Wildlife Forensics and DNA Analysis Training Course

Professional Development Training Course Outline

Category	Environmental Management and Conservation	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Wildlife Forensics and DNA Analysis Training Course offers a crucial intersection of science and conservation, equipping participants with the knowledge and skills to combat **wildlife crime** and protect **biodiversity**. In an era of escalating illegal wildlife trade and **poaching**, this specialized training is essential for developing a global network of professionals capable of leveraging **genetic evidence** and **forensic techniques** to bring perpetrators to justice. This program goes beyond theoretical concepts, focusing on **practical applications** and **hands-on laboratory skills** to ensure that graduates can effectively contribute to **conservation efforts** and support successful legal prosecutions.

Wildlife Forensics and DNA Analysis Training Course is meticulously designed to address the growing demand for expertise in **DNA profiling**, **species identification**, and **forensic pathology**. Participants will gain proficiency in **crime scene investigation** specific to wildlife cases, master the **chain of custody** for biological samples, and learn how to interpret complex **genetic data**. The curriculum is built on a foundation of **real-world case studies** and **advanced molecular techniques**, preparing individuals to provide **expert testimony** and collaborate with law enforcement and regulatory agencies. By empowering professionals with these critical skills, the training program directly strengthens the global capacity to protect endangered species and combat the devastating impact of illegal trafficking on our planet's ecosystems.

Programme Curriculum

Wildlife Forensics and DNA Analysis Training Course

Introduction

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Course Duration

10 days

Course Objectives

- Acquire expertise in forensic evidence collection and preservation from diverse wildlife crime scenes.
- Gain proficiency in DNA extraction protocols from challenging biological samples like hair, scat, and bone.
- Learn to utilize DNA barcoding and molecular markers for accurate species and subspecies identification.
- Understand DNA fingerprinting and genetic profiling for individual animal identification.
- Develop skills in analyzing trace evidence such as feathers, blood, and tissue fragments.
- Implement and maintain a strict forensic chain of custody to ensure evidence admissibility in court.
- Learn to perform population genetics and statistical analysis for linking evidence to populations.
- Apply forensic techniques to investigate and disrupt illegal wildlife trade and poaching syndicates.
- Prepare and deliver compelling expert witness testimony in legal and judicial proceedings.
- Understand the application of conservation genetics in population monitoring and management.
- Integrate wildlife pathology and necropsy techniques with DNA analysis for cause-of-death determination.
- Foster collaboration between forensic labs, law enforcement, and conservation organizations.
- Explore advanced techniques like next-generation sequencing and epigenetics in wildlife forensics.

Organizational Benefits

- Organizations will be equipped with staff who can conduct thorough and scientifically robust **wildlife crime investigations**, leading to a higher rate of case resolution.
- Improved evidence collection and analysis will result in stronger, **court-admissible evidence**, leading to more successful prosecutions and a greater deterrent effect on criminals.
- By investing in cutting-edge training, organizations can position themselves as leaders in the fight against **wildlife trafficking** and **conservation**.
- Trained personnel will be better able to collaborate with international and domestic law enforcement agencies, forming a more effective and cohesive network to combat cross-border wildlife crime.

- Proper evidence handling from the start reduces the likelihood of costly errors, repeat investigations, and cases being dismissed due to technicalities.

Target Audience

- Wildlife Law Enforcement Officers.
- Conservation Biologists.
- Customs and Border Control Agents.
- Forensic Laboratory Technicians.
- Legal and Judicial Professionals.
- Environmental Protection Agency Staff.
- Veterinary and Zoological Professionals.
- Students and Researchers.

Course Modules

Module 1: Introduction to Wildlife Crime and Forensic Science

- Overview of Wildlife Crime
- Role of Forensics: Principles of forensic science applied to wildlife cases.
- Legal Framework: Key national and international laws (e.g., CITES, Lacey Act).
- The Forensic Process: From crime scene to courtroom.
- **Case Study:** The use of DNA to prosecute a poaching case involving a protected species in a national park.

Module 2: Crime Scene Investigation and Evidence Collection

- Wildlife Crime Scene Protocol: Securing and documenting the scene.
- Evidence Types: Biological, physical, and digital evidence.
- Biological Sample Collection: Proper techniques for hair, blood, scat, and tissue.
- Packaging and Preservation: Maintaining sample integrity to prevent contamination.
- **Case Study:** A mock crime scene investigation of a suspected bear poaching incident, focusing on proper evidence collection.

Module 3: The Forensic Chain of Custody

- Principles of Chain of Custody: The importance of documentation and continuity.
- Documentation: From collection to lab analysis and storage.
- Handling and Transfer: Secure transfer of evidence between agencies and labs.
- Admissibility in Court: How a broken chain of custody can compromise a case.
- **Case Study:** Analysis of a case where a suspect was acquitted due to a break in the evidence's chain of custody.

Module 4: DNA Extraction Techniques

- DNA Structure and Function: A brief review of fundamental concepts.
- Extraction from Degraded Samples: Techniques for low-quality or trace evidence.
- Different DNA Sources: Protocols for blood, bone, hair follicles, and feathers.
- Quantification and Quality Control: Assessing DNA yield and purity.
- **Case Study:** Extracting viable DNA from ancient ivory tusks to determine their origin.

Module 5: PCR and DNA Amplification

- Introduction to PCR: Theory and practical setup of the polymerase chain reaction.
- Species-Specific Primers: Designing and using primers for target DNA.
- Real-time PCR (qPCR): Advanced quantification and species identification.
- Contamination Prevention: Best practices for a clean laboratory environment.
- **Case Study:** Using qPCR to differentiate between protected tiger and common domestic cat DNA from seized fur.

Module 6: DNA Barcoding and Species Identification

- What is DNA Barcoding?: Using a short genetic marker for species identification.
- Mitochondrial DNA (mtDNA): Its use in species identification and lineage tracing.
- Barcoding Databases: Utilizing public databases like GenBank and BOLD.
- Data Interpretation: Analyzing and comparing sequences to identify unknown samples.
- **Case Study:** Identifying the species of origin of meat from a seized shipment of "game meat."

Module 7: DNA Profiling and Individual Identification

- Microsatellites (STRs): The most common markers for individual identification.
- Electropherogram Analysis: Interpreting DNA profiles and allelic data.
- Wildlife DNA Databases: Building and using databases for known individuals.
- Statistical Analysis: Calculating probability of a match.
- **Case Study:** Linking a suspect to a poaching scene by matching DNA from blood at the crime scene to a reference sample from the perpetrator.

Module 8: Investigative and Forensic Entomology

- Role of Insects: Using insect life cycles to estimate time of death.
- Forensic Entomology in Wildlife Cases: Specific applications for wildlife.
- Sample Collection: Proper collection and preservation of insect evidence.
- Data Analysis: Interpreting entomological findings.
- **Case Study:** Using insect evidence to determine the time of death of a poached rhino, helping to narrow down suspect timelines.

Module 9: Wildlife Pathology and Necropsy

- Forensic Necropsy: Conducting a necropsy for legal and investigative purposes.
- Cause of Death Determination: Identifying signs of poisoning, gunshot, or other trauma.
- Sample Collection for DNA: Best practices for collecting DNA from a carcass.
- Report Writing: Documenting findings for a legal report.
- **Case Study:** A case of an eagle found dead, with a necropsy and DNA analysis revealing poisoning from a secondary source.

Module 10: Human-Animal Conflict and DNA Evidence

- Attribution of Attacks: Using DNA to determine if a specific animal was involved in a human or livestock attack.
- Mixed Samples: Differentiating human and animal DNA in complex samples.
- Population Assignment: Linking an animal to a specific geographic population.
- Statistical Analysis: Providing scientific certainty for the attribution.
- **Case Study:** A case of a leopard attack on livestock, where DNA from hair left behind identified the specific leopard involved, allowing for targeted management.

Module 11: Illicit Wildlife Trade and Traceability

- Tracing Products: Using DNA to determine the geographic origin of seized wildlife products.
- Connecting Cases: Linking seized ivory or rhino horns to a common source.
- Forensic Intelligence: Using genetic data to map trafficking routes.
- Cybercrime: Investigating online platforms for illegal wildlife trade.
- **Case Study:** Tracing the origin of confiscated pangolin scales back to a specific region in Southeast Asia using genetic markers.

Module 12: Expert Witness and Courtroom Presentation

- The Role of the Expert Witness: Providing unbiased scientific information.
- Report Preparation: Writing a clear, concise, and defensible forensic report.
- Testimony and Cross-Examination: Preparing for and navigating the courtroom.
- Presenting Complex Data: Explaining scientific findings in lay terms.
- **Case Study:** Reviewing and critiquing a real-world forensic report and mock trial scenario.

Module 13: Introduction to Conservation Genetics

- Genetic Diversity: Measuring and monitoring genetic health in wild populations.
- Population Bottlenecks: Identifying threats to genetic viability.
- Molecular Ecology: Using genetics to understand animal movement and population structure.
- Genetic Rescue: The role of genetics in species recovery programs.
- **Case Study:** Using population genetics to identify isolated or inbred populations of an endangered species to guide conservation efforts.

Module 14: Emerging Technologies and Future Trends

- Next-Generation Sequencing: The future of DNA analysis in forensics.
- Environmental DNA (eDNA): Detecting species from water or soil samples.
- Non-invasive Sampling: Utilizing hair traps and camera traps for DNA collection.
- Digital Forensics: The integration of digital evidence with biological evidence.
- **Case Study:** A proof-of-concept study on using eDNA to monitor for invasive species in a sensitive ecosystem.

Module 15: Capstone Project and Mock Trial

- Comprehensive Project: Participants apply all learned skills to a simulated case.
- Mock Crime Scene: A final, complex crime scene to investigate.
- Laboratory Analysis: Participants perform all lab procedures from start to finish.
- Forensic Report: Writing a complete and detailed forensic report.
- **Mock Trial:** Presenting evidence and providing expert testimony in a simulated courtroom setting.

Training Methodology

The course employs a hybrid learning model with a strong emphasis on practical, hands-on experience.

- Interactive Lectures.
- Hands-on Lab Sessions.
- Scenario-Based Simulations.
- Case Study Analysis.
- Expert Demonstrations.

- Guest Speakers.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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