

FORENSIC SCIENCE

What can I do with this major?

AREAS

Many students specialize in forensic science at the graduate level. Some areas of specialization follow.

CRIMINALISTICS/CRIME SCENE INVESTIGATION

Crime scene reconstruction and mapping
Fingerprint examination
Firearm and toolmark identification
Fire and explosives investigation
Trace evidence collection
DNA collection and testing
Drug analysis
Photography
Blood spatter
Wildlife forensics
Computer evidence examination/Computer forensic science

EMPLOYERS

Forensic laboratories:
Medical examiner
Coroner
Police department
Sheriff
District attorney
Federal agencies:
Drug Enforcement Agency
Bureau of Alcohol, Tobacco and Firearms
U.S. Department of Justice
Federal Bureau of Investigation
Central Intelligence Agency
U.S. Secret Service
Federal Emergency Management Agency
U.S. Fish and Wildlife Service
Naval Criminal Investigative Service
National Institute of Standards and Technology
Consulting firms

STRATEGIES

Complete a bachelor's degree in anthropology, biology, molecular biology, chemistry, physics, or a related science. Supplement major with math, English, public speaking, and forensic science classes.
Choose courses with laboratory components to build instrumentation skills.
Seek experience through volunteer positions and/or internships in criminal justice settings.
Consider completing a forensic research project in partnership with a professor.
Join student chapters of professional organizations such as the Association for Crime Scene Reconstruction and the American Academy of Forensic Sciences.
Attain proficiency in writing and understanding scientific reports.
Pursue certification by the American Board of Criminalistics.

TOXICOLOGY

Ante-mortem investigation (DUI)
Post-mortem investigation
Drug testing (sweat, hair, saliva, blood, urine, etc.):
Workplace
Crime-related investigation
Human performance monitoring
Animal performance monitoring
Environmental contamination testing

Laboratories:
Law enforcement/Crime
Hospital
Medical examiner
Coroner
Horseracing
Sports testing
Private
University
Government
Consulting firms

Complete an undergraduate degree in a science such as chemistry, clinical chemistry, medicinal chemistry, pharmacology, or related field.
Supplement degree with coursework in physics, computer science, statistics, math, and forensic science.
Seek laboratory experience to develop knowledge of analytical chemistry techniques and instruments such as gas and liquid chromatography, mass spectrophotometry, UV-Visible spectrophotometry, etc.

AREAS	EMPLOYERS	STRATEGIES
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TOXICOLOGY Continued

Develop excellent report writing and public speaking skills, as forensic toxicologists may be required to describe complex processes to people without scientific training.

Join student chapters of professional organizations such as the American Academy of Forensic Sciences.

Plan to pursue a master's degree or Ph.D. in forensic toxicology for increased opportunities.

Investigate certification options offered by The American Board of Forensic Toxicology or The Forensic Toxicology Certification Board.

QUESTIONED DOCUMENTS

Document (handwritten, typed, printed, copied, etc.)

- Examination/Analysis
- Comparison
- Authentication
- Dating
- Alteration detection
- Restoration

Police departments

Sheriff offices

Crime labs

Law offices

Insurance companies

Hospitals

Government agencies:

- State and federal bureaus of investigation
- U.S. Postal Inspection Service Headquarters
- U.S. Secret Service
- U.S. Armed Forces

Private practice

Obtain a bachelor's degree in a science discipline such as biology or chemistry.

Take courses in forensic document examination, forensic science, criminal justice, or criminalistics.

Cultivate attention to detail and laboratory techniques used for physical and chemical analyses.

Develop communication skills including public speaking to provide expert testimonials and written communication skills for compiling reports.

Become familiar with various types of paper, ink, toner, correction material, printing processes, etc.

Maintain current knowledge of new technologies in the field through journals (e.g., Journal of the American Society of Questioned Document Examiners) and/or membership in professional organizations (e.g., the American Academy of Forensic Sciences).

Plan to complete a two-year apprenticeship under the supervision of a recognized professional affiliated with the American Board of Forensic Document Examiners.

AREAS	EMPLOYERS	STRATEGIES
<u>ODONTOLOGY</u> Post-mortem identification (mass fatalities, homicide) Age estimation DNA collection and testing (salivary) Dental malpractice Death Investigators	Medical examiners Coroners Government agencies U.S. Armed Forces Law firms Clinics Private practice	Forensic odontologists typically serve as general dentists and perform “on call” forensic examinations on contractual bases. There is no specific major required to apply to dental school though many students major in biological sciences. Research prerequisites for dental schools and choose an undergraduate major that matches your interests and program requirements. Develop attention to detail, fine motor skills, and patience. Earn superior undergraduate grades and secure strong faculty recommendations for admission to top-tier dental schools. Prepare for the Dental Admissions Test (DAT) as DAT scores are a major consideration for acceptance into dental school. Plan to shadow dentists and conduct informational interviews, particularly with those who perform forensic examinations. Join student chapters of related organizations such as The American Society of Forensic Odontology and/or the American Academy of Forensic Sciences. Expect to spend about eight years in school-- four at the undergraduate level and four for dental school. Pursue certification offered by the American Board of Forensic Odontology which requires documentation of work in the field and examinations. Complete Medicolegal Death Investigator Certification

AREAS	EMPLOYERS	STRATEGIES
<u>PATHOLOGY/MEDICAL EXAMINER</u> Post-mortem investigation - Post-mortem identification - Post-mortem examination/Autopsy - Cause/Manner of death determination - Physical evidence collection/Analysis - Disease study Clinical forensic pathology (investigations of the living) - Injury interpretation (abuse)	City, county, state and federal governments U.S. Armed Forces College and university medical schools Hospitals Private organizations	Pursue medical doctorate as forensic pathologists need to have completed an M.D. or D.O.. Consider major that will fit with medical school required course work, usually in biology, chemistry, organic chemistry, and physics. Engage in activities and experiences to develop leadership, research, and collaboration skills. Explore supplementing coursework with forensic science classes to increase knowledge of principles, practices, and techniques relevant to investigations. Earn high grades and seek strong faculty recommendations for admission to medical school. Prepare appropriately to earn a high Medical College Admission Test (MCAT) score. Volunteer/shadow in healthcare environments such as hospitals, clinics, or medical examiner offices. Participate in student chapters of health or forensic-related professional organizations such as the National Association of Medical Examiners; pursue leadership roles. Develop strong oral and written communication skills for speaking with non-medical professionals, including victim families and jurors, and for completing detailed reports. Demonstrate manual dexterity, fine motor skills, and problem solving skills. Expect to spend 13-15 years in school--four at the undergraduate level, four for medical school, and four to five years of residency. Candidates must complete an additional one to two year forensic pathology fellowship to sit for the American Board of Pathology forensic pathology examination/certification.

AREAS

PHYSICAL/FORENSIC ANTHROPOLOGY

Human skeletal recovery
Human skeletal identification
 Age estimation
 Population affinity, sex, stature determination
 Cause/Time of death determination
Human or nonhuman determination
Soil/Vegetation analysis
Crime scene documentation
Facial identification
Body decomposition
Trauma interpretation
Teaching

EMPLOYERS

Medical examiners offices
Law enforcement agencies
Private labs
Local, state and federal government
U.S. Armed Forces
 Armed Forces Institute of Pathology
 Defense POW/MIA Accounting Agency (DPAA)
Museums
Non-government organizations (e.g., ad hoc tribunals)
Colleges and universities

STRATEGIES

Obtain a bachelor's degree in anthropology or a related field such as biology or sociology with a minor in anthropology.
Complete additional coursework in forensic science, statistics, attend a field school, archaeological recovery, GIS, anatomy, and skeletal biology.
Demonstrate curiosity, analytical thinking skills, and the ability to persevere through potentially lengthy assignments.
Develop strong oral communication skills and learn to write detailed scientific reports.
Seek student-membership in professional organizations such as the American Academy of Forensic Sciences.
Gain research experience by assisting professors or other professionals with forensic anthropology.
Seek internships or volunteer opportunities in museums and prepare to relocate to access the most employment opportunities.
Maintain a high GPA and establish strong recommendations for admission to top graduate programs in the field.
Plan to earn at least a Master's degree in anthropology to access most jobs in the field.
Earn a Ph.D. in physical or forensic anthropology for university and college faculty positions and advanced research posts. Many forensic anthropologists teach and conduct research in addition to casework.
Research certification offered through the American Board of Forensic Anthropology which requires demonstrated experience and examinations.

AREAS

FORENSIC PSYCHIATRY/PSYCHOLOGY

Criminal responsibility determination
Competency determination
Risk assessment
 Sex offender
 Violence
 Suicide
Evaluation
 Involuntary hospitalization
 Right to refuse treatment
Disability compensation
Family/Domestic consultation
 Custody
 Juvenile delinquency
 Parental fitness
 Abuse
 Adoption
Sexual harassment
Workplace violence

EMPLOYERS

Hospitals:
 Prison
 State facilities
Local, state, and federal government:
 Departments of correction
 Federal Bureau of Investigation
Colleges and universities
Private practice

STRATEGIES

Develop social perceptiveness, active listening, oral and written communication, critical thinking, and problem solving skills for employment in psychiatry/psychology.
Earn exceptional grades, secure faculty recommendations, and plan for the Medical College Admission Test (MCAT) or the Graduate Record Exam (GRE).
Seek volunteer, part-time, internship, and/or research experience with professors or clinicians.
Join related student chapters of professional organizations and stay current on research in the field.
Forensic psychiatrists are medical doctors with a specialty in forensic training. They complete M.D. degrees, residency in psychiatry, and often an additional two years of post-residency training in forensic psychiatry. Plan to spend at least 12 years in school.
Research prerequisites for medical colleges and choose an undergraduate major that meets your interests and program requirements.
Learn the requirements for competency in forensic psychiatry sponsored by the American Board of Psychiatry and Neurology.
Forensic psychologists obtain Ph.D. degrees in psychology. They generally earn undergraduate degrees in a behavioral science such as psychology, sociology, anthropology, etc. then complete four to seven years of graduate study.
Plan to pursue a post-doctoral fellowship in forensic psychology.
Secure licensure through your state psychology licensing board.
Inquire about forensic psychology certification through the American Board of Professional Practice in Psychology.

EDUCATION

Teaching
Research
Supervision

Colleges and universities

Seek experience teaching or tutoring.
Develop strong written and oral communication skills and the ability to present material well.
Assist a professor with research and pursue related experience such as volunteer and internship opportunities.
Take coursework related to research and statistics.
Maintain a high GPA and secure strong recommendations from faculty.
Network with others in your field through membership in professional associations and organizations.
Earn master's degree for some post-secondary teaching positions.
Earn Ph.D. for professor positions which can include research, teaching, supervision, and lab administration.

GENERAL INFORMATION

- Students interested in forensic science should note that countless undergraduate majors, minors, and concentrations may lead to work in this field. The coursework is primarily science-based. Students pursuing this path should plan to complete numerous classes in chemistry and biology.
- Beware of inaccuracies of the forensic science field as portrayed on television. Research the field and requirements carefully in advance.
- Most professional forensic science positions require a graduate degree. Research admissions requirements, take prerequisite courses, and plan for admission exams.
- Demonstrate curiosity, analytical thinking, and attention to detail for precise documentation of procedures and findings.
- Develop tolerance for working in extreme conditions at times and in proximity to injury and/or death.
- Expect to work irregular, "on call" hours.
- Gain relevant work experience through internships, part-time jobs, or volunteer positions.
- Join professional associations and community organizations to stay abreast of current issues in the field and to develop networking contacts.
- Read scientific journals related to your area of interest.
- Forensic scientists may deliver expert testimony in court proceedings. Learn to communicate and collaborate effectively with people in and outside of the criminal justice system including attorneys, judges, and members of juries.
- Plan to participate in ongoing training to maintain up-to-date knowledge of technologies/advances in your specialty area.
- Research and maintain current certification for your specialty through accredited organizations.
- Some law enforcement officers work in the forensic science field after receiving specialized training offered by agencies.
- There is no specific path for becoming a profiler. One must have a proven track record as an investigator before being considered for specific training in this area.
- Engineering science is a growing field within forensic science. Professionals earn engineering degrees and specialize in areas such as accident reconstruction, failure analysis, quality review, design review, etc. Findings are often applied to litigation and regulation.