Cloud Computing for Research Data Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Cloud Computing has transformed the way research data is collected, stored, processed, and shared, enabling scalable, secure, and cost-effective research workflows. With the exponential growth of big data, AI-driven research, high-performance computing (HPC), and collaborative science, traditional on-premise infrastructure is no longer sufficient. Cloud platforms provide researchers with elastic compute power, advanced analytics, data lakes, and automated pipelines, empowering faster discovery and reproducible research across disciplines such as life sciences, engineering, social sciences, and climate research.

Cloud Computing for Research Data Training Course equips participants with practical knowledge and hands-on experience in using modern cloud architectures, research data management (RDM) frameworks, compliance-driven security models, and cloud-native tools. Participants will learn how to design, deploy, and optimize cloud-based research environments while ensuring data integrity, privacy, FAIR principles, and regulatory compliance. The course emphasizes real-world case studies, applied labs, and industry best practices, preparing researchers to confidently adopt cloud technologies for data-intensive research and innovation.

Programme Curriculum

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Course Duration

5 days

Course Objectives

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

1. Understand cloud computing fundamentals for research ecosystems
2. Apply scalable data storage architectures for research datasets
3. Implement cloud-based research data management (RDM) strategies
4. Utilize big data analytics and AI/ML pipelines in the cloud
5. Design secure and compliant cloud environments for research data
6. Optimize cost-efficient cloud resource utilization
7. Enable collaborative and reproducible research workflows
8. Deploy high-performance computing (HPC) workloads on the cloud
9. Integrate FAIR data principles using cloud platforms
10. Manage sensitive and regulated research data securely
11. Automate data ingestion, processing, and archiving pipelines
12. Evaluate multi-cloud and hybrid cloud strategies for research
13. Analyze real-world cloud adoption case studies in research

Target Audience

1. Researchers and Scientists
2. PhD Scholars and Postdoctoral Fellows
3. Research Data Managers
4. Academic IT and Infrastructure Professionals
5. Data Scientists and Analysts
6. University Faculty and Lab Coordinators
7. Research Project Managers
8. Industry R&D Professionals

Course Modules

Module 1: Cloud Computing Foundations for Research

- Cloud service models
- Public, private, hybrid, and multi-cloud models
- Cloud infrastructure vs on-premise systems
- Research-oriented cloud architectures

- **Case Study:** Migration of a university research lab to cloud

Module 2: Research Data Storage and Management

- Object storage, data lakes, and data warehouses
- Research data lifecycle management
- Metadata standards and data cataloging
- Backup, archiving, and disaster recovery
- **Case Study:** Managing petabyte-scale genomic datasets

Module 3: Cloud Security, Privacy, and Compliance

- Identity and access management (IAM)
- Encryption and secure data sharing
- Compliance frameworks
- Risk management and threat modeling
- **Case Study:** Secure cloud handling of sensitive health data

Module 4: Big Data and Analytics in the Cloud

- Cloud-based big data processing frameworks
- Data analytics and visualization tools
- AI/ML integration for research insights
- Real-time and batch data processing
- **Case Study:** Climate data analytics using cloud platforms

Module 5: High-Performance and Distributed Computing

- Cloud-based HPC and parallel processing
- GPU and accelerator usage for research
- Workflow orchestration tools
- Performance optimization techniques
- **Case Study:** Simulation-based engineering research on cloud

Module 6: Collaborative and Reproducible Research

- Collaborative research environments
- Version control and data provenance
- Reproducible research pipelines
- Open science and data sharing platforms
- **Case Study:** Multi-institutional research collaboration

Module 7: Cost Optimization and Cloud Governance

- Cloud cost models and budgeting
- Resource monitoring and optimization
- Governance and policy enforcement
- Sustainability and green cloud computing
- **Case Study:** Cost-optimized cloud research project

Module 8: Advanced Trends and Future Directions

- Serverless computing for research

- Edge computing and IoT data integration
- Multi-cloud research strategies
- Emerging cloud innovations for science
- **Case Study:** AI-driven research workflows in the cloud

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:

Register Online Now

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