

CASUALTY ACTUARIAL SOCIETY



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THE INSTITUTES
CAS Data Insurance Series Courses (DISC)

The following syllabus is provided by The Institutes for

CAS DISC DA – Introduction to Data and Analytics

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Course Syllabus

1. Planning an Insurer Data Modeling Project
 - a. Harnessing the Power of Data
 - b. Applying Data Quality Principles
 - c. Documenting Data
 - d. Data Classifications

2. Collecting Data for Insurer Models
 - a. Insurer Operational Data
 - b. Statistical Plans
 - c. External Data Sources

3. Preparing Data for Analysis
 - a. Managing Dataframes
 - b. Querying Data
 - c. Joining Data Tables
 - d. Indexes, Null Values, and User-Defined Functions
 - e. Extracting Data from Online Sources and Data Marts
 - f. Testing Data

4. Working With Different Types of Data
 - a. Working with Structured Data
 - b. Working with Unstructured Data
 - c. Addressing Common Data Issues

5. Analyzing Data With Visualizations
 - a. Planning an Effective Data Exploration
 - b. Data Exploration Fundamentals
 - c. Fundamentals of Exploratory Data Visualizations
 - d. Creating Plots

6. Presenting Data Effectively
 - a. Keys to Effective Presentation Visualizations
 - b. Selecting the Right Presentation Visualization
 - c. Maximizing a Presentation Visualization's Effectiveness

7. Understanding Fundamental Modeling Concepts
 - a. Basic Data Modeling Techniques
 - b. Similarity and Distance in Data Modeling
 - c. Predictive Model Training and Evaluation

8. Basic Data Analysis
 - a. Traditional Data Analysis
 - b. Analyzing Data with Classification Trees
 - c. Analyzing Data with Linear Functions
 - d. Segmenting Data with Cluster Analysis

9. Preparing Data for Insurance Applications
 - a. Preparing Data for Insurance Applications Using SQL
 - b. Creating Datasets for Claims Models
 - c. Creating Datasets for Underwriting Models

10. Ethical and Societal Considerations of Data Analytics
 - a. Using Data Ethically
 - b. How Regulations and Professional Codes Affect Data Modeling
 - c. Applying Ethics Checklists to Insurance Data Modeling
 - d. Societal Impact of Credit-Based Insurance Scores