

Syllabus

Course Description

Course Title	The Economics of Climate Change
Course Code	27360
Course Title Additional	
Scientific-Disciplinary Sector	ECON-02/A
Language	English
Degree Course	Bachelor in Economics and Management
Other Degree Courses (Loaned)	
Lecturers	Prof. Laura Grigolon, Laura.Grigolon@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/54137
Teaching Assistant	
Semester	Second semester
Course Year/s	optional
CP	6
Teaching Hours	36
Lab Hours	-
Individual Study Hours	-
Planned Office Hours	18
Contents Summary	The course introduces students to the economic theory and instruments of climate policy. Core topics include the science of climate change, integrated assessment models, the social cost of carbon, and economic policy tools for mitigation and behavioral change. Students learn to apply economic theory to evaluate climate policies, critically assess data and models, and understand behavioral biases in decision-making.

	The course combines analytical frameworks with empirical evidence and case studies to equip students with practical skills for climate policy analysis.
Course Topics	This course provides an introduction to the economics of climate change, combining economic theory with empirical evidence and practical policy analysis. Students first build the analytical foundations: understanding why markets fail when pollution and greenhouse-gas emissions impose costs on society, and how economists measure both the value of a clean environment and the damages of a warming planet. The course introduces methods for valuing non-market environmental goods, approaches for estimating the health and economic effects of air pollution, and the central concept of the social cost of carbon — the price economists place on one additional ton of CO₂ and a crucial input into climate policy. The second part of the course turns to mitigation and policy solutions. Students examine the economic logic behind the main climate policy instruments — corrective taxes, subsidies, emissions trading systems such as the EU ETS, and renewable-energy and clean-electricity standards — and learn to weigh their costs, benefits, and trade-offs. Because the power sector is central to decarbonization, special attention is given to how electricity markets function, how carbon pricing reshapes them, and how market structure and competition affect the success of climate policy. Throughout, students apply economic reasoning to real-world data and case studies, developing the skills to critically evaluate the climate and energy policies shaping our future.
Keywords	Climate Policy; Environmental Economics; Mitigation and Adaptation; Carbon Pricing
Recommended Prerequisites	Statistics
Propaedeutic Courses	
Teaching Format	The course is taught through a combination of lectures, in-class discussions, and applied exercises. While lectures provide the theoretical and empirical foundations of climate economics, students are actively involved in discussing assigned case studies, research papers, and newspaper articles. Hands-on data exercises give students the opportunity to work with real environmental and energy data using statistical software (R), and optional practice

	problem sets, with solutions provided, help students consolidate the analytical tools introduced in class and prepare for the final exam. In-class simulations, such as a carbon-market trading game, allow students to experience first-hand how climate policy instruments work in practice.
Mandatory Attendance	Not compulsory but recommended
Specific Educational Objectives and Learning Outcomes	ILO 1 Knowledge and understanding ILO 1.1 Knowledge of the economic theory of demand and supply of goods and services, equilibrium and price formation mechanisms in the market economy ILO 1.2 Knowledge of the fundamentals of political-economic action and collective decision-making ILO 1.3 Understanding the role and management of public goods, the role of institutions and information ILO 1.4 Understanding the impact of economic policies in specific sectors and the role of research, development and innovation ILO 1.5 Understanding the management of finite resources and principles of sustainability ILO 2 Ability to apply knowledge and understanding ILO 2.1 Be able to assess the role of governments and the need for political economy interventions in market economies ILO 2.2 be able to formulate economic policy objectives and evaluate their outcomes and use available information to assess the appropriateness of monetary and fiscal policies in relation to macroeconomic variables ILO 2.3 be able to analyse economic activity in terms of sustainability ILO 3 Making judgements ILO 3.1 recognise the main problems in complex decision-making situations ILO 3.2 critically analyse the facts and the situations to be dealt with ILO 4 Learning skills ILO 4.1 Obtain information to update the constantly changing general and specific context of reference
Specific Educational	

Objectives and Learning Outcomes (additional info.)	
Assessment	For attending students, grading is based entirely on a final written exam (100%) consisting of open questions that cover all course material. Non-attending students are assessed through the same final written exam (100%), also covering all course material. The exam consists of open questions requiring students to explain core concepts, apply them to policy-relevant problems, and develop well-reasoned arguments. This format ensures the evaluation of students' knowledge and understanding of core economic concepts in climate and environmental economics (ILO 1), their ability to apply these concepts to policy-relevant questions (ILO 2), and their capacity for critical analysis and sound judgement (ILO 3).
Evaluation Criteria	The written exam evaluates students on their ability to demonstrate a clear understanding of core concepts in the economics of climate change and to apply these concepts to concrete policy questions. Answers are assessed based on the accuracy of economic reasoning, the ability to integrate scientific and empirical evidence, and the clarity and coherence of argumentation. The exam contributes to the following Intended Learning Outcomes: ILO 1 – Knowledge and Understanding The exam assesses students' knowledge of fundamental economic principles, including market mechanisms, political-economic decision-making, public goods, institutional frameworks, and sustainability. Students are expected to demonstrate an understanding of how economic policies operate within different sectors. ILO 2 – Ability to Apply Knowledge and Understanding Students are required to apply theoretical concepts to concrete economic and policy contexts. This includes assessing the role of governments in addressing market failures, formulating and evaluating economic policy objectives, and analysing economic

	activity from a sustainability perspective. ILO 3 – Making Judgements The exam evaluates students’ ability to identify and structure complex economic problems, critically assess alternative policy approaches, and develop well-founded arguments supported by appropriate evidence. ILO 4 – Learning Skills Students demonstrate their ability to independently draw on relevant theoretical and empirical knowledge, integrate information from different sources such as academic papers and newspaper articles, and apply it to evolving economic challenges.
Required Readings	Lecture slides and materials provided by the instructor are the primary reference for the course and the exam.
Supplementary Readings	The slides are complemented by selected journal articles, policy reports, and newspaper articles distributed during the course. As accessible background on the economics of climate change, students can read the following overview articles (<i>Journal of Economic Perspectives</i>, Vol. 32, No. 4, 2018): • Hsiang, S. & Kopp, R. E. (2018). "An Economist's Guide to Climate Change Science," pp. 3–32. • Auffhammer, M. (2018). "Quantifying Economic Damages from Climate Change," pp. 33–52. • Gillingham, K. & Stock, J. H. (2018). "The Cost of Reducing Greenhouse Gas Emissions," pp. 53–72. These are complemented by selected journal articles, policy reports, and newspaper articles distributed during the course.
Further Information	
Sustainable Development Goals (SDGs)	Climate action