Biotechnology in Animal Health Training Course

Professional Development Training Course Outline

Category	Veterinary and Animal Science	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Biotechnology in Animal Health is rapidly transforming the veterinary and livestock sectors by integrating advanced molecular techniques, genomics, and bioinformatics to improve animal welfare, disease prevention, and productivity. Biotechnology in Animal Health Training Course is designed to equip professionals, researchers, and practitioners with cutting-edge skills in diagnostic biotechnology, immunotherapy, and genetic improvement, enabling them to make impactful decisions in animal health management. With a focus on real-world applications, participants will gain hands-on experience in techniques such as molecular diagnostics, vaccine development, and precision breeding.

The course also emphasizes sustainable practices and innovative approaches to combat emerging zoonotic diseases, antimicrobial resistance, and herd management challenges. Participants will explore the intersection of biotechnology and veterinary science to enhance animal health outcomes, optimize productivity, and strengthen biosecurity measures. Case studies and industry-led projects ensure that learners not only understand the theory but also develop practical problem-solving skills essential for modern animal healthcare and research environments.

Programme Curriculum

Biotechnology in Animal Health Training Course

Introduction

Biotechnology in Animal Health is rapidly transforming the veterinary and livestock sectors by integrating advanced molecular techniques, genomics, and bioinformatics to improve animal welfare, disease prevention, and productivity. Biotechnology in Animal Health Training Course is designed to equip professionals, researchers, and practitioners with cutting-edge skills in diagnostic biotechnology, immunotherapy, and genetic improvement, enabling them to make impactful decisions in animal health management. With a focus on real-

world applications, participants will gain hands-on experience in techniques such as molecular diagnostics, vaccine development, and precision breeding.

The course also emphasizes sustainable practices and innovative approaches to combat emerging zoonotic diseases, antimicrobial resistance, and herd management challenges. Participants will explore the intersection of biotechnology and veterinary science to enhance animal health outcomes, optimize productivity, and strengthen biosecurity measures. Case studies and industry-led projects ensure that learners not only understand the theory but also develop practical problem-solving skills essential for modern animal healthcare and research environments.

Course Duration

5 days

Course Objectives

1. Understand the fundamentals of animal biotechnology and its role in modern veterinary science.
2. Apply molecular diagnostic techniques to detect infectious and genetic diseases in animals.
3. Develop proficiency in vaccine design and immunotherapy strategies for livestock health.
4. Explore genomic selection and precision breeding for improved animal productivity.
5. Implement bioinformatics tools for disease surveillance and animal health research.
6. Investigate emerging zoonotic diseases and biotechnology-driven solutions.
7. Analyze antimicrobial resistance trends and develop mitigation strategies.
8. Enhance livestock biosecurity and herd management using biotechnological approaches.
9. Evaluate nutritional biotechnology applications for animal growth and immunity.
10. Conduct case studies on successful biotech interventions in animal health.
11. Integrate One Health concepts linking animal, human, and environmental health.
12. Develop research proposals and innovation projects in animal biotechnology.
13. Strengthen practical laboratory skills in gene editing, PCR, ELISA, and more.

Target Audience

1. Veterinary practitioners and clinicians
2. Animal health researchers and scientists
3. Livestock farm managers and animal breeders
4. Biotechnology and pharmaceutical professionals
5. Academic faculty and students in animal sciences
6. Government regulatory officers in animal health
7. Animal nutritionists and feed technologists
8. NGO and international organization professionals working in livestock development

Course Modules

Module 1: Introduction to Animal Biotechnology

- Overview of biotechnology in veterinary science
- Molecular biology basics for animal health
- Role of biotechnology in livestock improvement
- Ethical and regulatory considerations
- Case Study: Genetically improved dairy cattle

Module 2: Molecular Diagnostics in Animal Health

- PCR, RT-PCR, and real-time PCR techniques
- ELISA and immunoassays for disease detection
- Next-generation sequencing applications
- Field diagnostics and rapid testing
- Case Study: Early detection of foot-and-mouth disease

Module 3: Vaccine Development and Immunotherapy

- Principles of vaccine design
- Recombinant and DNA vaccines
- Monoclonal antibody technology
- Adjuvants and delivery systems
- Case Study: Avian influenza vaccine success

Module 4: Genomics and Precision Breeding

- Genetic selection and breeding strategies
- CRISPR and gene-editing tools
- Marker-assisted selection in livestock
- Genomic databases and bioinformatics
- Case Study: Disease-resistant pig breeding program

Module 5: Emerging Zoonotic Diseases

- Epidemiology of zoonotic pathogens
- Viral, bacterial, and parasitic threats
- Biotechnological approaches to control outbreaks
- Risk assessment and management
- Case Study: Nipah virus outbreak containment

Module 6: Antimicrobial Resistance Management

- Mechanisms of resistance in pathogens
- Antibiotic stewardship in livestock
- Alternative therapies (probiotics, phages)
- Policy frameworks and monitoring tools
- Case Study: Reducing AMR in poultry farms

Module 7: Nutritional and Functional Biotechnology

- Nutrigenomics in livestock
- Feed additives and probiotics
- Enhancing immunity through diet
- Biofortification of animal feed
- Case Study: Improved growth performance in broilers

Module 8: Research and Innovation in Animal Biotechnology

- Designing research projects
- Lab techniques: PCR, ELISA, CRISPR
- Data analysis and interpretation
- Translational applications in industry

- Case Study: Successful biotech startups in animal health

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

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

Register Online Now

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