# Course for Ph.D. Students
# XLII cycle (1st Nov 2026 – 31st Oct 2029)

## Curriculum
## PRODUCTS FOR THE FOOD AND HEALTH MARKETS

### *Set up and conduction of fermentation processes: focusing on the control of process parameters* (1 ECTS)

**Prof. Lorenzo Bertin**
UNIVERSITY OF PARMA

Course language: English

Scheduling:

| Date and Time | Topics |
|---|---|
| 07/06/2027<br>10:00-13:00 | Upstream stages (microbial inoculum preparation), set up and conduction of the biotechnological process in conventional fermenters and related monitoring approaches to evaluate process performance |
| 08/06/2027<br>10:00-11:30 | Laboratory practical activity dedicated to start up the fermentation process in a bench scale bioreactor |
| 10/06/2027<br>10:00-11:30 | Laboratory practical activity dedicated to follow and conclude the fomentation process, and to discuss data achieved |

*To attend the course please contact:*
**Prof. Lorenzo Bertin (lorenzo.bertin@unipr.it)**

**Course description**
The course aims at describing and showing the typical stages by which a fermentation process is carried out at the laboratory bench scale. To this aim, three single lessons will be held and organized as follows:

- lesson 1: frontal lesson dedicated to discuss the upstream stages (microbial inoculum preparation), the set up and conduction of the biotechnological process in conventional fermenters, and the related monitoring approaches to evaluate process performance;
- lesson 2: laboratory practical activity dedicated to start up the fermentation process in a bench scale bioreactor;
- lesson 3: laboratory practical activity dedicated to follow and conclude the fomentation process, and to discuss data achieved.

The microorganism that will be employed and the target biotechnological process will possibly depend on ongoing research activities.

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