Syllabus
Course description

Course title	Meta-omics approaches to study the food fermentations
Course code	46028
Scientific sector	AGR16
Degree	PhD in Food Engineering and Biotechnology
Semester	2
Year	1
Academic year	2021/2022
Credits	3
Modular	NO

Total lecturing hours	30

Specific educational objectives	*This course provides several examples, in term of case studies, of how omics technologies can elucidate microbial dynamics during a fermentation process.* *The course consists of one module of 30 hours of frontal lectures.* *The cases of studies regard the use of omics to understand the assembly of food microbial consortia and their functionality.* *The course has the educational objective to address the students to manage with the omics and in particular with the basic operating principles.*

Lecturer	Prof. Marco Gobbetti
Scientific sector of the lecturer	AGR/16
Teaching language	English
Office hours	From Monday to Thursday, on appointment
List of topics covered	Introduction to omics approaches; Metagenomics and case studies; Phenomics (Use of Omnilog microarray) and case studies; Proteomics and case studies; Metabolomics and case studies; Transcriptomics and case studies.
Teaching format	Teaching activities consist of lectures, explaining the theoretical concepts of the course and a number of case studies have carried out. The course is presented in digital format. Presentations and scientific papers used during the course are provided to students.

Learning outcomes	**Knowledge and understanding** of the omics approaches to investigate the food fermentations. **Applying knowledge and understanding** through the capacity to achieve information, which enable to manage the principles of the omics used for manage the food fermentations. **Making judgments** through the practical and theoretical knowledge achieved during the course. **Communication skills** to present knowledge with a language pertinent to this specific field. **Learning skills** to manage within the basic concepts of omics approaches applied to the food fermentations.
Assessment	The assessment of the student preparation is through an oral exam. The oral assessment includes: (i) the presentation, by the students, of a scientific work related to the topics of the course, (ii) questions to assess the knowledge and understanding of the course topics, and (iii) questions designed to assess the ability to transfer these skills to case studies.
Assessment language	English
Evaluation criteria and criteria for awarding marks	**Criteria:** clarity of the answers and lexical appropriateness, synthesis capacity, pertinence of the treated topics and capacity of elaboration.

Required readings	OMICs Technologies: Tools for Food Science, edited by CRC Press; 1 edition (27 Jan. 2012).
Supplementary readings	Novel Omics Technologies in Food Nutrition. Debasis Bagchi, Anand Swaroop and Manashi Bagchi Xuewu Zhang, Lijun You andKaijun Xiao. 2015. DOI: 10.1002/9781118930458.ch1