

**DEGREE COURSE IN ECONOMICS – CORPORATE CURRICULUM**
**ACADEMIC YEAR 2024 - 2025**
**STATISTICAL INFERENCE**

| General information                          |  |
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| Year of the course                           | III                                    |
| Academic calendar (starting and ending date) | First term (9/09/2024 – 20/12/2024)    |
| Credits (CFU/ETCS):                          | 6 CFU                                  |
| SSD  | Statistica, SECS-S/01                  |
| Language                                     | Italian                                |
| Mode of attendance                           | Class attendance is strongly suggested |

| Professor  |   |
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| Name and Surname   | Alessio Pollice   |
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| Telephone  | 080 504 9267  |
| Department and address   | Room n. 3, 5-th floor   |
| Virtual room   | MS Teams channel “Prof. A. Pollice - Ricevimento studenti”, code: y7zenm7 |
| Office Hours (and modalities: e.g., by appointment, on line, etc.) | In person or online, by appointment.                                      |

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

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| <b>Learning Objectives</b>  | Understanding and knowledge of the elementary notions of probability calculus and of the theoretical, methodological and applicative developments of inferential statistics; Familiarity in the application of statistical inference methods to the analysis of economic data or data from other application contexts; Autonomy in the choice of statistical inference methodologies and in the evaluation of the results of the same with reference to exercises and case studies; Ability to express the theoretical contents of the discipline and to motivate the choices to be made for carrying out exercises and examples; Acquisition of theoretical and applied skills on the topics of probability calculus and inferential statistics related to the various chapters of the syllabus. |
| <b>Course prerequisites</b> | <ul style="list-style-type: none"> <li>Mathematics topics corresponding to the contents of the Mathematics for economics course;</li> <li>Descriptive statistics topics corresponding to the contents of the first course in Statistics.</li> </ul>   |

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| <b>Teaching strategies</b> | <ul style="list-style-type: none"> <li>Lectures and practical exercises on the topics of probability calculus and inferential statistics related to the various chapters of the syllabus.</li> <li>Teaching materials and self-assessment tests on the e-learning platform. The self-assessment tests (multiple choice questions and exercises for each chapter of the course) are provided in order to familiarize yourself with how the exams are carried out and are to be faced individually within the pre-established time limits. The outcome of the self-assessment tests helps to</li> </ul> |
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|  | improve the overall evaluation of the commitment of the students enrolled in the course. |
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| Expected learning outcomes in terms of   |  |
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| DD1 Knowledge and understanding          | Understanding and knowledge of the elementary notions of probability calculus and of the theoretical, methodological and applicative developments of inferential statistics.   |
| DD2 Applying knowledge and understanding | Familiarity in the application of statistical inference methods to the analysis of economic data or data from other application contexts.  |
| DD3-5 Soft skills                        | <ul style="list-style-type: none"> <li>• <i>DD3 - Making informed judgments and choices</i><br/>Autonomy in the choice of statistical inference methodologies and in the evaluation of the results of the same with reference to exercises and case studies;</li> <li>• <i>DD4 - Communicating knowledge and understanding</i><br/>Ability to express the theoretical contents of the discipline and to motivate the choices to be made for carrying out exercises and examples;</li> <li>• <i>DD5 - Capacities to continue learning</i><br/>Autonomy in learning the topics of inferential statistics in order to enhance the skills and competences gained in subsequent studies and in work.</li> </ul> |

| Content knowledge (Syllabus) |  |
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|                              | <ul style="list-style-type: none"> <li>• Basic Probability</li> <li>• Discrete Probability Distributions</li> <li>• The Normal Distribution</li> <li>• Sampling Distributions</li> <li>• Confidence Interval Estimation</li> <li>• Fundamentals of Hypothesis Testing: One Sample Tests</li> <li>• Two-Sample Tests and One-Way ANOVA</li> <li>• Chi-Square Tests</li> </ul> |
| Texts and readings           | David M. Levine, Kathryn A. Szabat, David F. Stephan (2021) <i>Statistics for Managers Using Microsoft Excel</i> , 9th edition, Pearson Ed.<br>Giuseppe Cicchitelli, Pierpaolo D'Urso, Marco Minozzo (2020) <i>Statistics: Principles and Methods</i> , Pearson Ed.  |
| Notes, additional materials  | The use of slides or personal notes is insufficient for the preparation and is <b>STRONGLY NOT RECOMMENDED</b> .   |
| Repository                   | In e-learning mode it is possible to carry out the self-assessment tests and download additional teaching materials and data useful for carrying out the exercises. The address and password of the Statistical Inference course in e-learning mode are shared at the beginning of the course.   |

| Assessment          |   |
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| Assessment methods  | Tests with multiple choice questions and exercises with numerical result to be carried out online and compulsory oral exam.   |
| Assessment criteria | <ul style="list-style-type: none"> <li>• <i>Knowledge and understanding</i><br/>Assessment of the understanding and knowledge of elementary notions of probability calculus and of the theoretical, methodological and applicative developments of inferential statistics through tests with multiple choice questions, exercises and oral exam.</li> <li>• <i>Applying knowledge and understanding</i><br/>Assessment of skills in the application of statistical inference to the analysis of economic data or data from other application contexts through exercises and oral exam.</li> <li>• <i>Making informed judgments and choices</i></li> </ul> |

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|                                 | <p>Assessment of the self-confidence in the choice of statistical inference methodologies and in the evaluation of the results of the same with reference to exercises and case studies through exercises and oral exam.</p> <ul style="list-style-type: none"> <li>• <i>Communicating knowledge and understanding</i><br/>Assessment of the ability to express the theoretical contents of the discipline and to motivate the choices to be made for carrying out exercises and examples through an oral exam.</li> <li>• <i>Capacities to continue learning</i><br/>Assessment of the acquisition of theoretical and applied skills on the topics of probability calculus and inferential statistics related to the various chapters of the teaching program through multiple-choice tests and oral exams.</li> </ul> |
| Final exam and grading criteria | <p>The exam consists of:</p> <ul style="list-style-type: none"> <li>• A test consisting of 15 multiple choice questions and 3 exercises referring to the entire program of the course; the 15 multiple choice questions are rated 1/24, the 3 exercises are rated 3/24. Overall, the test gives rise to a mark out of thirty;</li> <li>• A compulsory oral exam based on the discussion of the results of the test and on two or three questions referring to the entire program of the course; the result of the oral interview improves or worsens the mark obtained with the test.</li> </ul>  |

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| <b>Further information</b> |  |
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