

COURSE OF STUDY: Statistical sciences
ACADEMIC YEAR: 2024-2025
ACADEMIC SUBJECT: Sample surveys

General information	
Year of the course	<i>First</i>
Academic calendar (starting and ending date)	<i>Second semester</i>
Credits (CFU/ETCS):	6
SSD	<i>SECS-S/05</i>
Language	<i>Italian</i>
Mode of attendance	<i>Optional but strongly recommended</i>

Professor/ Lecturer	
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Department and address	<i>Department of Economy and Finance</i>
Virtual room	<i>Teams (first contact the teacher)</i>
Office Hours (and modalities: e.g., by appointment, on line, etc.)	<i>Prof.ssa D'Uggento: Tuesday and Friday, 9 -11</i> <i>Prof. TOMA: Tuesday and Friday, 11 -13</i>

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
<i>150</i>	<i>28</i>	<i>14</i>	<i>108</i>
CFU/ETCS			
<i>6</i>	<i>4</i>	<i>2</i>	

Learning Objectives	The course aims to make understandable the concept of statistical sampling, the possible sample designs, the potential and limitations of sample survey, a fundamental tool for market research and surveys of population behavior and opinions, and to develop the ability to create a questionnaire, also in electronic format in the case of computerized surveys.
Course prerequisites	A previous knowledge of basic Statistics is strongly recommended.

Teaching strategies	Lectures on theoretical topics and practical examples addressing problems to develop students' ability to apply theory in the context of real phenomena. Exercises aimed at carrying out a project work on the following topics: 1) design of a questionnaire; 2) creation and use of electronic questionnaires; 3) design of a statistical survey; 4) preparation of survey reports.
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Expected learning outcomes in terms of	
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<p>Knowledge and understanding on</p> <p>Applying knowledge and understanding on</p> <p>Soft skills</p>	<p>Knowledge and understanding of:</p> <ul style="list-style-type: none"> - students need to know the main problems in conducting a sample survey in order to subsequently select the appropriate instruments and techniques for collecting data at the sample level; <p>Application of knowledge and understanding to:</p> <ul style="list-style-type: none"> - students need to know how to select the appropriate instruments and proper techniques for sample-level data collection; <p>Soft skills</p> <ul style="list-style-type: none"> - students need to develop good judgment by following the stages of research from programming to reporting the data; - students must acquire the knowledge necessary to continue their studies with the following disciplines in the field of Statistics.
<p>Syllabus</p> <p>Content knowledge</p>	<p>1. Statistical data collection</p> <ul style="list-style-type: none"> - The statistical investigation: objectives and phases of the statistical investigation. - Survey methods: Face-to-face, telephone, mail, diary. Computer assisted surveys. - Theory and technique of scales. - Questionnaire methodology: structure of the questionnaire, formulation of questions and choice of response methods. - Questionnaires for opinion and evaluation surveys. The use of tests in Psychometrics. - Introduction to the construction and participatory evaluation of questionnaires (Dephi techniques) - Methods of construction of electronic questionnaires for computer-assisted surveys <p>2. The statistical sampling method</p> <ul style="list-style-type: none"> - Probability and non-probability sampling - Sampling and non-sampling error - Simple, non-repeated and large random sampling - Systematic selection sampling - Constant and variable selection probabilities; unit weighting. - Stratified sampling - Cluster and multistage sampling - Rotated sampling (panel) - Sampling from defective lists (non-probabilistic techniques) <p>3. Organizational aspects of a sample survey</p> <ul style="list-style-type: none"> - Possible errors in a statistical survey - Survey costs: sample size, fixed costs and variable costs - The sampling design of the Istat Labor Force Survey - Transferring data from complex sampling plans back to the population - The experimental design <p>4. Notes on the inferential aspects of a sample survey.</p> <ul style="list-style-type: none"> - Elements of statistical inference. - Examples of point and interval estimates for some quantities of the universe. - Surveys and estimates on topics of a sensitive subjects - Choosing the type of sampling to use

	<ul style="list-style-type: none"> - The efficiency of sampling designs (Deff and Deft) <p>5. Data processing and report writing (workshops included in the course).</p> <ul style="list-style-type: none"> - Project work: design of a statistical survey - Project work: construction of electronic questionnaires for computer-assisted surveys - Project work: preparation of a report based on survey data
Texts and readings	<p>Delvecchio F. (2024). Statistica per lo studio dei fenomeni sociali, CLEUP, Padova.</p> <p>Fabbris L. (1996). L'indagine campionaria. Metodi, disegni e tecniche di campionamento, 2° ed., Carocci, Roma. (out of business)</p>
Notes, additional materials	
Repository	Materials provided in class or available at the instructor's direction or student request.

Assessment	
Assessment methods	The profit test is conducted through an oral interview supplemented by exercises conducted simultaneously with the oral exam. Analytical and problem-solving skills, as well as theoretical knowledge acquired, contribute equally to the knowledge assessment
Assessment criteria	<p>Based on the above expected learning outcomes, students are expected to:</p> <ul style="list-style-type: none"> - <u>Knowledge and Understanding</u>: have acquired the knowledge and be able to conceptually organize a sample survey - <u>Applied knowledge and understanding</u>: know how to apply the theory acquired by choosing appropriate sampling procedures, and know how to correctly interpret the results obtained - <u>Ability to criticize and judge</u>: know, including examples of specific cases, how to define the difficulties of sample surveys and avoid possible errors associated with them - <u>Ability to communicate what they have learned</u>: Know how to make the reasons for the choice of methods used understandable and write reports on the analysis and interpretation of the results obtained - <u>Ability to continue studying independently</u>: students will be able to independently manage the study of statistical disciplines in the following years with the acquired methodological knowledge. • <u>Ability to continue the study autonomously</u>: students are able, with the acquired methodological skills, to autonomously deal with the study of the statistical disciplines of the following years.
Final exam and grading criteria	The final grade is given in thirtieths. The exam is considered passed if the grade is greater than or equal to 18.
Further information	