



## **AI & Big Data in Health Research: Tools & Apps**



**AGILE LEADERS**  
Training Center

# AI & Big Data in Health Research: Tools & Apps

## Course Overview

This program provides a comprehensive and practical understanding of how AI and big data analytics are transforming modern health research, public health systems, and clinical studies. Participants explore AI in health research, big data analytics in healthcare, healthcare data science, and data-driven health research, learning how to translate health datasets into meaningful insights that support better decisions and improved health outcomes. The course highlights practical applications of machine learning in health research, predictive analytics in healthcare, public health data analytics, and digital health analytics to strengthen evidence-based practice.

Attendees gain a clear understanding of how AI healthcare analytics and medical big data analytics enhance disease detection, monitoring, research quality, treatment planning, and health system performance. Practical examples are used to illustrate real use-cases involving health informatics with AI, AI for epidemiology, and clinical data analytics training. By the end of the course, participants will be able to assess, interpret, and apply AI and big data techniques to health research and public health challenges using structured, method-driven learning.

## Target Audience

- Public health professionals
- Clinical researchers
- Health data analysts and data scientists
- Health informatics teams
- Epidemiologists
- Government health officers
- Research coordinators
- Healthcare strategy and planning teams



## Targeted Organizational Departments

- Public health departments
- Clinical research units
- Healthcare analytics departments
- Health informatics and IT transformation
- Epidemiology and surveillance teams
- Digital health and innovation units
- Research and development divisions

*These benefit from AI in health research, big data analytics in healthcare, healthcare data science, and public health data analytics.*

## Targeted Industries

- Health ministries
- Public health agencies
- Hospitals and healthcare systems
- Pharmaceutical and biotechnology companies
- Insurance and health financing
- Clinical research organizations
- Universities and research institutes
- Digital health and med-tech companies

## Course Offerings

By the end of this course, participants will be able to:

- Apply AI in health research for better data interpretation
- Use big data analytics in healthcare for advanced decision-making
- Utilize predictive analytics in healthcare and machine learning in health research
- Conduct data-driven health research and public health data analytics
- Implement clinical data analytics training methods for research teams
- Apply digital health analytics and health informatics with AI
- Evaluate medical big data analytics and integrate findings into research processes



## Training Methodology

The course uses case studies, scenario analysis, group work, and structured exercises focused on AI in health research, big data analytics in healthcare, predictive analytics in healthcare, and digital health analytics. Participants engage in real-world problem-solving, guided discussions, and collaborative exploration of health datasets to strengthen analytical capabilities without requiring programming experience.

## Course Toolbox

- AI and big data health research use-case summaries
  - Templates for analysis and reporting
  - Checklists for research readiness
  - Structured frameworks for data-driven health research
- Note: Tools are not provided; participants receive insights and examples only.*

## Course Agenda

### Day 1: Foundations of AI and Big Data in Health Research

- **Topic 1:** Introduction to AI in health research and data-driven health research
- **Topic 2:** Big data analytics in healthcare: foundations and applications
- **Topic 3:** Healthcare data science fundamentals
- **Topic 4:** Public health data analytics and population-level insights
- **Topic 5:** Digital health analytics and mobile health data
- **Reflection & Review:** How AI and big data are reshaping modern health research

### Day 2: Applied AI for Clinical and Public Health Research

- **Topic 1:** AI healthcare analytics for clinical decision support
- **Topic 2:** Predictive analytics in healthcare and risk modeling
- **Topic 3:** Machine learning in health research for pattern detection
- **Topic 4:** AI for epidemiology and surveillance systems
- **Topic 5:** Medical big data analytics for advanced research interpretation
- **Reflection & Review:** The impact of AI and analytics on clinical and public health quality



### **Day 3: Data Engineering and Health Informatics**

- **Topic 1:** Healthcare data preparation, integration, and preprocessing
- **Topic 2:** Health informatics with AI for improved interoperability
- **Topic 3:** Managing structured and unstructured health data
- **Topic 4:** Digital transformation using big data health research methods
- **Topic 5:** Clinical data analytics training for research teams
- **Reflection & Review:** Strengthening research outcomes through better data management

### **Day 4: Advanced Analytical Techniques in Health Research**

- **Topic 1:** Predictive modeling and forecasting for health systems
- **Topic 2:** Evaluating AI models and ensuring reliability in healthcare analytics
- **Topic 3:** Public health data analytics for disease trends and early warnings
- **Topic 4:** Digital health analytics for real-time and wearable data
- **Topic 5:** Advanced AI and big data applications in medical research
- **Reflection & Review:** Key challenges and opportunities in advanced analytics

### **Day 5: Implementation, Future Trends, and Strategic Integration**

- **Topic 1:** Strategic integration of AI and big data in healthcare organizations
- **Topic 2:** Practical applications of machine learning in health research
- **Topic 3:** Predictive analytics in healthcare operations and planning
- **Topic 4:** AI for health systems and future public health innovation
- **Topic 5:** Building long-term data-driven research and performance frameworks
- **Reflection & Review:** Final integration of course concepts and future roadmap

## **FAQ**

### **What specific qualifications or prerequisites are needed for participants before enrolling in the course?**

Participants benefit from having basic knowledge of health systems, research concepts, or data interpretation. No programming or AI background is required.



## **How long is each day's session, and is there a total number of hours required for the entire course?**

Each day's session lasts around 4-5 hours. The full course spans approximately 20-25 hours over five days.

## **Is AI reliable enough to be used in health research and public health analysis?**

AI strengthens reliability by analyzing large, complex datasets and uncovering hidden patterns. When combined with expert interpretation and proper validation, AI significantly enhances research accuracy and decision-making.

## **How This Course is Different**

This course is designed specifically for health-sector professionals who need to understand AI and big data analytics without requiring programming expertise. It focuses on applying AI in health research, predictive analytics in healthcare, healthcare data science, and public health data analytics through real-world scenarios and structured frameworks. Participants learn exactly how to use AI healthcare analytics, health informatics with AI, and medical big data analytics to solve practical challenges in clinical research, hospital decision-making, and public health analysis. The program emphasizes clarity, applicability, and measurable outcomes, offering insights that can be used immediately in research environments, ministries, hospitals, and global health organizations.

# Training Course Categories



**Agile PM and Project Management Training Courses**



**Certified Courses By International Bodies**



**Communication and Public Relations Training Courses**



**Continues Professional Development (CPD) Certified Courses**



**Data Analytics Training and Data Science Courses**



**Environment & Sustainability Training Courses**



**Finance and Accounting Training Courses**



**Governance, Risk and Compliance Training Courses**



**HR TRAINING & DEVELOPMENT**

**Human Resources Training and Development Courses**



**IT Security Training & IT Training Courses**



**Leadership and Management Training Courses**



**PROCUREMENT LEGAL TRAINING CONTRACTING COURSES**

**Legal Training, Procurement and Contracting Courses**



# Training Course Categories



**Maintenance Training  
and Engineering  
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**Marketing, Customer  
Relations, and Sales  
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**Occupational Health,  
Safety and Security  
Training Courses**



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Development Training  
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**Tbilisi - Georgia**



**Tokyo - Japan**



**Trabzon - Turkey**



**Vienna - Austria**



**Zanzibar - Tanzania**



**Zoom - Online Training**

# WHO WE ARE

Agile Leaders is a renowned training center with a team of experienced experts in vocational training and development. With 20 years of industry experience, we are committed to helping executives and managers replace traditional practices with more effective and agile approaches.

## OUR VISION

We aspire to be the top choice training provider for organizations seeking to embrace agile business practices. As we progress towards our vision, our focus becomes increasingly customer-centric and agile.

## OUR MISSION

We are dedicated to developing value-adding, customer-centric agile training courses that deliver a clear return on investment. Guided by our core agile values, we ensure our training is actionable and impactful.

## WHAT DO WE OFFER

At Agile Leaders, we offer agile, bite-sized training courses that provide a real-life return on investment. Our courses focus on enhancing knowledge, improving skills, and changing attitudes. We achieve this through engaging and interactive training techniques, including Q&As, live discussions, games, and puzzles.



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