Toxicology in Public Health Training Course

Professional Development Training Course Outline

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

Course Introduction

Toxicology in Public Health is a critical interdisciplinary field that addresses the prevention, identification, assessment, and control of toxic substances that threaten human health and environmental safety. With the rapid growth of industrialization, urbanization, climate change, pharmaceutical consumption, food contamination, chemical exposure, and emerging environmental hazards, public health professionals require advanced toxicological knowledge to manage complex health risks. Toxicology in Public Health Training Course equips participants with practical and scientific competencies in environmental toxicology, occupational health, chemical risk assessment, poisoning management, toxic substance surveillance, epidemiology, and public health emergency preparedness. The course integrates global public health standards, evidence-based interventions, laboratory toxicology, digital health technologies, and sustainable health protection strategies to strengthen community resilience and policy development.

The course emphasizes innovative and data-driven approaches for addressing contemporary toxicological challenges including heavy metal exposure, pesticide toxicity, air pollution, pharmaceutical residues, industrial chemicals, endocrine disruptors, foodborne toxins, and emerging contaminants. Participants will gain expertise in toxic exposure assessment, toxicovigilance systems, biomonitoring, hazard communication, environmental health analytics, toxicological investigation, and regulatory compliance frameworks. Through case studies, simulation exercises, field applications, and real-world public health scenarios, the program prepares healthcare professionals, environmental officers, researchers, policymakers, and emergency responders to design sustainable interventions and strengthen health systems for safer communities and healthier populations.

Programme Curriculum

Toxicology in Public Health Training Course

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Course Duration

5 days

Course Objectives

By the end of the training, participants will be able to:

1. Analyze emerging toxicological threats using advanced public health surveillance systems.
2. Conduct chemical risk assessment and exposure pathway analysis in vulnerable populations.
3. Apply environmental toxicology principles in disease prevention and health promotion.
4. Evaluate occupational and industrial toxic hazards using evidence-based methodologies.
5. Design toxicovigilance and poison control strategies for public health systems.
6. Implement biomonitoring and laboratory toxicology techniques for exposure detection.
7. Assess food safety risks related to pesticides, additives, contaminants, and adulteration.
8. Develop emergency preparedness and toxic disaster response frameworks.
9. Utilize Geographic Information Systems (GIS) and digital health tools in toxic exposure mapping.
10. Strengthen regulatory compliance, environmental governance, and toxic substance management.
11. Investigate toxic outbreaks through epidemiological and forensic toxicology approaches.
12. Promote climate-resilient public health interventions addressing environmental pollutants.
13. Develop sustainable community awareness and health communication strategies on toxic hazards.

Target Audience

This training course is suitable for:

1. Public Health Officers and Practitioners
2. Environmental Health Specialists
3. Occupational Health and Safety Professionals
4. Toxicologists and Laboratory Scientists
5. Healthcare Workers and Emergency Responders

6. Researchers and Academic Professionals
7. Government Regulatory and Policy Officers
8. NGO, Humanitarian, and Community Health Organizations

Training Modules

Module 1: Foundations of Toxicology in Public Health

- Principles of toxicology and dose-response relationships
- Toxicokinetics and toxicodynamics
- Sources and classifications of toxic substances
- Public health implications of toxic exposure
- Global toxicology regulations and frameworks
- **Case Study:** Assessment of lead poisoning in urban informal settlements and its impact on child health outcomes.

Module 2: Environmental and Occupational Toxicology

- Air, water, and soil contamination assessment
- Industrial and occupational chemical hazards
- Heavy metals and persistent organic pollutants
- Environmental exposure pathways
- Workplace toxic exposure prevention strategies
- **Case Study:** Investigation of mercury exposure among artisanal miners and occupational health interventions.

Module 3: Food and Pharmaceutical Toxicology

- Foodborne toxins and contaminants
- Pesticide residues and food safety monitoring
- Drug toxicity and adverse drug reactions
- Pharmaceutical waste and environmental contamination
- Risk communication in food and drug safety
- **Case Study:** Public health response to aflatoxin contamination in staple food supplies.

Module 4: Clinical and Emergency Toxicology

- Poisoning diagnosis and management
- Toxic syndromes and antidote administration
- Emergency toxic exposure response systems
- Toxicological emergencies and disaster preparedness
- Poison control center operations
- **Case Study:** Management of mass pesticide poisoning incidents in rural communities.

Module 5: Toxicological Epidemiology and Surveillance

- Toxic exposure surveillance systems
- Epidemiological investigation methods
- Biomonitoring and exposure assessment
- Data analytics in toxicology
- Digital toxicovigilance systems
- **Case Study:** Analysis of air pollution-related respiratory disease outbreaks using surveillance data.

Module 6: Laboratory and Analytical Toxicology

- Laboratory toxicology procedures
- Specimen collection and handling
- Analytical instrumentation and testing
- Quality assurance in toxicological analysis
- Interpretation of laboratory findings
- **Case Study:** Detection of counterfeit pharmaceutical products through toxicological laboratory testing.

Module 7: Risk Assessment, Policy, and Regulation

- Chemical hazard identification and risk analysis
- Environmental health impact assessments
- International toxicology regulations and compliance
- Policy development and regulatory enforcement
- Ethical issues in public health toxicology
- **Case Study:** Policy evaluation on industrial waste disposal and groundwater contamination prevention.

Module 8: Emerging Trends and Innovations in Toxicology

- Climate change and environmental toxicology
- Nanotoxicology and emerging contaminants
- Artificial Intelligence in toxicology surveillance
- GIS mapping for toxic exposure analysis
- Sustainable public health interventions
- **Case Study:** Use of AI-driven predictive analytics to identify high-risk toxic exposure zones.

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
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

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