

General information	
Academic subject	Statistics for sustainability
Degree course	Innovation, Governance and Sustainability
Academic Year	1 (2022-2023)
European Credit Transfer and Accumulation System (ECTS)	6
Language	Italian
Academic calendar (starting and ending date)	II semester
Attendance	

Professor/ Lecturer	
Name and Surname	Antonella Massari – Paola Perchinunno – Corrado Crocetta
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Department and address	DEMDI University of Bari
Virtual headquarters	Microsoft Teams
Tutoring (time and day)	Prof. Massari Thursday 11.00-13.00 a.m. and Friday 11.00-13.00 a.m. Prof. Perchinunno Monday and Wednesday h. a.m. 10 – 12 Prof. Corrado Crocetta Wednesday h.a.m. 10-12 For an appointment, contact the teacher by email

Syllabus	
Learning Objectives	The course provides the methodological tools necessary for the statistical analysis of phenomena related to the study of sustainability
Course prerequisites	Knowledge of descriptive and inferential statistics
Contents	<p><i>Course introduction:</i> measuring sustainability.</p> <ul style="list-style-type: none"> <li>- The sustainability indicators of the BES: economic, environmental, and social indicators.</li> <li>- Methods of statistical analysis for the study of the relationships between variables:               <ul style="list-style-type: none"> <li>• Multiple regression</li> <li>• Partial correlation</li> </ul> </li> <li>- Analysis of historical series for the study of the temporal evolution of phenomena.</li> <li>- Introduction to geostatistics for the study of the spatial evolution of phenomena.</li> </ul> <p><i>Seminars</i></p> <ul style="list-style-type: none"> <li>- BES indicators and ISTAT environmental statistics.</li> <li>- Big data, Artificial intelligence, and machine learning for sustainability.</li> <li>- Indicators for the circular economy.</li> </ul>
Books and bibliography	<ul style="list-style-type: none"> <li>• Girone, Crocetta, Massari, “Statistica”, Bari, Cacucci, 2019 (chapters 14 and 16)</li> <li>• De Iaco, Maggio, Palma, Posa, “Metodi di analisi geostatistica per dati temporali ed areali” Giappichelli, 2018 (par 1.1, 1.2, 1.3, 2.1, 2.2)</li> <li>• Posa, De Iaco “Geostatistica teoria e applicazioni” Giappichelli, 2009 (chapters 1 to 5)</li> </ul>
Additional materials	Supplementary didactic material and bibliographical indications will be given

	during the lessons
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Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
<b>Hours</b>			
48	36	12	
<b>ECTS</b>			
6	4,5	1,5	
Teaching strategy		Lessons Seminars Exercises	
<b>Expected learning outcomes</b>			
Knowledge and understanding on:		The course aims to provide the student with a critical knowledge of the methodologies and statistical tools related to sustainability	
Applying knowledge and understanding on:		The methodologies used, which include the analysis of empirical cases relating to sustainability alongside frontal teaching, will allow the student to acquire applicative statistical skills relating to the study domain.	
Soft skills		<ul style="list-style-type: none"> <li>• <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> <li>○ Through the study divided into lectures that include seminars in which the active participation of the student is requested with the discussion of real cases, the student learns to adequately interpret the results obtained from the statistical analysis carried out and acquires comparison skills and aptitude for problem solving.</li> </ul> </li> <li>• <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ The student will learn how to communicate, with adequate statistical technical language, in relation to the case studies developed.</li> </ul> </li> <li>• <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ Through the study of teaching, the student acquires the ability to transform the results obtained through statistical methodology into useful information for the study of sustainability.</li> </ul> </li> </ul>	

Assessment and feedback	
Methods of assessment	The candidate must demonstrate knowledge of the issues addressed during the course through an oral test, with discussion of empirical cases.
Evaluation criteria	<ul style="list-style-type: none"> <li>• <i>Knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Statistical methodology relating to indicators, multivariate statistical analysis, analysis of historical and spatial series</li> </ul> </li> <li>• <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Knowing how to use the acquired methodology to empirical cases</li> </ul> </li> <li>• <i>Autonomy of judgment</i> <ul style="list-style-type: none"> <li>○ Ability to interpret the results relating to the analysis of the phenomena treated</li> </ul> </li> <li>• <i>Communication skills</i> <ul style="list-style-type: none"> <li>○ Ability to expose the topics covered in an exhaustive manner and with adequate technical language</li> </ul> </li> <li>• <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ ability to transform the results obtained through statistical methodology into useful information for the study of sustainability.</li> </ul> </li> </ul>



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DIRITTO DELL'IMPRESA

Criteria for assessment and attribution of the final mark	The evaluation will derive from the evaluation of the level of knowledge of the methodological part and from the interpretative capacity of the concrete cases.
<b>Additional information</b>	