CSI
Currently the fictional character du jour, the CSI’s job is anything but glamorous. They’re responsible for collecting evidence like fibres, fingerprints, hair, or other particles from the crime scene. A major part of their duty is ensuring that evidence is secured and transported safely back to the laboratory.

CSIs aren’t always police officers – many are professional specialist researchers. But whoever performs the task, it’s their job to ensure the scene of a crime is documented and photographed in the minutest detail. CSIs demand as little activity as possible at the scene of a crime – this prevents any evidence or potential clues being disturbed or destroyed.

CRIMINALIST
What is a criminalist?
Criminalists identify, compare, analyze, and interpret physical evidence.

What do criminalists do?
A criminalist’s primary role is to objectively examine physical evidence using investigative skills and practical experience. It is the criminalist’s job to separate important evidence from trivial evidence that has little or no intrinsic value. Using scientific methods the criminalist then identifies, sorts, and compares the evidence in a way that will be useful to the trial or investigation. Interpreting the evidence, and the results of various tests in order to determine the truth, may be the most important work a criminalist does. Accurate interpretations of evidence and test results help identify the circumstances at the time a crime was committed, and may reinforce a witness’ statement. Lastly, criminalists supply written reports of their findings, and, may offer an expert testimony in court.

Where do criminalists work?
Criminalists work in sheriff’s offices, state and regional agencies, forensic laboratories in police departments, medical examiners’ offices, colleges and universities, attorney’s offices, federal agencies such as the FBI and DEA, and for various private companies.
What kind of training will I need to break into the field of criminalistics?

In order to become a criminalist, applicants will need to acquire a minimum of a bachelor’s degree in the physical, biological, or forensic sciences. Applicants must also complete at least 24 semester hours of either biology or chemistry, and math. The actual courses completed are more important than the degree title given to the graduate. Because scientific advances are continually unraveled at a rapid pace, continuing education classes are also required, and will need to be taken throughout your career.

What are the licensing or certification requirements for criminalists?

Currently, there are no mandated licensing requirements for crimanlists. However, the majority choose to become certified by the American Board of Criminalistics. In some cases, entire forensic laboratories may be accredited by organizations such as the American Society of Crime Laboratory Directors/Laboratory Accreditation Board.

What is the salary range for criminalists?

According to the Bureau of Labor Statistics, experienced criminalists earn annual salaries between $35,000 and $50,000. Typically, the salaries of Federal crimanalists are higher.

Latent Print Examiner

These Criminalists are responsible for making copies of prints found at the crime scene, and checking them against known criminal’s prints on a central database. Their targets include fingerprints, palm prints, and footprints.

Our fingerprints are entirely unique, remaining the same throughout our lives. Though the basics of identifying a suspect by latent prints haven’t changed for almost a century, the methods of recording and comparing them has.

The constant reliability of fingerprints means that technology now plays a huge role in recording and comparing prints. Recognition software, digital scanning, and huge databases also mean the print examiner’s job is now easier and more efficient.
**Firearms Examiner**

Gun crimes are on the increase – rising steadily by 3% in the UK last year alone. Consequently the services of firearms examiners are in constant demand. Trained to recognize weapons and ammunition, firearms examiners analyse the ballistic properties of bullets and build a picture of what happened to them once they left the gun.

Firearms investigators also establish vital clues at the crime scene. For example, it’s their responsibility to determine how far the victim was from the gun - or, if it was fired from a distance, estimate the bullet trajectory. They also compare bullets and their casings under a microscope to corroborate the type of weapon used to fire it.

**Toolmark Examiner**

Tools are often used during a crime - a crowbar that’s used to prise open a window, for example. And just like a fingerprint can frame a crook – toolmarks left behind in paint, putty, plaster, or wood can be equally incriminating.

Tools have distinguishing features – not just their physical design, but also the material they’re manufactured with. The actual striation marks within the metal a tool is forged from can be compared, matched, and used as leverage to bring about an arrest.

Slide marks and cutting marks made by tools on other materials can also reveal a wealth of information under a comparison microscope.
**Document Examiner**

Paper-trails have been long been a mainstay to bringing about a conviction. But there are other methods a document examiner has at their disposal. Detailed analysis of handwriting, for example; or inspecting the physical properties and analysing the chemical properties of a particular ink or paper.

Sometimes, proving that a suspect has erased a part of a document can expose and establish a line of enquiry. A powder - known as Lycopodium - can be dusted across a document to reveal the presence of rubber from an eraser.

Burnt documents don’t always get rid of the evidence either – investigators spray the scorched paper with a dissolved vinyl solution to stiffen and protect the charred remains. The papers can then be photographed and analysed back at the lab.

**Trace Evidence Examiner**

We go through our lives constantly picking up and depositing tiny samples of material – dust, skin, fibres – all sorts of stuff. For the most part it all goes completely unnoticed. However, when a serious crime takes place all these examples of trace evidence become an invaluable source of for Criminalists

No matter how careful a criminal is in covering their tracks, trace evidence is impossible to banish completely. Sometimes a couple of fibres of clothing may be the only solid piece evidence the police have to go on.

Hair shed by the victim could have found its way under the seat of a car, or carpet fibres may have adhered to the sole of a victim’s shoe. Something so seemingly insignificant can prove to be a criminal’s undoing.
Pathologist

Experts in understanding how the body functions in life, Pathologists are equally knowledgeable on the gradual decay once the spark has gone out. In fact, death is their stock in trade.

These highly specialised physicians determine the structural and functional changes taking place in a body. They do this using a variety of methods – usually during autopsy. The Pathologist examines the body by cutting it open to inspect the internal organs and establish time and cause of death.

For example, the gastric process shuts down at the time of death so analysing undigested food left in the stomach gives some idea of what happened in the hours and minutes leading up to the event.

Of course, Pathologists also work with the living. They’re often called in to can determine how an injury has come about during an assault or a rape. The Royal College of Pathology refers to their work as hidden science.

FORENSIC SCIENCE

Forensic Scientist Job Description

Forensic scientists help solve crimes by collecting and analyzing physical evidence and other facts found at the scene. They specifically analyze fingerprints, blood, semen, firearms, saliva, and drugs, and may also reconstruct skeletal bones. In addition, forensic scientists write reports, preserve evidence, testify in court, and discuss evidence collection with attorneys and law enforcement personnel. Often times, the scientific breakdown of evidence is crucial in determining an accused person’s guilt or innocence in a crime. Therefore, the role of forensic scientists is vital to the criminal justice process.

Education Requirements

A four-year degree in physics, biology, microbiology, chemistry, medical technology, or genetics, is required in order to obtain an entry-level job in forensic science. Taking classes in law and communication can also be helpful. In addition, experience in a laboratory may be required by some crime labs.

Special Skills

The field of Forensics requires scientists to work with a wide assortment of people, in situations that are often stressful. Because of this, it is crucial that people working in this profession have exceptional "people” skills. It is also important for forensic
scientists to be good speakers and proficient writers as they will be required to write up a number of reports, and may be called upon to witness in court. Lastly, because forensic scientists must be to handle minute pieces of evidence while looking through a microscope, excellent hand-eye coordination is essential.

**Salary and Benefits**

Most forensic scientists work for federal or state crime laboratories. Because they are primarily government run, some medical and retirement benefits may be paid by these establishments.

On average, beginning forensic scientists working at the state level are paid a monthly salary of about $1,900. Those with previous laboratory experience earn significantly more, up to $3,000 per month. Salaries vary from state to state; but with experience, forensic scientists may eventually earn annual salaries between $35,000 and $50,000.

**Working Conditions**

Forensic scientists employed by the government are typically able to work a 40-hour work week. However, specific deadlines, and an increasing number of caseloads may require overtime.

Although they spend the majority of their time working a crime lab, forensic scientists are often called to crime scenes in order to examine, analyze, and secure evidence. They may also be asked to testify in court.

**Job Outlook for Forensic Science Professionals**

Forensic scientists who are skilled and experienced are continuously being sought after. However, because of constant pressure to decrease the amount of funding given to such areas, beginning positions are typically limited, and competition for hire is fierce. Overall outlooks for jobs in this area are fair to moderate.

**Coroners & M.E.s**

Ultimately, it’s Coroners and Medical Examiners (MEs) who lead the forensic science team. Coroners are generally appointed to oversee the enquiry and do not necessarily have any medical or forensic skills. MEs are generally trained pathologists with extensive experience in forensics. Coroners that don’t have forensic expertise normally appoint an ME as their deputy. MEs work in parallel with the police, supplying them with their findings throughout the investigation. They are responsible for overseeing the forensic investigation and presenting the results in court. They are also responsible for establishing identity of the body, determining the time and cause of death, and signing the death certificate.
FORENSIC PSYCHOLOGY

Forensic Psychologist Job Description

Forensic Psychologists apply psychology to criminal justice. Although similar in some aspects, forensic psychology is different than forensic science. One major difference is that forensic psychologists look deep into the immense psychological perspectives associated with the crime and apply them to the case so that justice might be served. They frequently deal with legal issues such as news law, and public policies, and are asked to determine the mental state and competency of the defendant at the time of the crime, and throughout the legal proceedings. Each of these issues blends law topics and psychology together, and is essential to the field of Forensic Psychology. Forensic Psychologists also use their knowledge of psychology to analyze a criminal’s mind and intent, treat mentally ill offenders, practice within the civil arena, and consult with attorneys.

Education Requirements / Special Skills

Very few academic institutions offer degrees specifically focused on Forensic Psychology. Therefore, individuals who are interested in pursuing a career in Forensic Psychology should take an academic course load centered on criminal justice and psychology classes. Other classes that help prepare students for the field of Forensic Psychology include: cognitive, clinical, criminal investigative, social, and developmental psychology.

Some forensic psychologists choose to focus their careers exclusively on research, which ranges anywhere from learning how to improve interrogation methods to the detailed assessment of eyewitness testimony. Public policy is another area of interest for forensic psychologists. In this line work forensic psychologists act as researchers helping to design prisons and other correctional facilities. Most often Forensic Psychology includes areas between the conventional options of criminal justice (i.e, law enforcement, academic training, and corrections).

Most positions within this specialized area require more than a bachelor’s degree to be successful. In fact, a doctoral degree is required in order to become a licensed psychologist. For those interested in pursuing a career in Forensic Psychology, there are some important undergraduate classes that should be taken. These include: statistics, criminology, abnormal psychology, social psychology, and criminal law. One of the most valuable classes an undergraduate student could take would be motivational psychology. It’s helpful for students to understand the motivation behind why people chose to act and think in certain ways early on in their education. Another helpful piece of advice for students interested in the field of Forensic Psychology is to enroll in a bachelor’s of science program rather than earn a degree as a bachelor of the arts.

Persons who have earned M.A. degrees in clinical psychology typically work in institutions, with a Ph.D. holder supervising them. Because forensic psychologists with a master’s degree can be paid less than those who have obtained a doctorate, many are often employed at correctional facilities. Master’s degree graduates, who attended a college concentrating on cognitive, social, and developmental psychology, generally have more opportunities than those graduating with a clinical degree because they will not be evaluating patients. They can do research for non-profit
organizations, or for the government, and may also involve themselves in policy making.

**Job Outlook for Forensic Science Professionals**

Over the last 20 years, the field of forensic psychology has maintained a steady growth rate. It is expected that over the next ten years, consultation, research work, and clinical practice in psychology and the law will continue to grow. Positions working with lawmakers, attorneys, and the courts are predicted to have the highest demand. It is also expected that jobs working in colleges and universities, teaching and doing research, will continue to increase. Changing laws and the development of new and innovative ways to deal with juvenile offenders has become popular subjects of exploration amongst forensic psychologists. Their expert advice can be vital to the decisions made regarding such delinquents. Those with doctorate degrees will have an edge over those with master’s degrees and will have many more opportunities for employment. Those with only a bachelor’s degree will find specializing in this field to be almost impossible.

---

1 Prepared by Sharon RedHawk Love, Ph.D., Penn State Altoona, Criminal Justice Program.