

# PhD in Energy and Sustainable Development

A.Y. 2022 - 2023

## Structured educational offer program

Lecturer: **Prof. Beatrice Castellani**

Title: Energy storage: state of the art and in-lab experimental investigations

Duration: 20 hours (I year)

Reference Curriculum: -

Lecturers: **Dr. Elisa Belloni/Dr. Francesca Merli**

Title: Innovative aerogel-based glazing systems for building applications

Duration: 20 hours (I year)

Reference Curriculum: Energy and environmental comfort

Lecturer: **Dr. Paolina Bongioannini Cerlini**

Title: Introduction to Atmospheric Physics, Climate and COPERNICUS DATA STORE (CDS)

Duration: 20 hours (I year)

Reference Curriculum: Energy and resources from agriculture and territory

Lecturers: **Dr. Claudia Fabiani/Dr. Ilenia Pigliatile**

Title: An Introduction to Error Analysis

Duration: 20 hours (I year)

Reference Curriculum: -

Lecturer: **Prof. Francesco Fantozzi**

Title: LCA – Life Cycle Assessment

Duration: 20 hours (I year)

Reference Curriculum: -

Lecturer: **Dr. Valentina Coccia**

Title: Evaluation and measurement of odor emissions into the atmosphere by means of dynamic olfactometry with a panel of human receptors

Duration: 20 hours (II year)

Reference Curriculum: Energy and environmental comfort

Lecturer: **Prof. Gianluca Cavalaglio**

Title: Green chemistry applications for bioenergy and bioproducts plants

Duration: 20 hours (II year)

Reference Curriculum: Energy and resources from agriculture and territory

Lecturers: **Prof. Fabio Radicioni/Prof. Aurelio Stoppini**

Title: Open Source GIS for the analysis and sustainable development of the territory

Duration: 20 hours (II year)

Reference Curriculum: Energy and resources from agriculture and territory

Lecturers: **Dr. Claudia Fabiani/Dr. Ilenia Pigliatile**

Title: Applied statistics for experiment design and data analysis

Duration: 20 ore (II anno)

Reference Curriculum: -

Lecturer: **Prof. Angela Gambelunghe**

Title: Radiation protection from exposure to ionizing radiation

Duration: 20 hours (II year)

Reference Curriculum: Energy and environmental comfort

It is possible that a student of a curriculum may follow a course that refers to a different curriculum, upon approval of his tutor. The courses that refer to a course year can also be followed by students of different course years, upon approval of their tutor.

#### SEMINARS AND INTERNATIONAL STRUCTURED TEACHING

Seminars are planned, lasting from 2 to 4 hours, by national experts in the sector, on topics such as hydrogen, energy transition, innovations in the field of renewable energy, sustainable process and product design, innovative energy systems, sustainable and circular business models, indoor air quality and health effects, indoor and outdoor comfort in the built environment, innovative theories and experimental facilities, innovative solutions in the thermal and electrical storage field, territorial risk analysis, use of agricultural resources in the energy sector, GIS georeferencing, concepts of sustainability in building restoration, evaluation of sustainable development.

Workshops and seminars will also be organized with the foreign members of our PhD Board and other international experts, to be defined according to their availability, on issues such as urban heat island mitigation, energy storage in the civil and industrial fields, materials and innovative solutions for thermal insulation, biofuels, renewable resources, georeferencing, planning in the territorial and agricultural fields.

#### **OTHER EDUCATIONAL OFFERS**

The PhD Course offers to the students the opportunity to participate in foreign language courses held at the University Linguistic Center (CLA). The Course offers PhD students the opportunity to participate in computer labs already offered in other University degree courses. The PhD Program offers the possibility to participate in courses, which provide for the recognition of ECTS credits on the basis of the number of hours, on the research management, knowledge of research systems and funding systems. The PhD Program offers the opportunity to participate in courses, which provide for the recognition of ECTS credits based on the number of hours provided, on the enhancement of research and intellectual property. In the case of specific interest in these activities, the methods must be agreed with the reference tutor.

\* The courses and seminars will be activated on the basis of requests from the PhD students.