

ITCA-DSF: Data Science Fundamentals Certificate

Course Code: ITCA-DSF

Duration: 3 days

Instructor-led Training (ILT) | Virtual Instructor-led Training (VILT)

OVERVIEW

This Data Science Fundamentals Certificate course introduces you to data science, a growing and rapidly changing field that is becoming increasingly vital to business survival, job stability, and national security. Data science demands skilled professionals who possess the knowledge, skills, and ability to address the evolving threat landscape.

SKILLS COVERED

- Data Characteristics: Basic Concepts
- Use of Data in Information Systems
- Data Structures
- Statistical Analysis
- Types of Databases
- Data Management
- Governance
- Data Governance Roles and Responsibilities
- Access and Protection
- Data Discovery and Collection
- Data Classification
- Data Processing Concepts
- Data Processing with Machine Learning
- Communication of Results
- Practice Labs

WHO SHOULD ATTEND?

The Data Science Fundamentals Certificate is intended for:

A wide-range of individuals, including:

- Those new to IT, students, recent graduates and career changers.
- Audit, risk, security and governance professionals looking to gain base-line IT knowledge and skills.
- Current IT Professionals looking to reskill or upskill to broaden their IT knowledge and skills or keep up-to-date

PREREQUISITES

There are no prerequisites required to attend this course.

MODULES

Module 1: Data Characteristics: Basic Concepts

Learning Objectives

- Define the terms and concepts of data science.
- Describe the relationship between data science and statistics.
- Describe the classifications and characteristics of data.

Topics

- What Is Data Science?
- Defining Big Data
- The Evolution of Big Data
- What Is Data?
- Raw Data vs. Contextualized Data
- Comprehensive version
- Difference Between Data Statistics and Analytics
- Data Types
- ASCII and Unicode

Module 2: Use of Data in Information Systems

Learning Objectives

Explain the different types of data structures, flows and diagrams.

Topics

- DIKW Pyramid
- Metadata
- Data Flows and Data Diagrams
- Applicability of Data to Business

Module 3: Data Structures

Learning Objectives

- Explain the different types of data structures, flows and diagrams.

Topics

- Characteristics of Data Structures
- Linear Structures
- Tree Structures
- Index and Pointer Structures

Module 4: Statistical Analysis

Learning Objectives

- Use statistical analysis to gather populations and samples.
- Distinguish among sampling techniques.

Topics

- Populations and Samples
- Statistical Modeling
- Key Performance Indicators (KPIs)

Module 5: Types of Databases

Learning Objectives

- Distinguish among different data storage and management systems.
- Describe the benefits of using automated processes to manage data.

Topics

- Introduction
- Operational Databases
- Relational vs. Non-Relational Databases
- Autonomous Databases

Module 6: Data Management

Learning Objectives

- Identify elements within a database management system.
- Explain the use of data in online and cloud-based applications.

Topics

- Common Database Management Systems
- Data Lakes
- Data Warehouse
- Data Management Platforms

Module 7: Governance

Learning Objectives

- Explain legal, regulatory and ethical considerations regarding use of data.

Topics

- Governance
- Data Governance
- Legal and Regulatory Compliance

Module 8: Data Governance Roles and Responsibilities

Learning Objectives

- Explain legal, regulatory and ethical considerations regarding use of data.
- Detail data governance roles and responsibilities.

Topics

- Data Ethics
- Data Roles and Responsibilities

Module 9: Access and Protection

Learning Objectives

- Distinguish among data obfuscation, tokenization and encryption.

Topics

- Access and Protection
- Data Accessibility and Protection
- Managing Permissions
- Third-Party and Vendor Access and Management
- Data Obfuscation
- Tokenization
- Encryption

Module 10: Data Discovery and Collection

Learning Objectives

- Identify open and cross-industry standards used to process data.
- Describe techniques used to collect data.

Topics

- Data Discovery and Goal Identification
- Requirements and Resources
- Formulation of Hypotheses
- Data Collection
- Database Queries
- Data Collection Methods and Techniques

Module 11: Data Classification

Learning Objectives

- Explain activities performed to prepare data for analysis, categorization and modeling.

Topics

- Data Classification

- Data Cleansing
- Data Clustering
- Data Tagging
- Data Governance Tools

Module 12: Data Processing Concepts

Learning Objectives

- Identify methods to uncover relationships among data.
- Identify tools used to build, model and analyze data.
- Describe concepts related to business analytics.

Topics

- Introduction
- Exploratory Data Analysis
- Model Development Tools
- Statistical Analysis Tools
- Business Analytics

Module 13: Data Processing with Machine Learning

Learning Objectives

- Distinguish among types of machine learning algorithms.

Topics

- Machine Learning

Module 14: Communication of Results

Learning Objectives

- Distinguish among types of visualization and reporting tools.

Topics

- Reporting Techniques
- Reporting Tools

Module 15: Practice Lab

- Creating and Querying Databases with GUI Database Clients
- Using GUI Database Clients
- Data Cleansing
- Metadata
- Database Permissions
- Data Integrity
- File Hashing
- Data Management System

END OF PAGE