



## University of Trento

### Courses covering sustainability and environmental studies

*Based on the October 2024 survey on the academic year 2024-25*

#### 1. UNDERGRADUATE PROGRAMMES

64 courses were reported from 11 departments and 1 centre; in 22 cases environmental sustainability is a key subject.

**Civil, environmental and mechanical engineering** (three courses): Ecology (Maria Cantiani), Sanitary Engineering (Paola Foladori), Design and Construction of Building Works (Gianluca Maracchini). Four other courses touch on the subject, as they focus on geology, meteorology and climatology, fluid mechanics, and materials technology. It is worth mentioning the seminar Ecosystems and environmental challenges, human-wildlife conflicts, climate change, sustainable forest, agricultural and urban ecosystems (Marco Ciolli).

**Industrial engineering** (two courses): Circular economy for plastics production industries (Alessandro Rossi), Materials and Technologies for sustainable industry (Cinzia Menapace). Four other courses touch on the subject, as they focus on materials and technologies for sustainable industry.

**Information engineering and computer science**: Logics (Fausto Giunchiglia). The course of Operating Systems also touches on the subject.

**Mathematics**: History of physics and mathematics (Claudio Fontanari). Two other courses also deal with the subject, as they focus on the foundations of physics.

**Agriculture Food Environment Centre-C3A** (four courses): Vine defence: viticultural entomology and organic viticulture (Gianfranco Anfora, Gerardo Puopolo); Consumer practices and society (Francesca Forno); Enhancement of by-products of the oenological industry and wastewater management (Luca Fiori). Seven other courses touch on the subject by addressing issues related to crop sustainability, plant-atmosphere interactions, and the consequences of the use of chemicals.

**Economics and management** (four courses): Economics of climate change, environment, and sustainable agriculture (Gianluca Grilli); Sustainable business management and production cycle technology (Paola Masotti); Tourism/hotel business marketing (Federica Buffa). Eight other courses touch on the subject, focusing on market analysis, economic psychology, and economic history. It is worth mentioning the summer school Green Business in Europe, managing resilience and sustainability in Europe (Roberta Cuel).



**Humanities** (two courses): Geography of the landscape and the environment (Nicola Gabellieri), Philosophical anthropology (Carlo Brentari). Five other courses touch on the subject, focusing on Geo-History, Historical Geography, and Economic History.

**Sociology and social research**: Sociology of the environment (Natalia Magnani). Four other courses touch on the subject, focusing on Political Economy, International Cooperation, Daily Life and Social Transformations.

**Psychology and cognitive science** (two courses): Environmental psychology and Decision-making and nudging for sustainable behaviours (Martina Vacondio). Four other courses touch on the subject, focusing on Humanities and Science Dissemination, Psychology of Thought, and Psychology of Memory and Learning.

## 2. MASTER'S AND SINGLE-CYCLE DEGREES

Master's degrees are those in which content related to sustainability is more frequent and specific. About 114 courses were reported from 14 departments; in 47 cases environmental sustainability is the key subject.

**Civil, environmental and mechanical engineering** (nineteen courses): Advanced materials for Energy Engineering (Paolo Scardi), Architecture and techniques for sustainable construction and Wood architecture (Rossano Albatici), Applied ecology (Marco Ciolli), Electrical Systems Engineering and Smart Grids (Vincenzo Trovato), Atmospheric physics and modelling and Renewable Energy and Meteorology (Lorenzo Giovannini), Integrated management of water resources (Diego Avesani), Engineering of aquifers and contaminated sites and hydraulic construction (Alberto Bellin), Emerging pollutants and rehabilitation strategies (Narges Ataollahi), Introduction to climate change (Dino Zardi), Metastructures (Oreste Bursi), Nature-based solutions for urban sustainability (Davide Geneletti), Design of urban hydraulic infrastructure (Giuseppe Formetta), Design of integrated systems for the recovery of materials from urban waste and almost zero-energy hygienic-sanitary technologies (Marco Razazzi), Environmental assessment of buildings (Gianluca Maracchini). Two seminars were also reported, on Energy, hydrogen and decarbonisation (Luca Fiori), and 23 other courses that have to do with the subject.

**Industrial engineering** (five courses): Circular economy for materials processing (Massimo Pellizzari, Cinzia Menapace), Materials for Energy (Giandomenico Soraru), Recycling and sustainable materials (Alessandro Pegoretti), Sustainable materials management (Massimo Pellizzari), Sustainable materials processing and characterization (Sandra Dire and Mattia Biesuz). And four other courses touch on the subject, focusing on renewable energy, materials and engineering design.

**Information engineering and computer science**: Innovation and Entrepreneurship Studies (Maurizio Marchese), where students are presented with challenges that often include environmental sustainability issues. Three other courses touch on the subject, focusing on computer science and artificial intelligence.



**Physics:** Physics and Chemistry of Semiconductor Materials (Michele Orlandi), which describes materials and processes for the energy transition. Two other courses touch on the subject, as they focus on theoretical and experimental physics.

**Agriculture Food Environment Centre-C3A** (three courses): Biopesticides and innovative techniques for plant protection (Rachele Nieri, Gerardo Poupolo), Innovative plants and automation in agri-food production and processing (Annachiara Berardinelli), Short cycle breeding and innovative techniques to improve product quality (Sihem Dabbou). Four other courses deal with improvements in agricultural plant genetics, food safety in relation to chemical contaminants, biodiversity conservation, and agricultural legislation.

**Economics and Management** (eight courses): Consumer empowerment (Nicolao Bonini), Sustainable management of natural resources (Sandra Notaro), Green Marketing for the ecological transaction (Lucia Gatti), Management of tourist destinations (Federica Buffa), Tourism and territorial marketing (Umberto Martini), Social and environmental measurement and reporting (Ericka Costa), Social and environmental reporting (Paolo Candio), Statistics for economic decisions and management (Pierluigi Novi Inverardi). Twelve other courses touch on the subject, focusing on macroeconomics, econometrics, business and innovation, and tourism.

**Law** (two courses): Urban planning and public works law (Anna Simonati) and Global Environment and Climate Change Law (Elena Cristina Fasoli); three other courses touch on the subject, as they focus on agri-food law, urban planning and public works law, law and artificial intelligence.

**Humanities** (three courses): Bioethics (Carlo Brentari), History of Medicine (Alessandro Palazzo) and English Literature (Greta Perletti), starting from the ethical and aesthetic questions raised by some literary texts by contemporary British authors. The subject is also covered by the course Geography and Strategic Design of Tourist Spaces.

**Sociology** (three courses): Environmental Sustainability (Emanuela Bozzini), Lifestyles and Consumption Practices (Francesca Forno), Territorial Studies (Natalia Magnani); the subject is also covered by the course of Sociology and Social Research.

**School of international studies** (two courses): Natural Resources and Energy Security (Michela Faccioli), People, Politics, and the Planet (Louisa Parks), plus four other courses that touch on the subject, dealing with security in relation to development policies, the relationship between human rights and natural resources, and the security of food and energy production.

### 3. PHD PROGRAMMES

Four **departments** offer doctoral students courses focusing specifically on environmental issues.

**Civil, environmental and mechanical engineering:** Fundamentals of environmental sustainability and Environmental Sustainability (advanced) (Marco Ragazzi).



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**Industrial engineering:** Biodesign applied to tissue engineering (Antonella Motta).

**Agriculture Food Environment Center-C3A:** Behavioral ecology and manipulation for insect pest control (Rachele Nieri, Gianfranco Anfora), Field sampling and Spatial Ecological Modelling (Marco Ciolli), Innovative methods in crop protection (Gerardo Puopolo), Sustainable consumption and production from a social perspective (Francesco Forno).

**Economics and Management:** Digital transformation and sustainability: people and organizations (Roberta Cuel), Economics and Sustainability (Roberta Raffaelli), Sustainability and impact measures (Ericka Costa), Sustainability and Legal Issues (Flavio Guella, Simone Franca, Matteo Ferrari).