Big Data 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

The Big Data in Public Health training course is designed to equip healthcare professionals, researchers, policymakers, epidemiologists, and data analysts with advanced skills in health data analytics, artificial intelligence (AI), machine learning, predictive modeling, digital epidemiology, health informatics, and population health intelligence. In today's data-driven healthcare ecosystem, public health organizations increasingly rely on real-time data integration, cloud computing, electronic health records (EHR), IoT-enabled health systems, GIS mapping, disease surveillance systems, and predictive analytics to improve decision-making, optimize healthcare delivery, and strengthen emergency response systems. Big Data in Public Health Training Course provides participants with practical knowledge and hands-on exposure to modern big data technologies transforming global healthcare systems.

The program emphasizes the strategic application of data science, AI-powered healthcare analytics, health information systems, pandemic intelligence, precision public health, bioinformatics, and data visualization for solving complex public health challenges. Participants will learn how to analyze massive health datasets, identify disease patterns, improve population health outcomes, support evidence-based policymaking, and enhance healthcare innovation through advanced analytics tools. Through real-world case studies, interactive workshops, and applied projects, learners will gain industry-relevant competencies aligned with current trends in digital health transformation, smart healthcare systems, healthcare cybersecurity, and global health analytics.

Programme Curriculum

Big Data in Public Health Training Course

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Course Duration

5 days

Course Objectives

1. Understand the fundamentals of Big Data Analytics in Public Health.
2. Develop expertise in AI-driven healthcare analytics and predictive modeling.
3. Learn applications of Machine Learning in Epidemiology and disease forecasting.
4. Analyze Electronic Health Records (EHR) for population health insights.
5. Apply Data Visualization and Dashboarding for public health reporting.
6. Explore Digital Epidemiology and Real-Time Disease Surveillance Systems.
7. Utilize Cloud Computing and Healthcare Data Platforms for scalable analytics.
8. Implement GIS Mapping and Spatial Health Analytics for outbreak management.
9. Understand Healthcare Cybersecurity and Data Privacy Compliance frameworks.
10. Leverage IoT and Wearable Health Data for preventive healthcare strategies.
11. Apply Predictive Analytics for Pandemic Preparedness and Response.
12. Design data-driven strategies for Precision Public Health and Smart Healthcare.
13. Build competency in Health Informatics, Bioinformatics, and Data Governance.

Target Audience

1. Public Health Professionals
2. Epidemiologists and Disease Surveillance Officers
3. Healthcare Data Analysts
4. Medical Researchers and Scientists
5. Health Informatics Specialists
6. Government Health Officials and Policymakers
7. Hospital and Healthcare Administrators
8. AI, Data Science, and Digital Health Professionals

Course Modules

Module 1: Introduction to Big Data in Public Health

- Fundamentals of Big Data Ecosystems
- Public Health Data Sources and Data Integration
- Structured vs Unstructured Healthcare Data
- Big Data Architecture in Healthcare Systems
- Emerging Trends in Digital Public Health
- **Case Study:** COVID-19 global health data tracking and analytics systems.

Module 2: Health Informatics and Electronic Health Records

- Electronic Health Records (EHR) Analytics
- Healthcare Information Systems
- Clinical Decision Support Systems
- Health Data Standardization and Interoperability
- Data Quality Management in Healthcare
- **Case Study:** Implementation of EHR analytics in hospital networks.

Module 3: Artificial Intelligence and Machine Learning in Public Health

- Machine Learning Algorithms for Healthcare
- Predictive Analytics for Disease Forecasting
- AI Applications in Population Health
- Deep Learning for Medical Data Analysis
- AI Ethics in Healthcare
- **Case Study:** AI-powered early detection of infectious disease outbreaks.

Module 4: Epidemiology and Disease Surveillance Analytics

- Digital Epidemiology Techniques
- Real-Time Disease Surveillance Systems
- Pandemic Intelligence Platforms
- Outbreak Prediction Models
- Public Health Risk Assessment
- **Case Study:** Ebola outbreak monitoring using predictive analytics.

Module 5: Data Visualization and GIS Mapping

- Healthcare Data Visualization Tools
- Interactive Dashboards and Reporting
- GIS Mapping for Public Health
- Spatial Analytics for Disease Distribution
- Data Storytelling for Decision-Making
- **Case Study:** GIS-based malaria hotspot mapping.

Module 6: Cloud Computing and Big Data Technologies

- Cloud Platforms for Healthcare Analytics
- Hadoop and Spark in Healthcare
- Real-Time Data Processing Systems
- Healthcare Data Warehousing
- Scalable Health Data Infrastructure
- **Case Study:** Cloud-based national health information systems.

Module 7: Healthcare Cybersecurity and Data Governance

- Healthcare Data Privacy Regulations
- HIPAA and GDPR Compliance
- Cybersecurity Risk Management
- Ethical Use of Health Data
- Data Governance Frameworks
- **Case Study:** Analysis of healthcare ransomware attacks and prevention strategies.

Module 8: Precision Public Health and Future Innovations

- Precision Public Health Strategies
- Genomics and Bioinformatics Analytics
- IoT and Wearable Health Technologies
- Smart Healthcare and Digital Transformation
- Future Trends in Public Health Analytics
- **Case Study:** Wearable device analytics for chronic disease prevention.

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

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

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