the tasks listed.

1. Analyze and classify biological fluids using DNA typing or serological techniques.
2. Analyze gunshot residue and bullet paths in order to determine how shootings occurred.
3. Analyze handwritten and machine-produced textual evidence to decipher altered or obliterated text or to determine authorship, age, and/or source.
4. Collect evidence from crime scenes, storing it in conditions that preserve its integrity.
5. Collect impressions of dust from surfaces in order to obtain and identify fingerprints.
6. Compare objects such as tools with impression marks in order to determine whether a specific object is responsible for a specific mark.
7. Confer with ballistics, fingerprinting, handwriting, documents, electronics, medical, chemical, or metallurgical experts concerning evidence and its interpretation.
8. Determine types of bullets used in shooting and if fired from a specific weapon.
9. Examine DNA samples to determine if they match other samples.
10. Examine physical evidence such as hair, fiber, wood or soil residues in order to obtain information about its source and composition.

## INTERESTED?

Like people, occupations have traits or characteristics. These characteristics give important clues about the nature of the work and work environment, and give you an opportunity to match your own personal interests to a specific occupation. When you choose a job in an occupation that matches your own interests you have taken an important step in planning a successful and rewarding career.

Occupations in Forensic Science are considered **Investigative** because they frequently involve working with ideas, and require an extensive amount of thinking. These occupations can involve searching for facts and figuring out problems mentally.

They are also **Conventional** because they frequently involve following set procedures and routines. These occupations can include working with data and details more than with ideas. Usually there is a clear line of authority to follow.

Forensic Science occupations also are **Realistic** because they frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others.

## LICENSURE, REGISTRATION, OR CERTIFICATION REQUIREMENTS

Generally this is not required for Forensic Technicians in state government.

## EDUCATIONAL, TRAINING, AND LEARNING OPPORTUNITIES

Forensic science technicians provide a range of technical assistance in criminal investigations by collecting and analyzing physical evidence. Technicians may specialize in areas such as

DNA analysis, fingerprint identification, comparison and classification, or firearm examination, performing tests on weapons or substances, such as fiber, hair, tissue, or body fluids to determine significance to the investigation. Technicians must document their findings and the laboratory techniques used. They may be required to provide testimony on specific laboratory findings by identifying and classifying substances, materials, and other evidence collected at the crime scene.

Most Forensic Technician positions require high school or the equivalent. However, college level coursework in math, biology, chemistry, or another closely related field of study, or a bachelors of science degree are usually strongly preferred qualifications. Employers prefer that applicants have some scientific laboratory experience that included exposure to basic lab equipment techniques and laboratory safety procedures. Experience handling crime scene evidence, using the PCR amplification process, and using computers in a laboratory environment may be preferred. A valid driver's license may be required in some cases. Applicants should expect to undergo an extensive background investigation and may be required to provide a DNA sample.

A college education will be required if you plan to pursue a career in forensic science. The Virginia Division of Forensic Science is jointly involved with the Virginia Commonwealth University's forensic science programs. VCU offers both a B.S. and a M.S. in Forensic Science. The Master of Science in Forensic Science is one of only 15 of its kind in the United States and the lecture/laboratory courses are taught at the DFS Central Laboratory. More information about both programs can be found at <http://www.has.vcu.edu/forensics>.

For additional information on education opportunities and a career brochure visit the [American Academy of Forensic Sciences](#) website.

For more information about Virginia's forensic science program and related employment opportunities visit their web site at <http://www.dcjs.org/forensic/index.cfm>.

## **COMMONWEALTH COMPETENCIES**

Competencies are a set of identified behaviors, knowledge, skills, and abilities that directly and positively impact the success of employees and the organization. Competencies can be observed and measured. When consistently demonstrated, competencies make employees particularly effective in their work. Competencies help lay out a road map to career success. You can use the Commonwealth Competencies to help improve your individual performance by adopting behaviors that make high performing employees successful in their jobs. In this way, you can use the Commonwealth Competencies for your further professional development.

### **The Commonwealth Competencies are:**

1. Technical and Functional Expertise
2. Understanding the Business
3. Achieving Results
4. Serving the Customer
5. Teamwork
6. Interpersonal and Communication Skills
7. Leadership and Personal Effectiveness

The above competencies may be applied to employees throughout the Commonwealth of Virginia. They can be rank-ordered by agencies and hiring managers to represent the needs of a specific job. The rank ordering will change depending upon the occupation, an organization's priorities, the actual job requirements, and the supervisor's preferences.

Career success is both about what you do (applying your technical knowledge, skills, and ability) and how you do it (the consistent behaviors you demonstrate and choose to use) while interacting and communicating with others. Hopefully, by studying the Commonwealth competencies, identifying your developmental opportunities, and working to refine your own competence, you can take charge of your career!

For additional information about the **Commonwealth Competencies** go to: [http://jobs.state.va.us/cc\\_planningctr.htm](http://jobs.state.va.us/cc_planningctr.htm). For the competencies, we first list the competencies and then define each. Finally, we list competency indicators; to describe what successful performance looks like.

## **COMMONWEALTH CAREER PATH**

Career opportunities in the Commonwealth are not limited to moving “up” to the next highest role and pay band, changing positions, or to becoming a supervisor. That’s because most roles describe a broad group of occupationally related positions that perform a range of work that requires increased knowledge and skills. For that reason, Commonwealth roles describe the career paths within the same or higher-level role for the same or different Career Group. The broad salary range and the Commonwealth’s pay practices provide flexibility in recognizing career development and advancement. ([Salary Structure](#))

For example: **Forensic Science**

PAY BAND	PRACTITIONER ROLES	MANAGEMENT ROLES
3	Forensic Science Specialist I	
4	Forensic Science Specialist II Forensic Scientist I	
5	Forensic Science Specialist III Forensic Scientist II	
6	Forensic Scientist III	
7		Forensic Science Manager I
8		Forensic Science Manager II

**Sample Career Path:**

### **Forensic Science Specialist I**

The Forensic Science Specialist I role provides career tracks for fingerprint technicians and others that perform work in support of scientific analysis of crime scene evidence and the processes related to the chain of custody. Duties range from entry-level to advance-level fingerprint technician. Employees document the transfer of sealed evidence between examiners and evidence security staff and perform tests and analyses that follow clear protocols. Prepares evidence and testifies in court as an expert witness.

### **Forensic Science Specialist II/Forensic Scientist I**

The Forensic Science Specialist II/Forensic Scientist I role provides career tracks for forensic science specialists who supervise technicians or provide technical support to professional forensic science staff or for scientists who are in a forensic scientist-training program. The first career track is for forensic science specialists who perform case-related analytical work on evidential material and equipment; and maintain, handle and distribute evidence and document chain of custody records. May supervise other technicians and provide expert guidance and training in identification techniques. The second career track is for the forensic scientist trainee who follows a prescriptive program leading to certification to independently perform forensic science analyses within a specific forensic discipline. Duties include examination and analysis of legal evidence, preparation of reports of examination results, maintain chain of custody and protect the integrity of evidence.

### **Forensic Science Specialist III/Forensic Scientist II**

The Forensic Science Specialist III/Forensic Scientist II role provides career tracks for forensic science specialists who provide expert technical support to professional forensic science staff or for forensic scientists performing entry-level to advanced-level scientific duties. The first career track is for forensic science specialists who: perform case-related analytical work on evidential material and equipment, may provide court testimony regarding work product and conclusions, and perform routine analyses on various types of samples in order to detect, isolate and confirm the presence of compounds using diverse scientific methods. The second career track is for forensic scientists who independently examine physical evidence and conduct appropriate analysis of a wide variety of samples, prepare certificates of analysis, provide expert testimony in criminal courts regarding evaluation and interpretation of the evidential material, and conduct peer review of other examiner's work.

### **Forensic Scientist III**

The Forensic Scientist III role provides career tracks for forensic scientists who are either technical experts or supervisors. The first career track is for technical experts who perform quantitative and qualitative analysis work including: analyses of human body fluids and tissues to determine the presence, concentration and effects of chemical substances; conducting research and methods development on new DNA methodologies and techniques; evaluating alternative DNA methodologies and procedures for use on casework and convicted offender samples. The second career track is for supervisors who provide: supervision and guidance to staff conducting methods development and research on new forensic DNA technologies; or, supervise a forensic work unit within a discipline by assigning work, evaluating performance, training and supervising examinations, proficiency testing and special research, and supervising unit safety and quality assurance activities.

### **Forensic Science Manager I**

The Forensic Science Manager I role provides career tracks for technical managers in a forensic science discipline having statewide responsibility, for managers of all forensic disciplines within a regional laboratory, or for deputy directors of a statewide forensic science program. Technical managers establish protocols; develop, implement and interpret objectives, policies and procedures; manage safety, quality assurance and training programs and provide consultation to central and regional laboratories for a forensic discipline. Regional laboratory managers are responsible for the operation of a forensic science regional laboratory including the development and implementation of policies and procedures; directing forensic examination operations; recommending allocation of staff and resources; and managing fiscal and administrative activities. Deputies administer and manage statewide operational issues of the forensic science program activities including maintaining ASCLD/LAB accreditation, budget development and implementation, capital outlay project planning and implementation, development and implementation of uniform data automation systems and administration the lab information management system, inter-laboratory coordination of procedures and training, and quality assurance/quality control.

### **The Forensic Science Manager II**

The Forensic Science Manager II role provides career tracks for directors of a statewide forensic science program. Managers are responsible for long range forensic science goals and objectives, legislative and funding/policy issues involving the General Assembly or the Virginia State Crime Commission, representing the agency on regional and national forensic task forces and associations, and responding to legal orders for production of information, data and/or personnel.

## **ADDITIONAL OCCUPATIONAL INFORMATION CAN BE FOUND AT:**

O\*NET (Occupational Information Network)

<http://online.onetcenter.org/>

Virginia Employment Commission

<http://www.alex.vec.state.va.us/>

Career One Stop

<http://www.careeronestop.org/>

Virginia Career Resource Network

<http://www.vacrn.net/>

American Academy of Forensic Science

<http://www.aafs.org>

Virginia Department of Criminal Justice Services

<http://www.dcjs.state.va.us>