ISACA Data Science Fundamentals (ITCA)

This entry-level Data Science Fundamentals (ITCA) training prepares learners to use data to make informed decisions, explain characteristics, types, uses and structures of data, and implement basic data governance practices.

CBT Nuggets course material →

STUDY PLAN

WEEK 1

Explore Data Science Foundational Concepts — 151 min.

What is Data Science?	8
What is Data?	8
Explore Dimensionality with Google's Colab	6
What is Connectivity?	5
CHALLENGE	8

Explore Machine Learning and Related Data Types

Basic Data Types	7
Explore Data Types with Colab	7
What is Metadata?	6
Machine Learning Data Types	6
What is Text Encoding and ISO?	6
CHALLENGE	10

Compare Statistics and Analytics for Big Data

Statistics Vs. Analytics	6
Problem First Vs Techniques First	3
What is Big Data?	14
What is DIKW?	7
Applying Data to Business	6
CHALLENGE	7

Explore Core Data Structures for Data Science

Explore Foundational Data Structures for Data Science	8
Define Inherent and Use Defined Data Structures	5
Implement Inherent and User Define Data Structures	9
Explore Threads: a Process Component	5

	Compare Executions of Synchronous and Asynchronous Threads	4

WEEK 2

151 min.

CHALLENGE	9

Investigate Linear and Non-Linear Data Structures

Linear Data Structures	15
Stacks, Queues, LIFO, and FIFO	6
Binary Trees and Hash Tables/Maps	5
Index and Pointers Data Structures	6
CHALLENGE	10

Describe and Summarize Statistical Data Analysis

Statistical Analysis	5
Populations and Sampling	13
Populations & Sampling: Colab Code Example	5
Probability Sampling	7
Non-Probability Sampling	1
CHALLENGE	3

Describe Data Management Systems in Data Science

What Are Database Management Systems (DMS)?	5
Operational Databases and Big Data	5
Explore Before and After Data Normalization	8
Autonomous Databases and Database Management Systems	12
Python Code Example of Relational Database Operations	7
CHALLENGE	2

Explore Data Lakes, Data Warehouses, and Storage

What is a Data Lake?	8
Data Lake Python and Colab Example	5
What is a Data Warehouse?	8
Data Warehouse Python and Colab Example	6

WEEK 3

167 min.

What Are Data Management Platforms?	5
CHALLENGE	8

Explain Data Governance, Management and Compliance

What is Data Governance?	8
Explore Data Governance Concepts	8
Review Legal and Regulatory Compliance	6
Legal and Regulatory Compliance Continued	5
What is PI and PII Exactly?	6
PI and PII Defined	7
CHALLENGE	5
Congrats!	1

Explore Ethics and Roles in Data Science

Big Data Code of Conduct & Ethics	9
Top Industry Resources	5
Data Science Association: Code of Conduct	26
CHALLENGE	2

Explore Data Access and Protection in Data Science

Data Governance Overview with ISACA COBIT	8
Data Access & Protection	4
Navigating PII with ISO Guidelines	10
Privacy Principles	5
Privacy Principles: Continued	4
Cooperated Systems	9
Challenge	1

Explore Data Mining and Analysis Frameworks

What is Data Discovery?	7
The CRISP-DM Model	18

WEEK 4 **167 min.**

The ASUM-DM Model	7
The 6 Requirement Characteristics	6
CHALLENGE	3

Discover Data Collection & Classification Methods

What is a Hypothesis?	16
Collecting Quantitative Data	5
Collecting Qualitative Data	5
Data Cleaning and Preprocessing	4
Selecting an Algorithm	5
CHALLENGE	4

Explore Data Processing for Data Science

Data Processing	3
Performing Exploratory Data Analysis (EDA)	5
EDA Categories	8
Multivariate Analysis	7
Dimensionality Reduction	7
Platforms Overview	6
CHALLENGE: EDA	5

Explore Machine Learning for Data Science

Introduction	1
Software Application Analysis Tools	4
Business Analytics	6
Machine Learning: Supervised Learning	8
Other Types of Machine Learning	5
Measuring Model Performance	7
CHALLENGE	8

Communicate Data Science Insights to Stakeholders

Introduction	3
Communicate Data Science Insights to Stakeholders	9
Presentation Techniques	20

WEEK 5 **17 min.**

Reporting Tools	11
CHALLENGE	2
Solution	4