



Università  
degli Studi di  
Messina

# MULTIDISCIPLINARY COURSE ON SUSTAINABILITY



# COURSE AIM

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- The course will allow understanding **the concept of sustainability** according to **a multi- and trans-disciplinary approach** by proposing an educational path that integrates the typical knowledge of the humanistic-social and scientific-technological sectors. The **environmental**, **economic**, **legal**, **energy** and **sociological** aspects that characterize the sustainability theme will be explored from a transdisciplinary perspective in order to understand the real complexity associated with the sustainable ecological transition.

# WHO IS THE TARGET AUDIENCE

- The course is open to **all the students of the University of Messina** enrolled in three-year, master's and single-cycle master's degree courses who will be able to choose the course and include it as an "activity of the student's choice".

**Doctoral scholarship holders and research fellows** registered at the University will also be able to attend the course.



# CHARACTERISTICS

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- The course is available **online in asynchronous mode and available to students starting from the second semester.**
- The course is divided into **36 hours, divided into 10 thematic lessons.**
- Passing the final exam, in the form of a written test, allows you to obtain **6 credits**



## Lesson 1

# The concept of sustainability from a philosophical-epistemological, anthropological and sociological perspective

*Prof. Giuseppe Giordano*

### DESCRIPTION

The seminar aims to provide a first focus on the concept of sustainability, showing its epistemological assumption and how it is rooted in a profound change in the vision of what man is and of his place in nature and on planet Earth - as an individual and as a social being.

### EDUCATIONAL OBJECTIVES

The objective of the seminar is to begin understanding the change necessary to accept the need for a vision that places sustainability at the center in planning the future of humanity.



## Lesson 2

# The legal foundations of sustainability

*Proff. Francesca Pellegrino, Alberto Randazzo, and Patrizia Panarello*

### DESCRIPTION

Two seminars aimed at identifying the constitutional foundation of sustainability through the analysis of the provisions of the Charter and the jurisprudence of the Council relevant to the matter and through the critical examination of the main international, European Union and national instruments, inspired by the principle of sustainable development.

A third seminar is specifically dedicated to the 17 Sustainable Development Goals of the UN 2030 Agenda

### EDUCATIONAL OBJECTIVES

Acquire basic knowledge of the constitutional horizon in which the theme of sustainability is located, to understand the extent of the related problems and propose possible solutions, in accordance with the values of the Italian Constitution.

Understand the regulatory framework of the principle of sustainability, following its evolution, especially at European and international level.



## Lesson 3

# The major issues of environmental sustainability: causes and consequences of climate change

*Proff. Giuseppe Tito Aronica and Salvatore Magazzù*

### DESCRIPTION

In the two seminars, climate/meteorological models and hydrological/hydraulic models will be treated through transdisciplinary approaches with a comparison between methods aimed only at predicting climate change at different spatial and temporal scales and methods aimed at the proactive management of their effects on the anthropic environment.

### EDUCATIONAL OBJECTIVES

Provide students with the basic knowledge necessary to interpret the causes and consequences of climate change also with particular attention to the tools for managing and mitigating their effects.





## Lesson 4

# Energy transition and sustainability

*Proff. Antonio Galvagno and Antonio Testa*

### DESCRIPTION

The two seminars address the basic concepts relating to renewable energy sources (in particular sun and wind) and the effects that the transition towards a sustainable and carbon-free energy system will have in the coming years on energy generation, transport and electricity distribution infrastructures and on the methods of final use of energy.

### EDUCATIONAL OBJECTIVES

Know and understand the most exploitable renewable energy sources today and the functioning of the most suitable electrical and thermal energy conversion systems on the market today.

Know and understand the mechanisms of evolution of the electricity system in response to the demands posed by the transition towards a sustainable carbon-free energy system



## Lesson 5

# Sustainable mobility

*Proff. Adele Marino and Giacomo Risitano*

### DESCRIPTION

Two seminars aimed at examining the concepts of sustainability and transport and the possible actions for sustainable mobility.

Furthermore, the evolution of the vehicle is described, from its birth to the present day, touching on the key points of innovation.

### EDUCATIONAL OBJECTIVES

Transfer basic knowledge on issues related to sustainable urban mobility in order to increase awareness and raise awareness of the use of more environmentally friendly means of transport.

Transfer basic knowledge on the topics of innovative and conventional vehicles in order to increase awareness of the use of sustainable vehicles.

## Lesson 6

# Circular economy and sustainability

*Proff. Concetta De Stefano and Roberta Salomone*

### DESCRIPTION

The two seminars introduce the main references for the framework of the Circular Economy and its relationship with the concept of sustainability. Furthermore, they analyze the main Circular Economy strategies (from the "4 Rs" of recycling to the "9R" model) with examples of some of their concrete applications. Finally, they delve into the issues of correct waste management and the END OF WASTE, providing case studies of waste reduction, reuse, recycling and recovery.

### EDUCATIONAL OBJECTIVES

Provide students with the basic knowledge necessary to acquire greater awareness of the need to safeguard natural resources (less exploitation of raw materials and energy) and the environment through the reduction of waste and correct waste management, according to the economic circular model.





## Lesson 7

# Food, health and sustainability

*Proff. Paola Dugo and Pasqualina Laganà*

### DESCRIPTION

The two seminars will address the topic of food production with added values from a health, nutritional and safety point of view. We will discuss "novel foods" with particular attention to proteins from alternative food sources. The problem of the association between an unbalanced or incorrect diet and potentially fatal disorder conditions (sometimes real pathologies) will also be addressed. Obviously, the concept that human health cannot be separated from the health of the Planet will be strengthened.

### EDUCATIONAL OBJECTIVES

Provide knowledge on the production and composition of unconventional and "novel foods" and sustainability of the products studied. Provide basic knowledge on the association between consumption of various types of food, sustainability and the onset of related pathologies. Provide basic concepts of primary prevention.



## Lesson 8

# Sustainability and digital technologies

*Proff. Maria Paola Speciale and Massimo Villari*

### DESCRIPTION

The seminar intends to define the knowledge bases inherent to the modern Digital Transformation together with the advanced concepts of monitoring and optimization of sustainability-oriented systems capable of benefiting from digital, data and machine learning algorithms.

### EDUCATIONAL OBJECTIVES

The training objectives of the seminar are aimed at providing the basic skills for knowledge of the topics of Digital Transformation, IoT as remote monitoring tools, the management of Big Data coming from IoT and the use of Machine Learning Algorithms.



## Lesson 9

# Equity, inclusion and social justice

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*Proff. Carlo Vermiglio and Valeria Naciti*

### DESCRIPTION

The lesson aims to offer theoretical and practical insights on the tools to combat gender inequalities in universities and on practices aimed at promoting inclusion and social justice.

### LEARNING OBJECTIVES

The lesson provides information on the development of the Gender Equality Plan of the University of Messina and the Gender Budget Analysis tools.



## Lesson 10

# Communicating sustainability

*Proff. Alessandra Costa and Francesco Pira*

### DESCRIPTION

Sustainability communication represents a combination of social, economic and environmental communication. Is a communication tool of the new paradigm of innovation entailing a new balance between business, environment and social sphere. In this context, the two seminars provide an analysis of the evolutionary framework of environmental communication, underlining the central role of knowledge and the need to "teach terrestrial identity", with a view to a new vision of sustainable development.

### EDUCATIONAL OBJECTIVES

Raise participants' awareness of the correct communication of sustainability, between old and new media, and introduce the sustainability paradigm as a founding element of a new corporate management philosophy.



## Lecture 11

# Measuring sustainability

*Prof. Giovanni Mondello*

### DESCRIPTION

The seminar intends to describe the topic related to the measurement of sustainability, reporting the main methods and tools used to identify the potential environmental, economic and social impacts and/or benefits associated with products, processes, services and organisations. The concepts of greenwashing and social washing will also be introduced, as well as the importance of measuring sustainability to communicate to the consumer the environmental, economic and social performance of products.

### TRAINING OBJECTIVES

Provide students with basic knowledge related to the methods used for measuring environmental, economic and social sustainability, also considering an integrated approach, and emphasizing the importance of these tools to support the use of labels dedicated to sustainability communication.

# USEFUL INFORMATION

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- Further information regarding the course (exam dates, technical information for accessing courses, etc.) is available on the page <https://www.unime.it/didattica/competenze-trasversali/insegnamento-multidisciplinare-sostenibilita>
- For any information, students can write to the email address: [progettosostenibilita@unime.it](mailto:progettosostenibilita@unime.it)