Using Data Analytics to Detect and Prevent Fraud
(8 hours)

Course Overview

Data analytics involves examining data sets to find trends and draw conclusions about the information they contain. It can be a powerful tool for auditors when conducting compliance or performance audits. This course is designed to help expand auditors' knowledge of data analytic techniques to prevent and detect fraud and better enable auditors to work more collaboratively and creatively with data scientists on big data problems as well as improve their Excel skills for solving smaller data problems using worksheets. This course builds on the CAE course, "Data Analysis: Enhancing the Impact of Performance Audits" and is delivered over 2 half days.

CPEs: 8

Who Should Attend

This course is designed for auditors who want to expand their working knowledge of data analytics in helping to detect and prevent fraud while conducting their oversight work. Participants should possess a working knowledge of data analysis and internal controls. Participants need experience and a current version of Excel so that they can actively practice data analytics techniques during course exercises.

Course Objectives

The course is designed to:

- Enhance participants' understanding of the foundations of data analytics ;
- Show participants how other organizations have applied analytics to detect fraud; and
- Teach participants ways in which data analytic techniques can be used for fraud prevention and detection.

Course Topics

Foundations of Data Analytics

- Data analytics terms of reference
- Four key points to remember when using data analytics:
    - Challenges of using data analysis
    - Using a framework for planning and conducting data analysis
    - Using a data analysis plan to think through audit objectives

o Knowing auditor and agency management responsibilities

Fraud
- Defining fraud concepts and terms
- How auditors may encounter fraud
- Identifying fraud indicators
- Cataloguing and mapping fraud indicators
- Characteristics of fraud schemes affecting the federal government

Fraud Controls (Data-Related)
- Knowing internal control authorities
- Understanding control activities and concepts
- Awareness of control limitations
- Using identity proofing as a key fraud control
- Using data validation or edit checks

Data
- Knowing the hierarchy of data
- Using the Department of the Treasury's Do Not Pay function
- Examples of data matching
- Extracting data for mining and matching
- Cleaning dirty data

Fraud Analytics

- Demonstrating and practicing fraud (data) analytic techniques:

  - Data mining examples
    - o rules-based testing
    - o reasonableness testing
    - o outlier detection
  - Data matching examples
    - o links and patterns analysis
    - o crossmatching and fuzzy matching