General Information	
Academic subject	Food Microbiology
Degree course	Master's degree: Food Science and Technology
ECTS credits	6 ECTS
Compulsory attendance	No
Teaching language	Italian

Subject teacher	Name Surname	Mail address	SSD
	Mirco Vacca	mirco.vacca@uniba.it	AGR/16

ECTS credits details		
Basic teaching activities	5 ECTS Lectures	1 ECTS Laboratory or field class

Class schedule	
Period	Second semester
Course year	First
Type of class	Lecture - workshops

Time management	
Hours	150
In-class study hours	54
Out-of-class study hours	96

Academic calendar	
Class begins	March 1st, 2022
Class ends	June 17th, 2022

Syllabus	
Prerequisites/requirements	Principles of biochemistry and fermented food microbiology
Expected learning outcomes	*Knowledge and understanding* o Knowledge with main industrial requirements from livestock and of fermented vegetable foods o Capacity to identify strategies to develop a microbiological process choosing the microorganism suitable for obtaining a defined metabolite *Applying knowledge and understanding* o Skill to apply a systemic approach to solve problems in food industry by selected starter microorganisms, even to obtain specific metabolites *Making informed judgements and choices* o Correctly advising solutions to work in food industry and to solve problems in the field of sensory, nutritional, and hygienic properties of food in livestock-derived food processing industries and in vegetable food industry *Communicating knowledge and understanding* o Describing microbiological problems commonly found in food processing industries *Capacities to continue learning* o Updating the knowledge concerning the advanced microbiological methods applied to improve microbiological food quality o Skill to process original ideas about specific industry contexts The expected learning outcomes, in terms of both knowledge and skills, are provided in Annex A of the Academic Regulations of the master's degree in Food Science and Technology (expressed through the European Descriptors of the qualification)

Contents	• Endogenous milk enzymes and their pro-technological significance • Purification, characterization, and use of microbial enzymes in dairy processing • Use of adjunct starters in dairy industry • Biotechnology and methods for cheese characterization: case studies • Biopreservation of leavened baked goods, sourdough, and gluten intolerance: case studies. • Gut microbiota and diet • Quorum-sensing and food-related microorganisms.
Course program	
Reference books	• Lecture notes and educational supplies provided during the course • Lecture notes and educational supplies will be available at the Food microbiology section. • Scientific reviews. • V. Bottazzi. Microbiologia lattiero-casearia, Edagricole. • C.A. Batt e P.D. Patel. Encyclopedia of Food Microbiology, Academic Press. • M. Vincenzini, P. Romano e G.A. Farris. Microbiologia del Vino, Casa Editrice Ambrosiana. • P.F. Fox, P.L.H. McSweeney, T.M. Cogan e T.P. Guinee. Cheese Chemistry, Physics and microbiology, Terza Edizione, Elsevier Academic Press. • Wood, B.J.B. Microbiology of Fermented Foods. 2.a ed. Glascow: Blackie Academic &Professional (1998). • Jay, J.M. Modern Food Microbiology. 5.a ed. London: Chapman & Hall International Thomson Publishing (1997). • De Felip, G. Recenti Sviluppi di Igiene e Microbiologia degli Alimenti. Milano: Tecniche Nuove (2001). • M. Gobbetti, A. Corsetti (Ed.). Biotecnologia dei prodotti lievitati da forno. Casa Editrice Ambrosiana. (2010).
Notes	
Teaching methods	Lectures will be presented through PC assisted tools (PowerPoint, video) and field and laboratory classes. The teaching contents will be supported by the presentation of case studies. Lecture notes and educational supplies will be provided by means of a mailing list or online platforms (i.e.: Edmodo, Google Drive, M-Teams)
Evaluation methods	The exam consists in an oral dissertation on the topics developed during the theoretical and theoretical-practical lectures in the classroom and in the laboratory/production plants, as reported in the Academic Regulations for the master's degree in Food Science and Technology (article 9) and in the study plan (Annex A). Students attending at the lectures may have a middle-term preliminary exam, consisting of an oral test, relative to the first part of the program, which will be consider for the final evaluation with a maximum validity of a year. The evaluation of the student preparation will be based on established criteria, as detailed in Annex B of the Academic Regulations for the master's degree in Food Science and Technology. Non-Italian students may be examined in English language, according to the aforesaid procedures.
Evaluation criteria	*Knowledge and understanding* o Describing applied or study cases related to the main industrial problems for the characterization, management, and conditioning of the sensory, nutritional and hygienic quality of fermented foods

	Applying knowledge and understanding o Describing the main strategies to use microorganisms in food related process *Making informed judgements and choices* o Expressing reasonable hypotheses about solutions related to innovation in the agri-food sector and to solve new issues *Communicating knowledge and understanding* o Expressing reasonable hypotheses by clearly expressing the underlying arguments *Capacities to continue learning* o Draw with technical and scientific rigor innovative and original pathways that employ microorganisms both to tackle existing issues and to develop new ideas for resolving food industry issues
Receiving times	From Monday to Thursday 9.00 a.m. – 18.30 p.m. by appointment only