

# WISCONSIN STATE CRIME LABORATORY SYSTEM

Wisconsin  
Department of Justice  
J.B. Van Hollen  
Attorney General

## CAREERS IN FORENSIC SCIENCE



## Mission & Objectives

The mission of the Wisconsin State Crime Laboratory System is to provide the criminal justice system with the highest quality forensic analysis and to complement this analysis with competent expert testimony for the trier of fact. This mission is shaped by legislation and by the policies and programs of the Attorney General as head of the Wisconsin Department of Justice.

In order to fulfill this mission, the Laboratory System developed the following objectives:

- Maintain technical proficiency in current scientific methods and initiate the use of new methods that will improve the quality of the Laboratory System's work.
- Utilize new technology to improve the significance of results. Provide training, as technology improves, to law enforcement officers and related professionals in processing and collecting meaningful items of physical evidence for submission and evaluation.
- Cooperate, within the limitations of our resources and our competence in the forensic sciences, in criminal investigations both in the Laboratories and by providing personnel and equipment for crime scene processing.

## Scope of Service

The Wisconsin Crime Laboratory System is entrusted by statutes to provide technical assistance to the criminal justice system in the investigation of criminal matters. This technical assistance involves the recognition, recovery, packaging, marking, sealing and analysis of physical evidence, preparation of technical reports of the analyses and court testimony. Laboratory staff also participate in the training of law enforcement officers in advanced evidence handling procedures and the processing of some crime scenes.

## Careers in Forensic Science

A career in Forensic Science is rewarding in many ways. Forensic scientists use their skills in the pursuit of justice. Scientific fact adds certainty to the judicial process. Scientific evidence helps prosecutors make correct charging decisions and shapes the prosecutor's strategy. Scientific clues assist investigators in identifying criminal suspects. All of this contributes to the quality of justice and safer communities. Many who enter the field of Forensic Science choose to remain for their entire career. These rewarding careers can lead to supervisory and administrative positions within the Wisconsin State Crime Laboratory system.

## History



The Wisconsin State Crime Laboratory System was established on August 8, 1947 when Chapter 165 of the Wisconsin Statutes was approved and published. The first Laboratory

Superintendent, Charles M. Wilson, was hired to establish a laboratory in the Capitol Building in Madison. Shortly thereafter, the Laboratory moved to another location in Madison, and continued to serve the entire state until 1974.

A second full-service laboratory was opened in 1974 in New Berlin to serve the eight-county Milwaukee metropolitan area. In 1984, this Laboratory moved to Milwaukee. The service area for the Madison Laboratory was reorganized further with the development of a limited-service laboratory in Wausau to provide service to the forty northern counties of Wisconsin. The Drug Identification Unit of this Laboratory began operation in August 1991, followed by the Identification and Photography Units in 1992. Both the Madison and Wausau Laboratories currently equip and staff a Field Response Unit for crime scene evidence recovery.

The Wisconsin State Crime Laboratories are accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB).

## Drug Identification

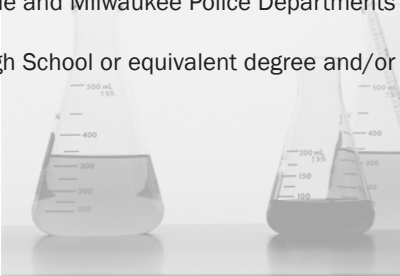
The Drug Identification Units perform chemical, microscopic and instrumental examinations on a variety of unknown substances in order to extract and identify any controlled substances that are present. These include solids, liquids, pharmaceutical products and plant materials. Trained and certified individuals from these Units assist in the collection of evidence from clandestine drug laboratory operations. Required educational background: A bachelor's degree in chemistry or a closely related field.



## Automated Fingerprint Identification System (AFIS)

The AFIS Specialist Unit operates the Automated Fingerprint Identification System (AFIS), providing identification information to all law enforcement agencies in Wisconsin. AFIS is a computer-based system for reading, cataloging, searching, matching and storing fingerprints, palm prints, latent prints and related demographic data. This system interfaces with the FBI's integrated Automated Fingerprint Identification System (IAFIS). The AFIS system serves as the central repository for fingerprint identification records relating to persons arrested throughout the state. Fingerprint and palm print images are captured electronically by Wisconsin law enforcement agencies. The AFIS Specialist processes electronic fingerprints and palm prints for the purpose of establishing positive identification and creating an individual's criminal history record. AFIS Specialists perform quality control on images and finger sequence errors for all fingerprint records, of poor quality. AFIS Specialists also perform verifications of all possible matches for both ten print-to-ten print searches and ten print-to-unsolved latent searches. All ten print and palm print arrest records are searched through AFIS against the unsolved latent print database in an attempt to identify suspects that leave their prints at crime scenes. Fingerprint and palm print data entered into the state's AFIS and processed by the AFIS Specialist is shared statewide by the AFIS remote sites located at the Crime Laboratories in Madison, Milwaukee and Wausau, the Madison, Green Bay, Racine, Sun Prairie and Milwaukee Police Departments as well as the Milwaukee County Sheriff's Office.

A High School or equivalent degree and/or FBI certified training is required for this position.



## Trace Evidence

The Trace Evidence Units perform microscopic, physical and chemical examinations on a wide variety of submitted samples, including minute quantities of ignitable liquids, explosives, fibers, glass, metals, paints, plastics and various synthetic materials, as well as other unknown organic and inorganic materials. The results of these analyses may identify the material or its constituents and in some cases be taken a step further and compared to a known or reference material to show that the known and questioned material could have a common source of origin. A bachelor's degree in chemistry or closely related field is required.



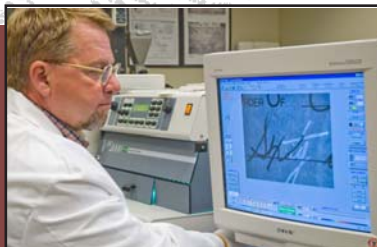
## Fingerprint and Footwear

These Units perform chemical and physical examinations on items of evidence in order to locate and visualize fingerprints, palm prints, footwear impressions, tire tracks or other imprints. Developed prints, imprints or impressions are then visually compared with those prepared from known or standard sources in order to determine the identity or source of the unknown print. Unknown fingerprints may be searched against standard fingerprints contained in the Automated Fingerprint Identification System (AFIS) maintained by the Crime Information Bureau and by the FBI. A bachelor's degree with science courses is required.



## Questioned Document Examination

The Questioned Document Units perform comparative, and instrumental analyses on samples of handwriting, typing, printing, stamping; on instruments used for typing, printing, stamping or duplicating; and on inks and paper in order to determine the authenticity of handwriting or documents or to identify the source of the handwriting or printing. These Units also restore and decipher obliterated or indented writing or printing as well as charred or otherwise damaged documents. A bachelor's degree with science courses is required.



## Forensic Imaging Analysis

The Forensic Imaging Units examine, prepare and record physical evidence using specialized lighting techniques and complex photographic or video recording procedures. These Units also duplicate, produce or enhance audio and video images from various electronic media. Recommended educational background: An associate's degree in photography or a closely related field, with science courses.



## Crime Scene Response

Teams consist of Crime Laboratory analysts trained in the identification, collection and preservation of physical evidence are ready to respond to crime scenes 24 hours a day, 365 days a year. The analysts take specialized skills from the bench into the field to assist law enforcement in processing scenes of violent crimes. Team members thoroughly document crime scenes, often using sophisticated imaging and mapping techniques. Analysts from various Units of the Laboratory process crime scenes utilizing such skills as the recovery of latent fingerprints, and footwear impressions, collection of biological substances, and the determination of bloodstain patterns and bullet trajectories. Critical items of evidence recovered by crime scene response teams are submitted to the Crime Laboratory for further scientific examination by the appropriate Units.



## Support Staff and Forensic Program Technicians (Evidence Specialists) Unit

This Unit provides a broad scope of support to the entire analytical and management staff. The front desk staff greets visitors, works with law enforcement officers to obtain case background information, schedules court, arranges transportation, and keeps files.

The Evidence Specialists receive, receipt, mark, and store all evidence received at the Laboratory from law enforcement agencies. Duties also include distributing evidence to analysts to be examined and returning items of evidence to submitting agencies upon completion of analysis. Evidence Specialists also prepare bloodstain cards from tubes of blood received for the DNA Unit and also verify that incoming firearms submitted for analysis are not loaded. These employees will testify in court when needed on the chain of evidence.

Recommended educational background: A high school diploma is required. Ability to work with public, handle fast-paced atmosphere, an excellent attention to detail utilizing proof-reading skills and computer skills recommended.



## DNA and the DNA Databank

The DNA and the DNA Databank Units examine biological materials such as blood, semen and saliva. These biological stains are characterized using STR (Short Tandem Repeat) technology and compared to standard samples from individuals who may have contributed the biological stains. Generally, biological stains are shown to be unique to one individual. Hairs that contain roots can also be analyzed using these same techniques.

The DNA Databank Unit maintains a computerized file of DNA profiles collected from convicted felons. This file and its national counterpart are used to identify potential suspects from the DNA containing materials left behind at crime scenes. Required educational background: A bachelor's degree in biology, genetics, molecular genetics, biochemistry, chemistry or a closely related field and completion of the required core courses of genetics, molecular biology and biochemistry.



## Toxicology

The Toxicology Units conduct chemical and instrumental examinations that extract, identify and quantitate street drugs, prescription drugs, over-the-counter medications, alcohols and a variety of poisons from biological samples such as blood, urine and recovered tissue samples. Required educational background:

A bachelor's degree in chemistry or a closely related field.



## Firearms and Toolmark Examination

The Firearms and Toolmarks Units examine and test-fire firearms. The Units' examiners conduct comparative microscopic examinations on fired bullets and cartridge cases to determine whether the evidence was fired by a specific gun. Recovered cartridge cases not associated with any known firearm may be searched against image patterns stored in the National Integrated Ballistic Information Network (NIBIN) database. In this way cartridge cases from separate shooting incidents may be linked to a common gun and possibly to a single shooter. These Units also perform tests on gunpowder patterns to determine the apparent distance between a firearm and a shooting victim at the time of the gun's discharge. Toolmarks observed at a crime scene are examined to determine the type of tool used to make the toolmark. If a tool is submitted, comparative microscopic examinations of the toolmarks might identify the specific tool as the tool used in the crime. Various techniques are applied to obliterated serial numbers to restore the original number, especially to numbers stamped in metal. Bachelors degree with science courses.





For additional information check the Department's web site or email the Human Resources Bureau

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