# Course for Ph.D. students
# 41th cycle (Nov 2025 – Oct 2028)

**Title:**
**Valorization of waste and innovative systems in agriculture (1 ECTS)**

**Benedetta Chiancone**
Professor at the University of Parma

*Course language:* **English**

Period: II semester

📅 22/09/2026
⏰ 9.30 a.m. – 12.30 p.m.
📌 Room G – Pharmacy Building

📅 29/09/2026
⏰ 2.30 p.m. – 5.30 p.m.
📌 Room G – Pharmacy Building

*To attend the course please contact:*
**Prof. Benedetta Chiancone (benedetta.chiancone@*unipr.it*)**

**Course description**

Innovative agricultural systems such as hydroponics, aeroponics, and other soilless cultivation models are reshaping resource efficiency and sustainability in the agri-food sector. These controlled-environment approaches significantly reduce land use and water consumption while enabling precise management of inputs. However, agricultural and agri-food production systems also generate substantial amounts of waste streams, including plant residues, nutrient-rich effluents, and microbial biomass, which can represent both an environmental burden and an economic cost if not properly managed.
The valorization of these by-products is therefore gaining increasing attention as a strategy to reduce disposal costs and create added value. Recent advances in biotechnology have made it possible to convert agricultural waste into high-value biostimulants capable of enhancing plant resilience, improving nutrient use efficiency, and increasing crop productivity. This approach not only mitigates the environmental impact associated with waste accumulation but also contributes to the development of new value chains, transforming residues into economically relevant resources.
In this context, waste valorization represents a key lever for improving the sustainability and profitability of the agri-food sector, supporting the transition toward circular economy models and more resilient agricultural systems.

**Evaluation**: YES, multiple-choice test