

### Class Concept

Positions serve as technical experts in postmortem forensic toxicology. Positions develop and perform a variety of highly complex and advanced laboratory diagnostic work to identify the presence or extent of toxicity of drugs, environmental toxins, or synthetic toxic substances which may directly or indirectly cause death. Positions provide professional, diagnostic, and technical direction for laboratory assay method development, implementation, quality assurance, technical training, problem assessment, and routine maintenance of cutting-edge forensic toxicology techniques in a postmortem toxicology laboratory. Assays are often considered "laboratory developed tests" (LDTs) requiring advanced training and experience in method development and are more complex than other assays performed using commercially available and/or Food and Drug Administration cleared kits.

Positions work independently to perform technical reviews and certifications of final reports on volatile and comprehensive drug toxicology to include Tier I: Volatiles; Tier II: Carbon monoxide; Tier III: Negative targeted drug screen (TDS) and/or select central nervous system depressants/stimulants (e.g. illicit fentanyl, cocaine, methamphetamine), and other select substances not impacting interpretation of findings; Tier IV: All other targeted drug screen confirmations including, but not limited to, prescription opioids, selective serotonin uptake inhibitors (SSRI), and benzodiazepines involving additional liquid chromatography (LC) mass spectrometry; and/or Tier V: Select organic bases and acidic neutral drugs. In formulating results and relating these chemical analyses to the cause and manner of death, positions exhibit an in-depth understanding of biological sciences to include biochemistry, toxicology, anatomy, and physiology as well as fundamental concepts of pharmacy, medicine, and law. Positions must be able to integrate applications of theoretical chemistry into work decisions and must apply toxicological findings within the broad field of public health. Positions must understand drug interactions, disease etiology, characteristics and nature of an extensive variety of synthetic and naturally occurring toxic substances, methods of medicolegal investigation, and concepts of forensic science. Positions may develop procedures and methods for new drugs or poisons and assist in the quality assurance program.

At a level II, positions are subject matter experts possessing extensive knowledge of a wider array of drugs and comprehensive knowledge of all levels of testing. Significant independent judgment is required to certify cases with increased complexity and an increased number of interacting drugs causing toxicity and/or death.

Work in this class includes training, technical assistance, and consultation regarding laboratory activities. Positions train and advise agents and other law enforcement officers. Work includes testifying in court or at hearings as a technical expert, conducting consultations and participating in pretrial conferences with prosecutors and defense attorneys, in addition to providing guidance to law enforcement officers in the collection and preservation of document evidence. Positions typically report to the Chief or Deputy Chief Toxicologist. Positions may lead Forensic Toxicologist Is, Chemists, and other laboratory staff in daily operations and projects.

### Recruitment Standards

#### Knowledge, Skills, and Abilities

- Thorough knowledge of the principles, practice, and current developments in the field of forensic toxicology
- Thorough knowledge of theoretical principles of analytical chemistry, physiology and pharmacology, biological science, drug interaction, toxicogenomics, biochemistry, toxicology, anatomy as well as the fundamental concepts of pharmacy, medicine, and law
- Thorough knowledge of laboratory protocol, procedure, and techniques associated with medicolegal investigative principles for operations of analytical instrumentation
- Ability to interpret and apply analytical results on causes and manner of death according to professional standards and ethical practices
- Ability to maintain professional working relationships with forensic staff, law enforcement authorities, physicians, and attorneys in North Carolina

Note: This is a generalized representation of positions in this class and is not intended to identify essential functions per ADA.

- Ability to express technical information clearly both orally and in writing when reporting results, testifying, or explaining procedures to others

**Minimum Education and Experience**

Doctorate degree in toxicology, biochemistry, chemistry, or pharmacology with three years of experience in forensic toxicology or in a clinical chemistry laboratory; or

Master's degree in toxicology, biochemistry, chemistry, or pharmacology with at least five years of experience in forensic toxicology or in a clinical chemistry laboratory; or

Bachelor's degree in toxicology, biochemistry, chemistry, or pharmacology chemistry with at least seven years of experience in forensic toxicology, a medical examiner system, or in a clinical chemistry laboratory; or an equivalent combination of education and experience.