Syllabus

Course Description

Course Title	Applied resource and energy economics
Course Code	27515
Course Title Additional	
Scientific-Disciplinary Sector	ECON-05/A
Language	English
Degree Course	Master in Data Analytics for Economics and Management
Other Degree Courses (Loaned)	
Lecturers	
Teaching Assistant	
Semester	Not defined
Course Year/s	2
CP	6
Teaching Hours	36
Lab Hours	-
Individual Study Hours	-
Planned Office Hours	18
Contents Summary	COURSE NOT OFFERED IN 2026/2027 This course explores contemporary challenges in resource and energy economics, with a strong focus on climate change, energy markets, and the role of data-driven decision-making. Emphasis is placed on the use of high-dimensional and high-frequency data, structural modeling, and advanced econometric techniques—including high-dimensional regression and machine learning methods—to analyze commodity prices, electricity markets, and policy impacts. Students learn to translate economic theory into empirical models and to select and implement appropriate estimation techniques using real-world datasets. Applications include forecasting energy demand, evaluating the effects of climate-related shocks, and quantifying market

	dynamics. The course blends theory, data analysis, and policy evaluation, preparing students to address complex sustainability and energy issues using modern quantitative tools.
Course Topics	
Keywords	
Recommended Prerequisites	
Propaedeutic Courses	
Teaching Format	
Mandatory Attendance	Course not offered in a.y. 2026/2027.
Specific Educational Objectives and Learning Outcomes	Intended Learning Outcomes (ILO) ILO 1 Knowledge and understanding: ILO 1.1 Students will develop specialised knowledge within the economic and business domains, tailored to their areas of interest and essential for addressing decision-making and managerial challenges in both public and private organisations. This learning outcome emphasises an interdisciplinary approach to problem-solving and organisational analysis. ILO 1.2 Within the Data Analytics for Economics track, students will acquire advanced knowledge in economic theory, economic analysis, and econometrics through the study of microeconomics and macroeconomics, decision theory under uncertainty, time-series analysis and forecasting techniques, and methods for causal inference using both administrative and experimental data. Additionally, students will develop competencies in data analysis, applying quantitative and computational approaches to address complex economic problems. ILO 2 Applying knowledge and understanding: ILO 2.1 Students will develop the ability to analyse business-related issues that underpin data-driven decision support by applying statistical models and computational modelling techniques. This outcome focuses on integrating quantitative methods to evaluate and optimise organisational decision-making processes. ILO 2.2

	Students will develop the ability to utilise and apply models designed for market analysis and for the formulation of economic policies. This outcome emphasises the integration of theoretical and empirical approaches to support evidence-based policy development and strategic decision-making. ILO 3 Making judgements: ILO 3.1 The student acquires the ability to apply acquired knowledge to interpret data in order to make directional and operational decisions in a business context. ILO 3.2 The student acquires the ability to apply acquired knowledge to support processes related to production, management and risk promotion activities and investment choices through the organisation, analysis and interpretation of complex databases. ILO4 Communication skills: ILO 4.1 The student acquires the ability to communicate effectively in oral and written form the specialised content of the individual disciplines, using different registers, depending on the recipients and the communicative and didactic purposes, and to evaluate the formative effects of his/her communication. ILO 5 Learning skills: ILO 5.1 The student acquires knowledge of scientific research tools. He/she will also be able to make autonomous use of information technology to carry out bibliographic research and investigations both for his/her own training and for further education. Furthermore, through the curricular teaching and the activities related to the preparation of the final thesis, she will be able to acquire the ability - to identify thematic connections and to establish relationships between methods of analysis and application contexts; - to frame a new problem in a systematic manner and to implement appropriate analysis solutions; - to formulate general statistical-econometric models from the phenomena studied.

Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	
Evaluation Criteria	
Required Readings	
Supplementary Readings	
Further Information	
Sustainable Development Goals (SDGs)	