

# 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 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 forensic science

### EMPLOYERS

Forensic laboratories:  
Medical examiner  
Coroner  
Police department  
Sheriff  
Crime  
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  
Consulting firms

### STRATEGIES

Complete a bachelor's degree in 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.  
Earn a master's degree for advanced opportunities.

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#### TOXICOLOGY

Ante-mortem investigation (DUI)  
Post-mortem investigation  
Drug testing (sweat, hair, saliva, blood, urine, etc.):  
Workplace  
Crime-related investigation (homicide, sexual assault)  
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**

**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

### ODONTOLOGY

Post-mortem identification (mass fatalities, homicide)  
Age estimation  
Bite mark analysis (assault, abuse)  
DNA collection and testing (salivary)  
Dental malpractice

## EMPLOYERS

Medical examiners  
Coroners  
Government agencies  
U.S. Armed Forces  
Law firms  
Clinics  
Private practice

## STRATEGIES

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.

## AREAS

## EMPLOYERS

## STRATEGIES

### PATHOLOGY/MEDICAL EXAMINER

Post-mortem investigation

Post-mortem identification

Post-mortem examination/Autopsy

Cause/Time 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  
    Ancestry, sex, stature determination  
    Cause/Time of death determination  
Animal skeletal identification  
Soil/Vegetation analysis  
Crime scene investigation  
Facial reproduction  
Body decomposition  
Injury interpretation  
Teaching

## EMPLOYERS

Medical examiners  
Law enforcement agencies  
Private labs  
Local, state and federal government  
U.S. Armed Forces  
    Armed Forces Institute of Pathology  
    Joint POW/MIA Accounting Command (JPAC)  
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, 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 casework.  
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.