

**FORENSIC SCIENTIST
FORENSIC BIOLOGY UNIT (DNA)
CS-0401-12**

INTRODUCTION

This position is located in the Department of Forensic Sciences (DFS). The mission of the DFS is to provide high-quality, timely, accurate, and reliable forensic science services using best practices and best available technology, focusing on unbiased science and transparency, to enhance public safety and health.

Employees are assigned to one of the specialty disciplines in forensic science (e.g., forensic biology, firearms and toolmark analysis, etc.). The position is primarily responsible for forensic biology laboratory work and interpretation of DNA evidence, which includes aspects of casework, accreditation, quality assurance and control programs within the Forensic Science Laboratory (FSL).

MAJOR DUTIES

Performs laboratory analyses of physical evidence in one or more of the specialty disciplines of the FSL, regularly demonstrates proficiency in assigned forensic specialty; participate in and completes externally administered proficiency test; demonstrates competency and on-going proficiency in laboratory processing, interpretation, comparisons and statistical analysis steps as authorized by the technical leader; ensures methodologies and procedures used are compliant with established standards, and is responsible for quality assurance and accreditation compliance activities.

Evaluates existing DNA methods and assists with proposing new analytical procedures; and ensures that all associated quality standards pertaining to ISO 17025 accreditation standards and FBI Quality Assurance Standards are being performed.

Prepares written scientific examination reports and affidavits to correlate with laboratory results; inspects equipment and tools that are utilized for testing and to determine if they are compliant with prescribed operating and safety standards, regulations and guidelines including manufacturer's specifications on computerized scientific equipment; interprets graphs, charts, and mathematical formulas.

May conduct advanced research project or perform technical review of peers' work; performs biology/DNA analyses on physical evidence; interprets test results, conducts comparisons, develops conclusions and statistical analyses and prepares final reports/results.

Keeps up-to-date of current literature and sources of information in the field of forensics for DNA methods, including but not limited to all forms of microscopy, chemical analysis, etc.

In conjunction with the technical leader may modify processes to resolve novel, obscure, or problems that affect the analysis; assess, select, and apply remedies suited to the assigned problem or situation; and assess the impact of the same.

Prepares evidence for presentation in court; meet with attorneys, investigators or other law enforcement personnel regarding the interpretation of examinations conducted; advises on the recovery of DNA from evidentiary material and recommends methodologies and samples for testing; testify as an expert witness in legal proceedings and in connection with the DNA collected, processed, developed, interpreted, compared and preserved; projects a professional image while representing the Department; exemplify the Department values, both on and off duty.

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Performs examinations by reviewing submission reports received from law enforcement agencies and analyzing evidence for possible recovery of DNA.

Writes detailed reports of final analysis and results including inventory of DNA examined and submits reports to the appropriate investigative agency and/or authority or collaboratively with other employees.

Exercises discretion and sound judgment to determine proper courses of action and assesses and evaluates a variety of situations, problems, conditions or questions.

Performs research to determine new and/or revise methods for performing analyses or to determine the effectiveness of current analytical methods.

Works collaboratively with investigators and other members of the justice system to analyze and interpret DNA evidence and information that is necessary to meet the objectives of the investigation.

Operate specialized software on multiple computer platforms.

Performs other related duties as assigned.

KNOWLEDGE REQUIRED BY THE POSITION

Comprehensive knowledge of and experience in applying in a wide range of theories, principles, concepts, methodology, and practices of analytical, chemistry, physical science, or biology or related field; of quality methods and techniques used in the forensic biology laboratory and mathematical and statistical analysis as it relates to forensic biology laboratory work and interpretation.

Knowledge of and experience with forensic laboratory accreditation, standards, and guidelines; proper procedures and standard laboratory rules and safety precautions regarding chemicals, toxins and biohazards; evidence handling and preservation procedures including chain-of-custody; forensic biology casework laboratory processing to include, but not limited to, DNA extraction, quantitation, PCR amplification and capillary electrophoresis; DNA interpretation procedures and statistical analysis; and of the tools necessary to evaluate the DNA evidence.

Ability to implement new analytical developments, and ability to modify processes to resolve novel, obscure, or problems that affect the analysis.

Ability to research skills, interpretation, and application of a broad range of qualitative and quantitative data using a variety of diverse methods.

Knowledge of, and ability to apply and implement quality assurance and quality improvement methods and techniques in accordance with D.C. and Federal laws, codes and regulations pertaining to forensic science; and the ability to apply ISO 17025 accreditation standards and FBI Quality Assurance Standards to current work.

Ability to apply preservation and chain of custody laws, rules, policies and procedures to ensure evidence integrity, and expertise of safety practices and procedures as they apply to analyses in the laboratory; and knowledge of the rules of evidence and methods used in presenting evidence in court.

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Skill and ability to use a personal computer to apply various forensic software applications; and skill and ability to use a personal computer to prepare, store, and retrieve data and knowledge of software affiliated with the assignment.

Ability to work well both independently and as part of a professional management team in a multi-cultural workplace and interpersonal skills is required to work effectively with a diverse staff, external agencies, and the public; and the ability to work safely without presenting a threat to self and others is essential.

Ability to testify effectively in court as an expert witness in legal proceedings.

SUPERVISORY CONTROLS

Works under the manager or supervisor, who provides administrative direction in terms of techniques, desired results, changes in regulatory constraints and, or methods and procedures that may apply to complex situations.

Independently plans and carries out individual assignments; determines the validity of test methods and results and recommends acceptance or rejection of evidence items; exercises independent responsibility and is held accountable for actions and findings; coordinates work efforts with others when necessary; and consults and keeps the manager, team leader, technical leader and supervisor apprised of unusual technical problems, best practices and controversial issues.

Completed assignments are reviewed for conformance to guidelines, deadlines, and expected results and adherence to requirements.

GUIDELINES

Guidelines include policies and procedures of DFS, governing laws, regulations and protocol of the District and Federal Government, Mayor's Orders, instructions, and the Deputy Mayor's policy and priorities. Incumbent exercises sound judgment in choosing, interpreting, or adapting available standards and guidelines to specific issues or subject. Many situations are not covered by the guidelines, and therefore, require interpretation and adaptation.

Sound judgment is exercised when selecting, interpreting, or adapting available standards and guidelines to specific work situations and/or cases, however, many situations are not covered by the guidelines, and therefore, requires extensive interpretation and adaptation or research.

COMPLEXITY

Adaptability and flexibility in order to adhere to protocol is essential; the work involves performing case related examinations on samples submitted for forensic biology analysis. Maintains quality control measures and prepares detailed documentation of test results to include laboratory processing, interpretation of DNA profiles, comparisons and statistical analysis. Assignments require the application of procedures; and require identifying problems and anticipating discrepancies in the results. The work

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requires modification and adaptation of various methods to satisfy requirements and to arrive at sound conclusions.

Decisions regarding what needs to be done include major areas of uncertainty in approach, methodology, interpretation and evaluation processes that result from such elements as continuing changes in program, technological developments, unknown phenomena, or conflicting requirements.

SCOPE AND EFFECT

Work involves performing case related examinations on samples submitted for forensic analysis. Maintain quality control measures and prepares detailed documentation of test results. Assignments require the applications of procedures; and require identifying problems and anticipating discrepancies in the results. The work requires modification and adaptation of various methods to satisfy requirements and to arrive at sound conclusions.

Work products directly affect the design and execution of experiments; the operation of systems, programs, or equipment systems; or the adequacy of such activities as long range work plans, field investigations, testing operations, or research conclusions. The results of the work may also affect other experts and/or the department's credibility, adequacy, accuracy and effectiveness of laboratory tests. The results are also binding and affect judicial proceedings.

PERSONAL CONTACTS

Contacts are with DFS employees, laboratory personnel, equipment maintenance representatives, consultants, Federal, District and accreditation regulatory agencies, and members of the criminal justice community (law enforcement personnel, attorneys, etc); and contacts are usually established on a routine basis.

PURPOSE OF CONTACTS

Purpose of contacts is for exchanging, coordinating or resolving operational problems. Persons contacted are usually working toward a common goal and generally are reasonably cooperative. At this level, supervision is rarely required to deliver information, such as how data was obtained and their opinion as to the accuracy of the data.

PHYSICAL DEMANDS

Work is sedentary, however, some work requires periods of walking, standing, bending, climbing or driving a motor vehicle. Also, some work requires sufficient personal agility to possibly advise on the collection and processing of evidence at a variety of crime scenes. Occasionally carry items weighing up to 50 pounds, such as bags and/or boxes of evidence, small instruments or samples, and other similar materials. Incumbent must possess sufficient manual dexterity to manipulate and operate laboratory equipment; must be able to visually distinguish color, shape, size, number and picture resolution quality; and must be able to withstand exposure to disagreeable elements such as malodorous and/or decomposing samples/bodies, blood, bodily fluids, etc.

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WORK ENVIRONMENT

The work environment includes office setting, laboratory conditions, training facility, and courtrooms. The incumbent may be exposed to hazardous materials, toxic substances, blood borne pathogens, and is required to follow safe laboratory practices and wear protective clothing, including facial masks, safety glasses, gloves, ear protection, etc.

OTHER SIGNIFICANT FACTS

Shall have a minimum of two (2) years of experience with reporting the interpretation of mixture DNA profiles in casework.

Bachelor's or an advanced degree in a biology, chemistry or forensic science-related area is required; documented training in statistics or population genetics is required; shall have successfully completed coursework (graduate or undergraduate level) covering the following subject areas with a minimum of nine cumulative semester hours where the following topics were an integral component of the coursework: biochemistry, genetics and molecular biology. Any analyst appointed on or after June 2019 must have successfully completed coursework covering statistics and/or population genetics.

Competency/Proficiency Testing:

Incumbents are required to successfully complete competency testing prior to beginning casework in a specialty discipline or sub-discipline; and successfully complete routine proficiency testing as required by accreditation standards.

May be required to attend training at an out-of-state facility for an extended period of time, up to six consecutive months with the year.

The nature of the work in the Forensic Science Laboratory requires safe handling and processing of chemicals and reagents within the laboratory, and standard health and safety processes must be constantly demonstrated and reinforced.

In addition to the above listed education requirement, individuals assigned to the Forensic Biology Unit are required to meet educational standards for an analyst detailed in the current revision of the Quality Assurance Standards for the Forensic DNA Testing Laboratories/Convicted Offender DNA Databasing Laboratories issued by the FBI Laboratory Director.

Industry certification is favorably considered.

Shall have a minimum of five (5) years of experience reporting the interpretation of mixture DNA profiles in casework, demonstrate a mastery of processing and reporting highly complex DNA casework and interpretation, successfully completed training to perform technical review of their peers' work and perform a significant additional unit specific duty required to support casework operations prior to the advancement to a CS-13 level.

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SPECIAL REQUIREMENTS

This position's duty station will be housed within the Consolidated Forensic Laboratory (CFL) which is a protection-sensitive facility. As such, incumbents of this position shall be subject to criminal background checks, background investigations, and mandatory drug and alcohol testing, as applicable. Due to the handling of primary evidence, the applicant will be required to submit a buccal swab for the purposes of the DNA Quality Control database for the DFS.

The nature of the DFS mission necessarily involves the potential risks associated with biological or chemical hazards, including morgue functions. Although contact with these functions is intended to be minimal, the risks are nevertheless possible; training to recognize, address, and mitigate these risks is required as is dealing with potentially personally difficult topics, such as crime, death, and disease.