

Classes

statistical sampling for sales and use tax audits

This course is designed to be the first step in understanding and applying statistical sampling techniques. Appropriate use of sampling techniques contributes to reduced audit cost, reduced travel cost, improved audit results, and makes audits more defensible if challenged by taxpayers.

OBJECTIVE:

To provide participants with an understanding of basic statistical sampling techniques and their application to sales and use tax audits. When the course is completed the auditor should be able to apply the basic principles and conduct a statistical sample. However, this course should be viewed as the first step and not the final step in obtaining a thorough understanding of statistical sampling.

AUDIENCE:

The course is designed as a basic course for state and local sales & use tax auditors, supervisors and review section personnel.

PREREQUISITES:

Familiarity with sampling concepts

STUDENT REQUIREMENTS:

Each participant is required to have a laptop computer with a CD-Drive for the purpose of downloading software and Excel spreadsheet files. Many of the course examples, exercises and case studies are conducted using the Excel spreadsheet software.

PROGRAM LEVEL: Intermediate

PROGRAM CONTENT:

Introduction to statistical sampling techniques and its application to sales and use tax audits.

COURSE MATERIALS:

Participants will receive a comprehensive course binder which includes the course material, questions, exercises and case studies. Participants will also receive a copy of the MTC statistical sampling software.

ADVANCE PREPARATION: None

INSTRUCTIONAL DELIVERY METHOD:

Group-Live with problems sets.

RECOMMENDED CPE CREDIT: 32 hours

REGISTRATION INFORMATION:

Contact Antonio Soto at asoto@mtc.gov or (202) 508-3846



PROGRAM DAY ONE: 8:00 AM – 4:30 PM

I. Introduction (½ hr)

II. General Overview of Statistical Sampling (1½ hrs)

- A. Types of Samples
- B. Probability Sample
- C. Sampling Frame vs. Target Population
- D. Important Distributions
- E. Computing a Confidence Interval Using the Normal Distribution
- F. 1-sided or 2-sided
- G. Sampling Risk

III. Selecting Sample Using Software (4 hrs)

- A. Introductory Screen
- B. Software/Sampling Specific Terms
- C. Basis of the Pseudo Random Number Generator (*PRNG*)
- D. Non-electronic Sampling
- E. Electronic Data Sampling

IV. Defining (Refining) the Population (3 hrs)

- A. Audit Objective – Target Population
- B. Sampling Frame

PROGRAM DAY TWO: 8:00 AM – 4:30 PM

IV. Defining (Refining) the Population ...continued

- C. Statistical implications of refining the population
- D. Refinement techniques

V. Statistical Evaluation Using Software (4 hrs)

- A. Software terms
- B. Frame information
- C. Sample data from the strata
- D. Statistical evaluation

VI. A Closer Look at Theory and the Estimators (8 hrs)

- A. Review Shapes of Populations/Distributions
- B. Describing a Population

PROGRAM DAY THREE: 8:00 AM – 4:30 PM

VI. A Closer Look at Theory and the Estimators...cont.

- C. Describing a Sample
- D. Mean versus the Total
- E. Sampling Distribution
- F. Constructing a Confidence Interval using Difference Estimation
- G. Constructing a Confidence Interval using Ratio Estimation
- H. Constructing a Confidence Interval using Regression Estimation
- I. Interpreting Confidence Intervals

VII. Stratified Sampling (3 hrs)

- A. Why Stratify?
- B. Is the CV of Invoice Amounts Relevant?
- C. How Many Strata?
- D. Strata Boundaries

PROGRAM DAY FOUR: 8:00 AM – 4:30 PM

VII. Stratified Sampling...continued

- E. Sample Allocation
- F. Optimal Allocation
- G. Combined versus Separate Evaluation (*Ratio/Regression*)

VIII. Sample Size (2 hrs)

- A. What factors influence Sample Size (*AI's myth*)
- B. Using Statistical formulas
- C. Software

IX. Other Topics (2 hrs)

X. Comprehensive Problem (2 hrs)

XI. Wrap-up

