COURSE SYLLABUS

Auditing with Data Analytics Course

Apply data analytics to strengthen audit planning, assess data reliability and integrity under GAO standards, and identify anomalies, patterns, and risks using practical tools such as Excel, Benford analysis, and geographic data.

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/auditing-with-data-analytics

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Course Outline

Module 1: Consideration of Data Validity, Reliability, and Integrity Under Generally Accepted Government Auditing Standards (GAGAS)

- Describe the importance of data validity, reliability, and integrity when conducting audits and attestation engagements under GAGAS.
- Identify the four types of evidence discussed in the Yellow Book and their order of general credibility.
- Examine the requirements for evidence to be sufficient, competent, relevant, valid, and reliable under GAGAS.
- Define validity and reliability as used by GAGAS.
- Discuss the importance of data integrity in auditing.
- Analyze standards for data assessment and the framework for data reliability assessments.
- Describe the process of assessing data reliability and the possible determinations that can be made.

Module 2: Basic Data Integrity Procedures

- Describe the three primary types of data integrity: entity integrity, referential integrity, and domain integrity.
- Perform basic data integrity procedures in Excel, including inserting a counter, qualifying data import, and activating data analysis tools.
- Use Excel functions to clean, trim, and format data.
- Perform data grouping and filtering using Excel tools such as Pivot Tables.
- Examine the limitations and features of Excel, including formulas, operators, and references.

Module 3: Descriptive Statistics

- Analyze the concept of descriptive statistics and its importance in auditing.
- Differentiate between population parameters and sample statistics.
- Describe the difference between attributes and variables and their respective values.
- Construct frequency distributions and graphs.
- Calculate measures of central tendency, dispersion, skew, and kurtosis.
- Use Excel's Data Analysis ToolPak.
- Apply descriptive statistics in auditing and data analysis.

Module 4: Graphs

- Analyze the importance of graphs in descriptive statistics and their use in visually summarizing relationships between variables.
- Identify different types of graphs and when to use them.
- Examine the advantages and disadvantages of different graph types.
- Recognize how graphs can be manipulated to create false impressions and how to avoid such deceptions.
- Create and interpret graphs accurately and effectively.

Module 5: Outliers and Their Disposition

- Analyze the impact of outliers on data analysis.
- Identify outliers using statistical methods such as Z-score, median, and fences methodology.
- Describe options for dealing with outliers and their impact on data analysis.
- Discuss the use of outliers in fraud detection and the determination of materiality thresholds.
- Apply these concepts to real-world scenarios using Excel-based exercises.

Module 6: Other Anomalies

- Describe Benford's Law and its application in data analysis.
- Identify the conditions required for Benford's Law to hold true.
- Analyze the objectives of Benford Analysis and how it can identify abnormal recurrences and digit patterns.
- Outline the limitations of Benford Analysis and the importance of using it alongside other data mining techniques.
- Examine geographic outliers and how to identify potentially anomalous or inappropriate spatial relationships.
- Apply Benford Analysis to a data set using the provided Excel tool.

Module 7: Correlation

- Examine the general principles of correlation and its measures.
- Differentiate between Pearson and Spearman Rank Correlation Coefficients.
- Interpret the strength and direction of the correlation coefficient.
- Describe the limitations of correlation and its inability to determine causation.
- Use correlation as an audit scoping tool.
- Discuss the impact of sample size on correlation.
- Construct a correlation matrix using Excel.
- Analyze the importance of selecting appropriate data for correlation analysis.
- Apply the principle that correlation does not equal causation.