



Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Rome Technopole Università Campus Bio-Medico di Roma

Starting date: 1st July 2022
Ending date: 30th June 2025

Prof.ssa Simonetta Filippi s.filippi@unicampus.it
Prof.ssa Chiara Fanali c.fanali@unicampus.it

Università Campus Bio-Medico di Roma





Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Università Campus Bio-Medico di Roma

Facoltà Dipartimentale di Medicina e Chirurgia

Facoltà Dipartimentale di Ingegneria

Facoltà Dipartimentale di Scienze e Tecnologie per lo Sviluppo

Sostenibile e One Health

SCUOLA DEL DOTTORATO DI RICERCA

**Dottorato di Ricerca in Sviluppo sostenibile:
ambiente, alimenti e salute**

Dottorato Nazionale in Intelligenza Artificiale

**Dottorato di Ricerca in Scienze Biomediche
integrate e Bioetica**

**Dottorato di Ricerca in Bioingegneria, Scienze
Applicate e Sistemi Intelligenti**



Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Training courses for PhD students

Five courses on:

- Sustainability and sustainable development in production systems on the three pillars of Rome Technopole
- Technological processes for health promotion



Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Criteri di sostenibilità ambientale e sociale dei processi produttivi

Competence area



Energy transition



Health and Biopharma

Objectives

- The Module is divided into two parts (one **engineering and one legal**) and into 6 sections.
- **Technical-engineering section:** the first will concern the criteria and methodology of the **Life Cycle Assessment (LCA)**, the definition of the procedure and of the main outcomes. In the second section, the LCA is applied in **energy, food and hospital sectors, with the description of operative case studies.** The third section is focused on **the Social Life Cycle Assessment (S-LCA)** methodology and the holistic application of Life Cycle Thinking (LCT) for sustainability assessment.
- **Legal section:** the focus is on **the rules at the international, European, and national levels related to sustainability, climate change, environmental preservation, and human safety.** In the fourth section, will be introduced the general legal framework related to environmental issues and climate change. The fifth section will delve into topics related to the remediation of contaminated sites and waste management, and the sixth section it will be analyzed the requirements of Environmental, Social, and Governance (ESG) on a financial level.

Target audience

PhD student

Language: Italian

Learning experience:
lecture, webinar

Hours: 12

Delivery mode: on line





Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



La seconda vita degli scarti

Competence area



Energy transition



Health and Biopharma

Objectives

- The course will include three distinct sections.
- The first will concern the techniques of pre-treatment, extraction and purification of molecules with high added value contained in waste matrices deriving from various types of industrial processes, as well as the analytical techniques for their quantification.
- The second part will focus on the design, optimization and industrialization criteria of the production processes described in the first part and on the further use of exhausted matrices for the production of green energy and biofuels.
- The third part of the course will be dedicated to the technical-economic feasibility analysis of the analyzed processes and on the sustainable integration of processes with renewable sources and new development perspectives.

Target audience

PhD student

Language: Italian

Learning experience:
lecture, webinar

Hours: 18

Delivery mode: on line





Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



One health e biotecnologie per la salute

Competence area



Health and Biopharma

Objectives

- The course will introduce the concept of "One Health" with its ecosystemic vision of health and its methodological approaches for the identification of the strategies for improving the health of the planet.
- The course also will illustrate some biotechnological approaches underlying sustainable development relating to agri-food, pharmaceutical and human health systems.
- In particular, the course will focus on the use of plant cell/tissue cultures for producing bioactive metabolites, peptides, and proteins of nutraceutical and pharmaceutical interest, also through processes of metabolic engineering and the use of 2D and 3D in vitro systems for evaluating the biological activities of these molecules.
- These biotechnological approaches are extremely promising for the production of molecules having high economic values and widely used for treating several kind of diseases, through low cost and environmentally friendly processes.

Target audience

PhD student

Language: Italian

Learning experience:
lecture, webinar, practical
demonstration

Hours: 14

Delivery mode: on line





Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Digital Twins

Competence area



Digital transition

Objectives

- The course will provide an introduction to the concept of Digital Twin, and to its applications to the contexts of industrial system monitoring and fault detection.
- The course will start with an overview of the Digital Twin concept, then it will present both model-based and data-driven approaches.
- Finally, the course will feature a brief internship in the Complex Systems and Security Laboratory, where the students will be faced with a real problem, possibly involving hardware that will be provided by the instructor, and will be asked to provide a practical solution (e.g., implementing an algorithm).

Target audience

PhD students – M.Sc. Students

Language: English

Learning experience:
lecture, hands-on

Hours: 10

Delivery mode: in person



Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Sicurezza in laboratorio

Competence area



Energy transition



Health and Biopharma

Objectives

- Specific objective is the training of a professional capable of working in a research laboratory responsibly and safely for himself, for his colleagues and for the environment since a research laboratory can foresee a physical, chemical or biological risk or their combination.

At the end of the Course the Ph.D. Student will know:

- the risks to which she/he is exposed and to which their colleagues are exposed while carrying out she/he research activity
- how to choose the correct and appropriate Personal Protective Equipment for the type of activity she/he intends to carry out in accordance with current legislation
- how to manage a physical risk
- to read the safety data sheets of chemical products and interpret the danger pictograms that characterize them in accordance with current regulations
- to read the label of chemical reagents for correct use and disposal
- to possess, handle, use, handle and dispose of a chemical reagent
- how to intervene in the event of a spill
- how to intervene in the event of contamination or poisoning
- how to manage a biological risk
- what pollution is, what and what are the environmental matrices subject to pollution and she/he will have knowledge of the Consolidated Environmental Law
- the risk of exposure to radioactive and ionizing substances and the current relevant regulations.

Target audience

PhD student

Language: Italian

Learning experience:
lecture, webinar

Hours: 14

Delivery mode: on line

