UNIVERSITÀ DEGLI STUDI
«MAGNA GRÆCIA» DI CATANZARO
DIPARTIMENTO DI GIURISPRUDENZA, ECONOMIA E SOCIOLOGIA (DIGES)

DEGREE PROGRAM
Master Degree in Business Administration and Management (Degree Code: LM-77)

ACCADEMIC YEAR
2025/2026

COURSE TITLE
Environmental and energy economics (9 ECTS, 63 hours)

Key Course Information	
Year	1st year
Semester	2nd semester (January 2026 – May 2026)
Scientific-Disciplinary Sector (SSD)	ECON-02/A – Economic Policy (formerly SECS-P/02)
Language of Instruction	Italian
Attendance	Optional

Docente	
Name	Sabrina Ruberto (Researcher -RtdB)
Email	sabrina.ruberto@unicz.it
Office	Room 1 – Department of Law, Economics and Sociology
Virtual Office	https://meet.google.com/yvy-kqet-umt
Office Hours	See instructor's webpage: https://diges.unicz.it/web/docenti/ruberto-sabrina/

Teaching Organization			
Hours			
Total	Lectures	Practice/Labs/Exercises	Individual Study
63	49	14	110
CFU/ETCS			
9	7	2	

Learning Objectives	The course aims to provide students with both theoretical and empirical preparation on the relationship between the economy and the environment, with particular attention to the links between economic growth and resource availability, current global energy systems, and the economic frameworks useful for understanding the main energy and climate challenges faced by both industrialized and developing countries. It also addresses energy and climate policy approaches that can be adopted to tackle these challenges. By the end of the course, students will have developed an awareness of the role of the environment in the contemporary economy and will be able to analyze the

	impact of public policies on firms' production decisions and on both individual and collective consumption behaviors.
Prerequisites	To properly engage with the course content, it is advisable to have basic knowledge of macroeconomics, economic policy, and microeconomics, as well as basic skills in using computer tools (particularly Microsoft Excel).

Teaching Methods	The course adopts an integrated approach that combines traditional lectures, practical exercises, and innovative teaching methods such as the Flipped Classroom. Lectures are aimed at acquiring theoretical concepts, while learning is reinforced through exercises using real data (both national and international), carried out with the aid of digital tools (Excel). The objective is to develop the ability to critically interpret data, apply theoretical knowledge to real-world cases, and acquire practical skills.

Expected Learning Outcomes (Dublin Descriptors)	The expected learning outcomes define *"the set of knowledge, skills, and competencies (cultural, disciplinary, and methodological) that the student will have acquired by the end of the educational path,"* structured below in line with the Dublin Descriptors.
Dublin Descriptor 1	**DD1 – Knowledge and Understanding** By the end of the course, the student will be able to: • Understand the relationship between economic growth and natural resources. • Know the economic analysis tools used to evaluate the management of natural resources. • Understand the main issues related to energy systems and the role market failures play in causing such problems. • Be familiar with the main economic tools for analyzing issues in the energy and climate sectors. • Know the objectives of energy and climate policies. • Understand both traditional market-based and non-market-based policy instruments. • Be aware of newer policy tools available to governments (including nudges).
Dublin Descriptor 2	**DD2 – Applied Knowledge and Understanding** By the end of the course, the student will be able to: • Assess the conditions under which markets fail to manage natural resources, especially in the presence of externalities, public goods, and undefined property rights. • Discuss the ethical and economic dilemmas associated with the use of natural resources, integrating environmental, social, and economic considerations. • Describe, assess, and compare the main energy and climate policy instruments, distinguishing between market-based, non-market-based, and innovative tools.

Dublin Descriptor 3 ***Dublin Descriptor 4*** ***Dublin Descriptor 5***	• Apply quantitative tools (e.g., spreadsheets such as Excel) to conduct critical analyses of real-world data to interpret environmental-economic phenomena. **DD3 – Independent Judgment** By the end of the course, the student will be able to: • Critically evaluate energy and environmental policies in terms of efficiency, equity, and sustainability. • Independently reflect on the economic, social, and environmental implications of natural resource management. • Make informed judgments on the effectiveness of economic and regulatory instruments in various contexts. **DD4 – Communication Skills** By the end of the course, the student will be able to: • Clearly and rigorously communicate concepts, tools, and findings related to natural resource, energy, and climate economics. • Argue policy choices in a structured and coherent manner, using appropriate technical language. • Present data and quantitative analyses in an understandable form, including through the use of charts and tables. **DD5 – Learning Skills** By the end of the course, the student will be able to: • Independently identify and explore topics related to the economics of natural resources, energy, and climate. • Update their knowledge through scientific literature, empirical data, and policy documents. • Critically connect theoretical concepts and applied tools to current environmental and economic issues.
Course Content	**Environmental Economics:** • Interactions between the environment and the economy and their implications in economic analysis models • Growth and natural resources • The "resource curse" • The economics of water resources • Waste economics and the circular economy • From decoupling to Kuznets curves and new paradigms **Energy Economics:** • Energy economics and current energy systems • Market failures and behavioral anomalies • Energy demand • Market-based economic instruments • Non-market-based instruments
Reference Textbook	- Natural Resource Economics – L. Castellucci (2024). - An Introduction to Energy Economics and Policy – Massimo Filippini and Suchita Srinivasan (2024).

Notes on Reference Textbook	The detailed exam syllabus with the chapters to study will be published on the course's e-learning page.
Teaching Materials	On the course's e-learning page, you will also find the supporting teaching materials used during the lessons (slides, data, scientific articles, additional resources, etc.).

Assesment	
Assesment Methods	The final exam consists of an oral test verifying knowledge of the models through graphical analysis and, when necessary, mathematical formulation. **Duration:** Minimum 15 minutes for the oral exam. **Communication of Results:** The exam result will be communicated at the end of the oral examination.

Evaluation Criteria	• **Knowledge and understanding** The student must demonstrate knowledge of the main concepts and tools of environmental and energy economics, organizing the acquired knowledge coherently and correctly using the specialized terminology. • **Applied knowledge and understanding** The ability to apply theoretical and quantitative tools to concrete cases will be assessed, as well as the interpretation of real data and critical evaluation of energy and environmental policies, distinguishing between market-based and non-market instruments. • **Judgment autonomy** The ability to express independent and well-reasoned evaluations on policies and environmental issues will be assessed, integrating criteria of efficiency, equity, and sustainability, and demonstrating critical thinking and ethical reflection. • **Communication skills** The student must be able to communicate clearly, rigorously, and in a structured manner, using appropriate technical language and effectively presenting data and arguments, including with the support of graphs and tables. • **Learning ability** The capacity to independently deepen relevant topics, update knowledge through scientific sources, and connect theory and practice in current contexts will be evaluated.

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<tr><td>Assessment and Grading Criteria</td><td>The final grade is expressed in thirtieths. The exam is considered passed if the grade is equal to or greater than 18/30.
The oral exam will be evaluated according to the following criteria:
<table>
<tr><td></td><td>Knowledge and comprehension</td><td>Analysis and synthesis</td><td>Use of bibliographic references</td></tr>
<tr><td>Fail</td><td>Important gaps/mistakes/ lexical inaccuracies Confusion</td><td>Irrelevant/inappropriate use of digressions and generalizations</td><td>Not able</td></tr>
<tr><td>18-20</td><td>Minimal orientation skills inthe subject Evident imperfections/gaps</td><td>Barely sufficient</td><td>Barely sufficient</td></tr>
<tr><td>21-23</td><td>Superficial knowledge Serious imperfections</td><td>Correct method supported by coherent presentation/reasoning</td><td>Able</td></tr>
<tr><td>24-26</td><td>Good knowledge, albeit non supported by substantial critical/systematic ability</td><td>Correct method supported by coherent presentation/reasoning</td><td>Able</td></tr>
<tr><td>27-29</td><td>Remarkable knowledge, supported by orientation skills in the subject and considerable critical thinking</td><td>Correct method supported by coherent presentation/reasoning with hints of originality</td><td>Able to focus the subject logically and coherently.</td></tr>
<tr><td>30-30L</td><td>Excellent knowledge supported by outstanding orientation skills in the subject and profound critical thinking</td><td>Correct method supported by coherent presentation/reasoning with noticeable originality</td><td>Able to focus the subject logically and coherently.</td></tr>
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<tr><td>Other</td><td></td></tr>
<tr><td></td><td>To carry out the exercises, students must have a personal computer with Microsoft Excel installed</td></tr>
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