Disease Mapping & GIS Training Course

Professional Development Training Course Outline

Category	Public Health	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Geographic Information Systems (GIS) and spatial epidemiology are transforming how public health professionals analyze, visualize, and respond to disease outbreaks. Disease Mapping & GIS Training Course equips learners with advanced skills in spatial data analysis, health informatics, geospatial intelligence, and epidemic surveillance systems. Participants will learn how to integrate real-time disease tracking, spatial statistics, and digital cartography to support evidence-based public health decision-making and outbreak response strategies.

In today's data-driven world, mastering GIS-based disease mapping, remote sensing for health, spatial epidemiology modeling, and geospatial AI analytics is essential for tackling emerging infectious diseases and chronic health burdens. This course blends theory with hands-on applications using modern GIS platforms, enabling professionals to create interactive disease maps, predictive risk models, and health surveillance dashboards for effective public health interventions.

Programme Curriculum

Disease Mapping & GIS Training Course

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Course Objectives

1. Master Geospatial Data Analytics for Public Health
2. Apply Disease Surveillance and Outbreak Mapping Techniques
3. Develop skills in Spatial Epidemiology and Cluster Detection
4. Use Remote Sensing for Disease Risk Assessment
5. Build Interactive GIS Health Dashboards
6. Conduct Hotspot Analysis for Infectious Diseases
7. Implement GeoAI and Predictive Health Modeling
8. Integrate Health Data with Spatial Databases
9. Perform Spatial-Temporal Disease Trend Analysis
10. Design Public Health Early Warning Systems
11. Utilize Open-Source GIS Tools (QGIS, ArcGIS)
12. Enhance Data Visualization for Epidemiological Reporting
13. Support Evidence-Based Health Policy Using GIS Insights

Target Audience

1. Public Health Officers & Epidemiologists
2. GIS Analysts and Geospatial Scientists
3. Medical Researchers & Health Informatics Specialists
4. NGO & Humanitarian Health Workers
5. Government Health Policy Planners
6. Environmental Health Specialists
7. Data Scientists in Healthcare Sector
8. University Students in Public Health, Geography & Data Science

Course Modules

Module 1: Introduction to GIS in Public Health

- GIS fundamentals and spatial thinking
- Health geography concepts
- Mapping disease distribution patterns
- Data layers in epidemiology
- GIS workflow overview
- **Case Study:** Malaria prevalence mapping in Sub-Saharan Africa

Module 2: Spatial Epidemiology Basics

- Disease distribution analysis
- Population health mapping
- Spatial autocorrelation
- Risk factor mapping

- Epidemiological indicators
  Case Study: Dengue fever clustering in urban areas

Module 3: Geospatial Data Collection

- GPS and mobile data collection
- Health survey integration
- Remote sensing data sources
- Open data platforms
- Field data validation
- **Case Study:** Cholera outbreak field data collection

Module 4: Disease Surveillance Systems

- Real-time health monitoring
- Outbreak detection systems
- Reporting frameworks
- Alert systems design
- Digital surveillance tools
- **Case Study:** COVID-19 global tracking dashboards

Module 5: Spatial Data Management

- Geodatabases design
- Data cleaning techniques
- Data standardization
- Health dataset integration
- Cloud-based GIS storage
- **Case Study:** National disease registry system

Module 6: Hotspot and Cluster Analysis

- Spatial clustering techniques
- Kernel density mapping
- Hotspot identification
- Pattern recognition
- Statistical GIS tools
- **Case Study:** HIV hotspot mapping in urban settlements

Module 7: Remote Sensing in Disease Mapping

- Satellite imagery analysis
- Environmental risk factors
- Land use and disease correlation
- Climate impact on health
- Raster data interpretation
- **Case Study:** Malaria breeding site prediction

Module 8: GIS Software Applications

- ArcGIS tools overview
- QGIS practical workflows
- Google Earth Engine basics
- Plugin utilization
- Spatial analysis functions
- **Case Study:** Hospital accessibility mapping

Module 9: Spatial-Temporal Analysis

- Time-series disease mapping
- Trend visualization
- Seasonal outbreak patterns
- Animation mapping tools
- Predictive timelines
- **Case Study:** Ebola outbreak progression mapping

Module 10: Health Data Visualization

- Dashboard design principles
- Interactive maps
- Infographics for health data
- Story maps creation
- Reporting tools
- **Case Study:** National immunization coverage dashboard

Module 11: Predictive Disease Modeling

- Machine learning in GIS
- Risk forecasting models
- Spatial regression analysis
- AI-based outbreak prediction
- Model validation
- **Case Study:** COVID-19 spread prediction model

Module 12: Public Health Decision Support Systems

- GIS for policy planning
- Resource allocation mapping
- Emergency response planning
- Health equity analysis
- Decision dashboards
- **Case Study:** Vaccine distribution optimization

Module 13: Environmental Health GIS

- Pollution and health links
- Waterborne disease mapping
- Climate change impacts
- Urban health risks
- Environmental monitoring
- **Case Study:** Air pollution-related respiratory disease mapping

Module 14: Mobile GIS & Field Applications

- Mobile data collection apps
- Field mapping tools
- Real-time syncing
- Offline GIS usage
- Crowd-sourced health data
- **Case Study:** Community health reporting system

Module 15: Capstone Project – Disease Mapping System

- End-to-end GIS project design
- Data integration and analysis
- Dashboard development
- Predictive mapping
- Presentation of findings
- **Case Study:** National infectious disease surveillance platform

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	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
23 Nov 2026	04 Dec 2026	Physical	$12,000

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