COURSE SYLLABUS

Data Analysis Basic Course (Self-Paced)

This course provides a comprehensive introduction to the foundational concepts of data analytics, including data structures, data quality, visualization, governance, and reporting tools. It focuses on transforming raw data into meaningful insights that support informed decision making in business and audit environments.

> Group classes in Live Online and onsite training is available for this course. For more information, email onsite@graduateschool.edu or visit: https://www.graduateschool.edu/courses/data-analysis-basic-course-self-paced

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Course Outline

Module 1: Introduction to Data Analytics

- Understand the role of data analytics in modern organizations.
- Differentiate between data and information and recognize the importance of context.
- Identify how questions and data availability shape analytical approaches.

Module 2: Data Structures & Types

- Distinguish between structured and unstructured data.
- Understand tables, databases, rows, and columns.
- Recognize challenges in analyzing emails, images, PDFs, and other unstructured formats.

Module 3: Internal & External Data Sources

- Identify common internal systems (ERP, HR, POS, financial systems).
- Explore external data sources including government and partner data.
- Evaluate privacy, quality, and legal considerations when using external data.

Module 4: Transactional vs. Analytical Systems

- Compare transactional systems with data warehouses and data marts.
- Understand ETL (Extract-Transform-Load) concepts.
- Recognize how combining systems supports strategic decision-making.

Module 5: Data Quality & Governance

- Identify common data mismatches and transformation challenges.
- Understand data definitions, stewardship, and governance principles.
- Learn how poor governance can lead to operational failures.

Module 6: Data Privacy & Compliance

- Differentiate PII and PHI data types.
- Review major privacy regulations such as GDPR and CCPA.
- Apply best practices for handling sensitive data responsibly.

Module 7: Data Visualization

- Understand why visualization enhances learning and insight discovery.
- Differentiate between static and dynamic visualizations.
- Use visualization techniques to identify trends and outliers.

Module 8: Reporting & Analytics Tools

- Survey common tools such as Excel, Access, Tableau, and Power BI.
- Understand when to use visualization, statistical, or audit-specific tools.
- Recognize strengths and limitations of different analytics platforms.

Module 9: Excel for Data Analysis

- Apply sorting, filtering, and common math functions.
- Create pivot tables and pivot charts.
- Use Excel to answer basic business and audit questions.

Module 10: Analytical Techniques & Case Studies

- Perform stratification, duplicate detection, and normalization.
- Analyze vendor, employee, and transaction data.
- Apply techniques such as Benford's Law, sampling, and date comparisons.

Module 11: AI & Emerging Trends in Data

- Understand the growth of big data and AI-driven analytics.
- Compare search engines and AI chat systems.
- Apply AI best practices and prompt fundamentals responsibly.