UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Campionamento per l'Audit (audit Sampling)

2425-1-F7701M137-F7701M137-1

Learning objectives

At the end of the course, students will be able to perform various sampling techniques for auditing. Specifically, students will be able to:

- Understand the basic principles of statistical and non-statistical sampling and their importance in the context of auditing.
- Apply sampling techniques to select and test samples using specific software and tools.
- Improve the efficiency of auditing through appropriate use of sampling, understanding the impact of sample size and selection on results.
- Apply sampling techniques in real audit scenarios through case studies and simulations, developing the ability to solve practical problems.

Contents

The course will cover the following aspects in depth:

- Italian Regulatory References for Audit Sampling
- Audit Risk Model and Audit Procedures
- Statistical Concepts Related to Operational Audits
- Sampling Methods for Auditing

Detailed program

1. Statistical Sampling

1.1 Use of sampling in business auditing.
1.2 Probabilistic and non-probabilistic sampling.
1.3 Sampling errors and non-sampling errors.

2. Simple Random Sampling with and without Replacement/In Blocks
2.1 Introduction.
2.2 Sample mean.
2.3 Sample proportion.
2.4 Estimator of the total.
2.5 Estimator of the accounting error.
2.5.1 Estimator of the total accounting error (average per unit method, average rate method).
2.5.2 Determination of the upper limit of the accounting error and auditor's decision.

3. Methods of Selecting a Sample with or without Replacement
3.1 Definition of the sampling base.
3.2 Random extraction from a list of elements.
3.3 Systematic sampling.
3.4 Problems related to sample selection.

4. Stratified Sampling
4.1 Sample mean.
4.1.1 Proportional stratified sampling.
4.1.2 Optimal stratified sampling for a fixed sample size.
4.1.3 Efficiency gain due to stratification.
4.1.4 Confidence intervals for the mean, choice of sample size, and hypothesis testing.
4.2 Sample proportion.
4.2.1 Proportional stratified sampling.
4.2.2 Optimal stratified sampling for a fixed sample size.
4.2.3 Efficiency gain due to stratification.
4.2.4 Confidence intervals for the mean, choice of sample size, and hypothesis testing.
4.3 Estimator of the total.
4.4 Estimator of the accounting error.
4.4.1 Estimator of the total accounting error (average per unit method for proportional stratified sampling).
4.4.2 Determination of the upper limit of the accounting error and auditor's decision.

5. Sampling for Monetary Units
5.1 Introduction and definition.
5.2 Sample selection method.
5.3 Estimator of the accounting error.
5.3.1 Conservative approach.
5.3.1.1 Tables of reliability factors: reading and interpretation.
5.3.1.2 Determination of sample size.
5.3.1.3 Determination of total accounting error.
5.3.1.4 Determination of the upper limit of the accounting error and auditor's decision.
5.3.2 Conventional approach.
5.3.2.1 Determination of sample size.
5.3.2.2 Determination of total accounting error.
5.3.2.3 Determination of the upper limit of the accounting error and auditor's decision.

Prerequisites

Basic course of statistics, probability and inference (refer to the course * Metodi Statistici per le amministrazione

delle imprese *, 2nd year, Bachelor's Degree Course in Economia ed amministrazione delle imprese -ECOAMM- https: //elearning.unimib.it /course/view.php?id=38771)

Teaching methods

The module includes a teaching activity of 30 hours (classroom lectures) and an interactive activity of 5 hours on the use of Excel (conducted in the classroom to complement the lecture).
During the lessons, exercises on the use of Excel for audit sampling and demonstrations will be assigned. These must be submitted to the instructor through the MOODLE platform.
The lessons will be recorded live and will be published on the e-learning platform within the day following the lesson.

Assessment methods

The exam will be done in alternative by two ways

FIRST WAY

The examination consists of submitting 2 assignments and a final written test. The final written test must be completed by the February session.
The two assignments will involve practical sampling applications and must be executed in Excel. Each assignment comprises 5 questions, with scores ranging from 0 to 6 points per question. The final score for this part will be the average of the total scores from the two assignments. Each assignment must be submitted by the end of November 2025, on a date specified by the teacher.
The final written test will cover topics related to sampling for accounting errors and will consist of 2 questions, each containing 5 sub-questions scored from 0 to 3. The questions will include both theory and exercises. The final exam grade will be determined by a weighted average of the assignment part on Excel (weighted at 0.3) and the written test (weighted at 0.7).

SECOND WAY

The test consists of a written exam that covers all the topics of the program. It will be structured into 3 questions, each including 5 sub-questions with scores ranging from 0 to 2. The questions will span both theory and exercises.

BONUS

Students who submit or present the required demonstrations during the course will be eligible for a bonus (ranging from 0 to 3 points) that will be added to the final exam grade, provided that the grade is 18 or higher.

During the written tests, students may use the formula sheet prepared by the teacher, which is available on the e-learning platform.

Textbooks and Reading Materials

Pollastri Angiola *Elementi di Teoria dei Campioni,* CUSL, Milano

Pollastri Angiola *Esercizi di Teoria dei Campioni,* CUSL, Milano

Gruppo24Ore Le tecniche di campionamento nella revisione

Commissione Europea Guida ai metodi di campionamento per le autorità di audit (cap 4-5; 6.3: pagg 89-99)

Guy, D.M., Carmichael, D. R., Whittington, R. (2002) *Audit Sampling. An Introduction* (Fifth edition), Wiley

Reading Materials provided by the teacher.

Semester

First semester

Teaching language

Italian language

Sustainable Development Goals

INDUSTRY, INNOVATION AND INFRASTRUCTURE