Statistical and Econometric Analysis/ Analisi Statistiche ed Econometriche (24 hours, 7 CFU)

Lecturer: Ilaria Benedetti (i.benedetti@unitus.it)

Objective: The course aims to equip students with both basic and advanced statistical tools for analyzing structured and unstructured data across various fields, including economics, living conditions, finance, and environmental studies, at both micro and macro levels. By the end of the course, students will have acquired fundamental programming skills through the use of the statistical software R, enabling them to perform independent statistical analyses on shared datasets. They will also be able to apply their knowledge to solve new or unfamiliar problems within broader contexts.
PhD students will develop the ability to critically assess the algorithms proposed for problem-solving, identifying both strengths and weaknesses, and objectively interpret the analysis output produced by the software. Additionally, they will gain proficiency in the technical language specific to the fields of IT and statistics. Finally, the course will prepare PhD students to independently engage with new topics that were not covered in class, using the knowledge and skills they have acquired.

Program: The course is organized into classes, each consisting of 3-hour classes. During each class, theoretical concepts will first be explained with the support of materials provided by the teacher, followed by practical applications on datasets using the R software.

Exam: A practical exam involving the analysis of a dataset selected by the PhD student, in which a research question must be formulated and the indicators studied during the course must be applied.

Platform with materials used during the course:
https://moodle.unitus.it/progetti/course/view.php?id=105

The classes will be held in presence: Aula Informatica Interna (Department Economics, Engineering, Society and Business Administration, via del Paradiso n. 47, Viterbo) with the option to attend remotely via the Zoom platform (access link information will be provided before the classes on the platform https://moodle.unitus.it/progetti/course/view.php?id=105).

Class n.	Description	Lecturer	Language	Date
1 (3 h)	**Introduction to data analysis and R software: frequency distributions and graphical representations**	Ilaria Benedetti	Italian with material in English	11 Nov 2024
2 (3 h)	**Descriptive statistics: Position and variability indicators**	Ilaria Benedetti	Italian with material in English	18 Nov 2024
3 (3 h)	**Association among variables: Association and Correlation**	Ilaria Benedetti	Italian with material in English	25 Nov 2024
4 (3 h)	**Random variables and inferential statistics**	Ilaria Benedetti	Italian with	2 Dec 2024

			material in English	
5 (3 h)	**Simple Linear and nonlinear Regression Model**	Ilaria Benedetti	Italian with material in English	9 Dec 2024
6 (3 h)	**Multiple Linear and non linear Regression Model**	Ilaria Benedetti	Italian with material in English	16 Dec 2024

Language: Italian with materials in English language
Teaching method: Lectures
Period: Autumn-Winter 2024