# Non-Invasive Genetic Sampling and Analysis Training Course

Professional Development Training Course Outline

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|---|---|---|---|
| **Category** | Wildlife Management | **Duration** | 5 Days |
| **Base Fee** | $1,500 USD | **Delivery Mode** | Online / On-site Hybrid |

## Course Introduction

Non-Invasive Genetic Sampling and Analysis Training Course is designed to provide participants with advanced knowledge and hands-on expertise in modern genetic research techniques that avoid direct harm to organisms. This program emphasizes eco-friendly, sustainable, and scientifically reliable approaches to collecting and analyzing genetic material such as hair, feathers, feces, saliva, or shed skin. By integrating molecular biology, conservation genetics, and bioinformatics, the course equips learners with the tools required to drive innovation in biodiversity monitoring, wildlife management, and ecological research.

The training combines theoretical knowledge with real-world applications, ensuring that participants gain practical exposure to current genetic technologies. Through interactive sessions, data-driven exercises, and carefully selected case studies, learners will understand how non-invasive genetic analysis can be applied in conservation, environmental forensics, population genetics, and ecosystem resilience studies. This course highlights best practices, ethical considerations, and the application of trending methodologies that align with global scientific standards.

## Programme Curriculum

**Non-Invasive Genetic Sampling and Analysis Training Course**

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**Course Objectives**

1. To introduce participants to the principles of non-invasive genetic sampling and analysis.
2. To build expertise in collecting DNA samples without disturbing or harming organisms.
3. To enhance knowledge of genetic data interpretation using bioinformatics tools.
4. To demonstrate best practices in wildlife conservation genetics.
5. To develop practical skills in laboratory-based genetic analysis techniques.
6. To apply genetic methods to population structure and biodiversity studies.
7. To highlight the role of genetics in environmental forensics and monitoring.
8. To strengthen participants?ÇÖ ability to evaluate ethical considerations in sampling.
9. To provide exposure to trending global case studies in non-invasive genetics.
10. To train learners in effective data reporting and communication strategies.
11. To foster the use of genetic evidence in ecosystem resilience assessments.
12. To encourage interdisciplinary approaches combining ecology and genetics.
13. To empower participants with advanced problem-solving skills for conservation challenges.

**Organizational Benefits**

- Improved application of sustainable genetic monitoring techniques.
- Strengthened organizational reputation in conservation research.
- Enhanced accuracy in biodiversity assessments.
- Access to updated methodologies for ecological monitoring.
- Increased capacity to contribute to global environmental projects.
- Adoption of ethical and non-invasive practices in scientific research.
- Integration of genetic analysis into conservation strategies.
- Strengthened collaboration with international conservation agencies.
- Reduced costs by implementing efficient sampling methods.
- Empowerment of staff with cutting-edge research skills.

**Target Audiences**

- Wildlife biologists
- Conservationists
- Environmental researchers
- Molecular biologists
- University students and scholars
- Policy makers in environmental management
- Genetic laboratory technicians
- NGO professionals working in biodiversity conservation

**Course Duration:** 5 days

**Course Modules**

**Module 1: Introduction to Non-Invasive Genetic Sampling**

- Concept and scope of non-invasive genetic sampling
- Importance of ethical sampling in conservation
- Common sources of non-invasive DNA
- Methods of preserving collected samples
- Role of genetics in biodiversity studies
- Case Study: Use of fecal DNA in elephant population studies

**Module 2: Field Sampling Techniques**

- Tools for non-invasive sample collection
- Sampling protocols for different species
- Preventing contamination during collection
- Sample storage and transportation techniques
- Field documentation and metadata recording
- Case Study: Hair trap sampling in carnivore monitoring

**Module 3: Laboratory Preparation and DNA Extraction**

- Principles of DNA extraction
- Techniques for maximizing yield from low-quality DNA
- Handling degraded samples
- Contamination control in laboratories
- Quality control checks
- Case Study: DNA extraction from avian feathers

**Module 4: Polymerase Chain Reaction (PCR) and Sequencing**

- Fundamentals of PCR
- Amplification of short DNA fragments
- Next-generation sequencing overview
- Genetic marker selection
- Troubleshooting PCR reactions
- Case Study: Microsatellite analysis in primate studies

**Module 5: Bioinformatics in Non-Invasive Genetics**

- Basics of genetic data analysis
- Sequence alignment methods
- Software for genetic diversity assessment
- Data storage and management practices
- Emerging trends in bioinformatics
- Case Study: Genomic analysis of wild wolf populations

**Module 6: Population Genetics Applications**

- Population structure analysis
- Gene flow studies
- Effective population size estimation
- Hybridization detection
- Conservation genetics applications

- Case Study: Genetic diversity in fragmented habitats

**Module 7: Conservation and Wildlife Forensics**

- Application of genetics in anti-poaching
- Species identification from trace samples
- Linking evidence to wildlife crime cases
- Genetic reference database creation
- Law enforcement applications
- Case Study: DNA evidence in ivory trade investigations

**Module 8: Reporting, Ethics, and Future Directions**

- Ethical considerations in genetic research
- Best practices in reporting genetic findings
- Collaboration with stakeholders
- Communication of results to non-scientific audiences
- Future trends in non-invasive genetic sampling
- Case Study: Integrating genetics into national conservation policy

**Training Methodology**

- Instructor-led interactive lectures
- Practical laboratory sessions
- Field-based sampling exercises
- Group discussions and problem-solving tasks
- Case study analysis and presentations
- Use of advanced bioinformatics software

**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** | 27 Nov 2026 | Online | $1,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $1,500 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $3,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $3,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $6,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $4,500 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $6,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $6,000 |

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

**Register Online Now**

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com